

# The Effectiveness of a Mental Health Court in Reducing Recidivism in Individuals with Severe Mental Illness and Comorbid Substance Use Disorder

Amanda E. Gallagher<sup>1</sup> · Joye C. Anestis<sup>2</sup> · Emily D. Gottfried<sup>3</sup> · Joyce L. Carbonell<sup>4</sup>

Received: 14 November 2016 / Accepted: 30 October 2017 / Published online: 4 December 2017  
© Springer Science+Business Media, LLC, part of Springer Nature 2017

**Abstract** The current study examined the efficacy of a specialized mental health court in reducing recidivism for severely mentally ill defendants with comorbid substance use disorders. There is a wealth of research supporting the efficacy of mental health courts in reducing recidivism for those with severe mental illness; however, the benefit of these courts for individuals with severe mental illness and comorbid substance use disorders has received limited empirical attention. Participants were 514 defendants enrolled in either a traditional adversarial court or a specialized mental health court. Recidivism was assessed across different outcome variables, including frequency of reoffending, severity of new offenses, and length of time to reoffend. When compared to participants in the traditional adversarial court, enrollment in mental health court was associated with a greater length of time to rearrest and fewer participants were rearrested in the mental health court than the traditional court. Group differences between those with and without comorbid substance use disorders who were

enrolled in the mental health court were not found across recidivism outcome metrics. Results of the current study are particularly promising given that defendants with substance use disorders are at a greater risk for reoffending.

**Keywords** Mental health court · Substance use disorders · Recidivism · Diversion programs

In an effort to halt the cycle of reoffending, and keep mentally ill individuals out of jails and prisons, specialized mental health courts (MHCs) have cropped up across the United States. MHCs often provide close supervision and treatment, rather than incarceration, for individuals with severe mental illness and there is a growing body of research indicating that such courts are successful in reducing criminal recidivism (Costopoulos & Wellman, 2017; Lowder, Desmarais, & Baucom, 2016; Anestis & Carbonell, 2014; Burns, Hiday, & Ray, 2012; Dirks-Linhorst & Linhorst, 2012; Herinckx, Swart, Ama, Dolezal, & King, 2005; Hiday & Ray, 2010; Hiday, Ray, & Wales, 2014; McNiel & Binder, 2007; Moore & Hiday, 2006; Steadman, Redlich, Callahan, Robbins, & Vesselinov, 2011). However, there is a dearth of research examining the impact of MHCs on those with mental illness and concurrent substance use disorders (SUDs). This is of concern given these individuals have been shown to be particularly prone to legal problems, and substance use has been shown to predict reoffending above and beyond mental illness alone (Bonta, Law, & Hanson, 1998; Swartz & Lurigio, 2007). The current study examines the effectiveness of MHCs in reducing recidivism in offenders with severe mental illness and comorbid SUDs, a population shown to be at increased risk for reoffending.

---

✉ Amanda E. Gallagher  
agallag@tulane.edu

<sup>1</sup> Department of Psychiatry and Behavioral Sciences, Tulane University School of Medicine, 1440 Canal Street #8448, New Orleans, LA 70112, USA

<sup>2</sup> Department of Psychology, University of Southern Mississippi, 118 College Drive #5025, Hattiesburg, MS 39401, USA

<sup>3</sup> Department of Psychiatry and Behavioral Sciences, Community and Public Safety Psychiatry Division, Medical University of South Carolina, 29-C Leinbach Drive, Charleston, SC 29407, USA

<sup>4</sup> Department of Psychology, Florida State University, 1107 West Call Street, Tallahassee, FL 32304, USA

## Mental Illness, Substance Use, and Offending

Woody and Blaine (1979), the first to draw attention to the relationship between SUDs and mental health problems, found a distinct correlation between drug use and mental illness. Since then, several epidemiological studies have reported high prevalence rates for individuals with mental illness and comorbid SUDs. Previous studies estimate that 15 to 35% of individuals with a mood disorder, anxiety disorder, or severe mental illness also met diagnostic criteria for a SUD (Grant et al., 2004 & Mueser, Bennett, & Kushner, 1995). Additionally, the rate of substance abuse among individuals involved in the criminal justice system is strikingly high, with approximately 50% of federal inmates and one-third of state inmates reporting drug use in the month prior to their offense or at the time of their offense (Mumola & Karberg, 2006). Further, 53% of state and 45% of federal prisoners have been reported to meet the *DSM-IV* criteria for drug dependence or abuse (Mumola & Karberg, 2006). Survey and urinalysis results in community correctional programs have demonstrated that more than 75% of offenders have recently used drugs/alcohol and 80% of individuals arrested on drug-related charges (possession/sales) test positive for illicit substances (Schneider Institute for Health Policy at Brandeis University, 2001).

The prevalence of mental illness and comorbid SUDs within forensic populations is also high. Roughly 42% of inmates in state prisons (28% of federal inmates) meet the criteria for a mental illness and comorbid SUD (James & Glaze, 2006). Teplin (1990) argues that lack of services for those with SUDs and comorbid serious mental illness leads to law enforcement officials taking these individuals to jail, rather than a psychiatric facility. In a meta-analysis by Bonta et al. (1998), substance abuse was found to predict recidivism above and beyond mental illness alone. Swartz and Lurigio (2007) conducted a large-scale study examining the relationship between severe mental illness and arrest. In their study, they found that the relationship between severe mental illness and arrest could be largely attributed to the mediating effect of substance use. Interestingly, participants who had a severe mental illness and did not use drugs or alcohol were not at an increased risk for arrest. Clearly, consideration of both the needs and the outcomes of those suffering from co-occurring mental illness and substance use is critical to better serving this subpopulation within the criminal justice system.

## MHC Specialized Courts Outcomes and Comorbid Disorders

In the USA, post-arrest diversion programs have emerged to address the problem of chronic or repeat offending among specific types of offenders (e.g., veterans), including the

creation of specialty courts. In the case of mental illness and substance use, drug courts and MHCs have been established to specifically address the unique problems for substance using and mentally ill offenders, respectively. Unlike traditional adversarial courts, which aim to prosecute and incarcerate offenders, specialty courts offer an alternative to repeatedly incarcerating offenders with mental illness and/or substance use problems. Within these courts, an offender's substance use and/or mental illness is considered to be a contributing factor to their criminal behavior. Thus, instead of continuing to convict and incarcerate these individuals, specialty courts attempt to address underlying issues (e.g., substance abuse, mental illness) that perhaps contribute to the likelihood of an individual reoffending.

As previously stated, MHCs are effective in reducing reoffending for those with mental illness; however, there is very little research on the effectiveness of specialty courts in reducing recidivism for those with mental illnesses and comorbid SUDs. Callahan (2011) argues that co-occurring SUDs are often overlooked within the specialty court literature, and research on the effects of MHCs for individuals with co-occurring SUDs is lacking. Many programs aimed at helping such offenders are drug courts that accept people with co-occurring conditions, but only if they have committed a drug charge. Drug courts, which have been studied more extensively than any other specialty court, have been found to significantly reduce substance use and crime (e.g., Belenko, 2002; Gottfredson, Najaka, & Kearley, 2003). While it is well established that drug courts reduce re-offending for those with substance use disorders, these courts generally fail to meet the needs (e.g., lack of psychiatric services) of those with co-occurring mental illness and substance use disorders. Denckla and Berman (2001) state that drug court judges have found those with comorbid substance use disorders to be harder to place in treatment. Peters and Osher (2004) suggest that some drug courts even attempt to screen out these defendants during the admission process, which includes discharging individuals from the court who are taking psychiatric medication. This practice is troublesome due to the fact that co-occurring mental illness and drug use is associated with an increased risk for re-offending.

Another area of concern is that few mental health courts even screen for co-occurring disorders, and defendants with comorbid SUDs are, or are perceived to be, less likely to comply with the conditions of the court (Callahan, 2011). Understanding the impact of MHC on those with co-occurring disorders is an important area of research given that those with such conditions are at greater risk for repeatedly coming in contact with the legal system.

Only a handful of MHC studies have considered the impact of substance use on court/recidivism outcomes. Hiday et al. (2014) recently examined predictors of successful MHC graduation/completion and found that individuals with drug-

related charges were less likely to graduate from the program compared to those with non-drug-related charges. The authors also found that non-graduates produced more than double the number of positive drug test results, indicating that those with substance use problems were less likely to succeed in the program; however, promising results for those with SUDs were found in that having a SUD did not preclude graduation for participants. Specifically, two-fifths of those with drug offenses and 37.1% of those with positive drug tests were still able to successfully graduate from the court.

Burns et al. (2012) examined the lasting benefits of a MHC two years after individuals exited the court. Results indicated that graduates of the MHC had a substantially lower rate of reoffending (24.6%) than rates reported for traditional adversarial court populations in other studies (McNiel & Binder, 2007; Moore & Hiday, 2006; Steadman et al., 2011); however, the authors noted that the sample had a low graduation rate overall (43.4%) which they attributed to the high rate of substance use problems among the participants in the study (83.1%).

Cosden, Ellens, Schnell, Yamini-Diouf, and Wolfe (2003) used repeated measures analysis of variance (ANOVA) to examine differences between participants randomly assigned to either a MHC or traditional court. Significant differences were found between the two groups at 12-month follow-up on a number of factors, including the finding that MHC enrollment led to a reduction in substance abuse, as indicated by participants' responses on self-report measures. Later, Cosden, Ellens, Schnell, and Yamini-Diouf (2005) re-examined the same court at 24-month follow-up. Results indicated that the MHC group had fewer jail days when compared to the comparison group; however, these differences were not statistically significant. The authors attributed these results to procedural changes within the court that involved also assisting participants in the traditional court in obtaining services (e.g., case management) similar to what the mental health defendants were receiving. Interestingly, the majority of participants (83%) in this study were described as having a "dual diagnosis" (i.e., mental illness and comorbid substance use disorder).

McNiel and Binder (2007) used intent-to-treat survival analysis to examine the effects of a San Francisco MHC on length of time to rearrest for participants. Results from the survival analysis indicated that MHC participation predicted a longer time until a new charge was acquired as well as a longer time to a new violent charge. Graduates of the MHC also had a longer time before new charges and new violent charges, than those in a traditional adversarial court. While this study provided data on the presence of SUDs among participants, less than 20% of participants in the traditional court group had an SUD and the authors did not discuss how the court impacted recidivism for these individuals. The authors did, however, note that more research is needed to determine defendant characteristics (e.g., substance use

disorders) that may lead to more or less favorable outcomes. Dirks-Linhorst and Linhorst (2012) also examined the impact of a MHC on length of time to rearrest and found that those who graduated from the court took longer to reoffend compared to those who did not participate in the program. Substance use problems were found to increase the risk of rearrest, even for those who graduated from the program.

Due to the increased likelihood of reoffending for those with a mental illness and concurrent SUDs, the limited empirical attention regarding the impact of MHCs on recidivism within this group is concerning. Given that there is some empirical evidence to suggest that MHCs may benefit those with comorbid SUDs, research should examine the impact of MHCs on reducing reoffending among such individuals before deeming them inappropriate for the court or referring them outside the court.

## Present Study

The impact of MHC on individuals with comorbid SUDs was the primary focus of this study. Previous research in the same MHC found MHC assignment predicted an overall lower rate of recidivism and a longer time to rearrest for a new charge, but not severity of rearrest, when compared to mentally ill offenders assigned to traditional court (Anestis & Carbonell, 2014). Further, this pattern of results held when looking at categories of offenses (felony, misdemeanor, violent, nonviolent). Within subjects, analyses also indicated improvements in reoffending, with the exception of rearrest severity, which was higher post-MHC (Anestis & Carbonell, 2014). The present study focuses primarily on individuals with comorbid SUDs. It was predicted that MHC participants with SUDs would have better recidivism outcomes compared to traditional court participants with SUDs. MHC participants with comorbid SUDs were also predicted to have significantly more offenses in the 12-month pre-MHC entry than the 12-month post MHC entry. When comparing MHC participants with and without SUDs, those with SUDs were predicted to have poorer outcomes relative to those without SUDs.

## Methods

### Participants

Participants in this study were male and female defendants assigned to either an MHC or traditional court, both having operated in the same county. All participants were charged with misdemeanors and/or felonies. All participants were diagnosed with a mental illness, including mood and psychotic disorders. At the start of the MHC, there were over 600 mentally ill people in the court system, which greatly exceeded the

35 initial slots that were on the MHC docket. Those in the court system that were not placed in the MHC, due to lack of room on the docket, were assigned to a trial division (traditional adversarial court) for practical reasons. Additionally, participants were excluded from the MHC for Capital Sexual Battery and Murder offenses. Other participants may have opted-out of the MHC, so they could proceed to trial in traditional court, rather than participate in the MHC, which mandated treatment and supervision. It should be noted that many participants were reportedly unaware that they were permitted to opt-out of the court. Unfortunately, due to budgeting issues, the court never recorded data on those who deliberately opted-out of the court, but court personnel reported this number to be very low.

This study examined three groups of participants. One group was comprised of mentally ill participants without comorbid SUDs who were enrolled in the MHC (MHC/MI). The second group included participants with comorbid SUDs who were enrolled in the MHC (MHC/SUD). The third group included participants with comorbid SUDs who were enrolled in the traditional court (Traditional/SUD). Descriptive information for the three individual groups of interest (i.e., Traditional/SUD, MHC/SUD, and MHC/MI) are presented in Table 1.

On the whole, participants were largely male (72–75%) and were classified as belonging to an ethnic/racial minority group (53–64%). Across groups, participants were in their late 30s at the time of index offense ( $m_{\text{age}}$  range = 35.77–39.01), and the groups were evenly split in terms of felony (44–53%) versus misdemeanor charges (47–56%). In the two SUD groups, polysubstance use was the most common classification (28–33%), followed by alcohol use disorder (26–27%).

Because participants were not randomly assigned to groups, between groups comparisons on demographic variables were conducted using chi-square tests or analysis of variance (ANOVAs). Between groups comparisons between the MHC/SUD and Traditional/SUD groups revealed that the groups did not differ for age, gender, race/ethnicity, substance use disorder, mental health diagnosis, or severity of index offense. Significant groups differences were present for average number of lifetime arrests ( $F(1257) = 5.71, p = 0.017$ ) and number of arrests twelve-month pre-court enrollment ( $F(1257) = 5.61, p = 0.019$ ), in that those in the traditional/SUD group had higher means for both variables compared to those in the MHC/SUD group.

When comparing the MHC/SUD and MHC/MI groups, participants did not differ statistically for age, gender, race, number of arrests twelve months prior to index offense, severity of index offense, or average number of lifetime arrests. Significant differences between groups were found for depressive disorder diagnosis ( $\chi^2(1) = 5.41, p = .020$ ) and cognitive disorder diagnosis ( $\chi^2(1) = 10.06, p = .002$ ) such that there was a larger proportion of MHC/SUD participants with a depressive disorder diagnosis and/or cognitive disorder

diagnosis than the MHC/MI participants. Groups also differed in terms of category of offense; as would be expected, those in the MHC/SUD group had significantly more drug offenses than those in the MHC/MI group,  $\chi^2(15) = 95.6, p < .001$ .

### Treatment Model

The MHC examined within this study was designed to divert individuals out of the criminal justice system and into the community. The court adopted a problem-solving approach, in which its primary focus was to facilitate access to various services. It incorporated frequent hearings, and sanctions (e.g., jail time) were utilized when individuals did not adhere to the program. Unfortunately, data regarding sanctions and hearings were unable to be obtained due to financial limitations. Due to these limitations, an intent-to-treat approach was utilized, in which participant outcome data were examined regardless of adherence to the program. Specifically, recidivism was tracked from the time a participant entered the MHC until one-year post-entry, regardless of their success or failure within the court.

### Procedures

Data collection for this project commenced in 2008, at the time the MHC began operating. Data were obtained from several sources, including the Justice Information System (JIS), a part of the court Management Information System (MIS), and participant files. Record of arrests and prosecutions (RAP) sheets provided information on criminal history (e.g., offense type and offense dates) for all participants in this study. JIS and MIS databases also provided information regarding criminal history, as well as court assignment, demographic variables, and diagnostic information. Many participants had missing mental health data in JIS because the court lacked the funding and staff to track and enter such information and approximately 400 participant files were searched through by hand in order to obtain missing diagnostic data from psychological reports.

The Board of County Commissioners in the county in which both courts were operating granted access to these court records. Data in this study are considered public record; therefore, obtaining informed consent was not required. Court officials and the university's Institutional Review Board (IRB) approved the study.

### Variables/Measures

**Demographic Variables** Age, race/ethnicity, and gender were obtained for all participants. Age was determined based on the age of the participant at the time they entered the study (i.e., time of their index offense). Race was coded as White or racial/ethnic minority, as the court generally only recognized

**Table 1** Full dataset: demographic information and group comparisons

Demographic	MHC/SUD (n = 157)		Traditional/ SUD (n = 102)		MHC/MI (n = 255)	
	n	%	n	%	n	%
<b>Gender</b>						
Female	39	25	26	26	72	28
Male	118	75	76	75	183	72
<b>Race/ethnicity</b>						
White	68	43	48	47	92	36
Ethnic/racial minority	89	56	54	53	163	64
<b>Sub. use disorder</b>						
Alcohol	42	27	26	26	–	–
Cannabis	13	8	11	11	–	–
Opioid	4	3	4	4	–	–
Cocaine	31	20	16	16	–	–
Polysubstance	51	33	28	28	–	–
Substance NOS	16	10	17	17	–	–
<b>Mental disorder</b>						
Intellectual disability	4	3	3	3	8	3
Depressive disorder	37	24 <sup>a</sup>	22	22	37	15 <sup>a</sup>
Bipolar disorder	42	27	20	20	69	27
Psychotic disorder	68	43	53	52	132	52
Anxiety disorder	7	5	7	7	19	8
Cognitive disorder	8	5 <sup>b</sup>	1	1	1	0 <sup>b</sup>
Personality disorder	4	3	3	3	5	2
Two or more disorders	13	8	7	7	18	7
<b>Index type</b>						
Misdemeanor	80	51	48	47	143	56
Felony	77	49	54	53	112	44
<b>Index category</b>						
Theft	12	7.6	9	8.8	37	14.5
Robbery	12	7.6	8	7.8	18	7.1
Drug offense	43 <sup>c</sup>	27.4	28	27.5	0 <sup>c</sup>	0
Assault/battery	26	16.6	18	17.6	61	23.9
Murder	0	0	2	2.0	1	.4
Weapons	2	1.3	1	1.0	10	3.9
Driving	21	13.4	19	18.6	18	7.1
Fraud	3	1.9	2	2.0	7	2.7
Obstruction	10	6.4	6	5.9	30	11.8
Sex offense	4	2.5	3	2.9	6	2.4
Child abuse/neglect	2	1.3	0	0	2	8
Miscellaneous	21	13.4	6	5.9	56	22.0
Escape	0	0	0	0	1	.4
Kidnapping	0	0	0	0	4	1.6
Arson	0	0	0	0	3	1.2
Misuse public office	1	.6	0	0	1	.4
	M	SD	M	SD	M	SD
Age at index offense	39.01	11.88	37.47	12.19	35.77	12.10

**Table 1** (continued)

Demographic	MHC/SUD (n = 157)		Traditional/ SUD (n = 102)		MHC/MI (n = 255)	
	n	%	n	%	n	%
Lifetime arrests	0.15 <sup>d</sup>	0.40	0.06 <sup>d</sup>	0.12	0.15	0.34
Arrests 12-mos. pre-index	0.48 <sup>e</sup>	0.86	0.25 <sup>e</sup>	0.50	0.45	0.92
Index severity	4.89	2.81	5.14	2.97	5.16	3.17

a, b, c, d, e *p* < .05

individuals as White or non-White, with the exception of one defendant who was reported to be Asian/Pacific Islander. Gender was coded as male or female.

**Mental Health and Substance Use Variables** The following categories for mental health diagnoses were examined within this study: Anxiety Disorder, Bipolar Disorder, Cognitive Disorder, Major Depressive Disorder, Psychotic Disorder, and Personality Disorder. All diagnoses were determined by licensed psychiatrists. Each diagnosis was dichotomously coded, indicating the presence or absence of such diagnosis. This allowed for individuals to have more than one diagnosis entered into analyses. A “multiple diagnoses” variable was also dichotomously coded.

The absence or presence of each of the following categories for substance use were examined: Alcohol Abuse/Dependence, Cannabis Abuse/Dependence, Cocaine Abuse/Dependence, Opioid Use/Dependence, Polysubstance Abuse/Dependence, and Substance Use Disorder Not Otherwise Specified (NOS).

**Criminal Offending Variables** Recidivism was measured in terms of frequency and severity of rearrest, as well as length of time until rearrest. Rearrest was defined as the first arrest that occurred in the twelve-month period following the index arrest. The index arrest was the arrest that resulted in enrollment in the MHC. Total number of rearrests post-index offense was defined as a simple count of the total number of rearrests, including multiple rearrests and not just an individual’s first rearrest, that occurred during the twelve-month period following the index offense. Total number of participants to reoffend was determined by simply counting the total number of participants who were rearrested at least one time. Severity of arrest (index arrest and rearrest) was based on the sentencing guidelines of the state of Florida (Criminal Punishment Code 2010). Felony and misdemeanor offenses were classified along a 13-point rating scale, with minor crimes (e.g., traffic violations) coded as one and the most serious crimes (e.g., Kidnapping, inflict bodily harm upon or terrorize victim) coded as 13. In cases where there was more than one offense associated with an individual arrest, only the most serious

offense was coded. Length of time to reoffend was defined as the total number of days from the date of a participant's index arrest to the date of the first rearrest.

Several criminal offending variables for pre-court/pre-study enrollment were also examined. A lifetime arrest history variable was constructed by adding the total number of arrests from a participant's very first known arrest to their index arrest, divided by the number of months since the first known arrest. This procedure was used instead of a simple count of lifetime arrests in order to control for age (i.e., older participants could potentially have higher counts of rearrests simply due to having more years to offend). Severity of arrest was also determined for index and rearrest and based on the state of Florida sentencing guidelines (i.e., Criminal Punishment Code, 2010). Total number of arrests twelve months pre-index offense was also examined.

### Data Analytic Strategy

For between-subjects comparisons, survival analysis, a type of statistical technique used to model time-to-event, such as death, illness relapse, or recidivism (Jager, Van Dijk, Zoccali, & Dekker, 2008), was performed in order to examine group differences in length of time to rearrest. Logistic regression analyses were performed in order to examine group differences on frequency and severity of rearrest. A chi-square test was conducted to examine group differences in number of participants who did or did not reoffend at least one time during the twelve months in which they were being observed. *T* tests examined within-subjects differences in severity and frequency of offending pre- and post-MHC enrollment.

Prior to comparisons between the MHC/SUD and Traditional/SUD groups, propensity matching was used to control for nonrandom assignment (Rosenbaum & Rubin, 1983), as assignment to traditional court or MHC was haphazard and based on docket availability. Non-treatment-related variables (i.e., index arrest severity, lifetime arrest history, number of arrests twelve-months pre-index offense, mental health diagnosis, substance use disorder diagnosis, age, sex, and race) that could potentially impact results were controlled for by propensity matching procedures. Participants were matched on propensity scores using a "nearest-neighbor" matching technique. Once data were successfully matched, the survival analysis was performed. Life tables were constructed to provide descriptive information on the survival times for the sample by group membership and the proportion of individuals who did or did not re-offend (Tabachnick & Fidell, 2001). Kaplan-Meier survival curves were constructed to test group differences in survival probability. Cox regressions were performed to examine the impact of court membership on length of time to rearrest while controlling for covariates.

For the survival analysis, the dependent variable was the number of days between index arrest and re-arrest. The

independent variable was group membership (MHC/SUD or traditional /SUD). Non-treatment covariates included sex, age, race, severity of index offense, average number of lifetime arrests, substance use disorder diagnosis, and mental health diagnosis.

Logistic regression analyses were conducted to examine group differences in mean number of rearrests, post-index offense, and rearrest severity for those in the MHC/SUD and Traditional/SUD groups. Independent samples *t* tests were also used to compare groups on severity of rearrest and number of rearrests following index offense. A Bonferroni correction was applied. Chi-square test was performed to examine group differences in terms of the number of participants arrested at least one time in the twelve months in which they were being tracked, post-index offense.

The above analyses were repeated in order to examine differences across recidivism outcomes for MHC/SUD and MHC/MI groups. Substance use was omitted as a covariate. Analyses were conducted using the full (non-matched) sample, as non-random assignment was not a concern when examining participants within the same court.

Analyses examining only participants in the MHC utilized the full (non-matched) sample. The above analytic strategy (i.e., cox regression and so on) was repeated to compare outcomes between the MHC/SUD and MHC/MI groups. Covariates remained the same, except that substance use was omitted as a covariate. Analyses were conducted using the full (non-matched) sample, as non-random assignment was not a concern when examining participants within the same court. Finally, paired sample *t* tests were performed to examine within-group differences for the MHC/SUD group in terms of severity of index offense, severity of rearrest, and mean number of arrests twelve-months pre- and post-court enrollment.

## Results

### Examining the Success of Matching Procedures

After propensity matching procedures were applied, a total of 100 participants remained in both the MHC/SUD and Traditional/SUD groups. To test the success of matching procedures, group differences were examined for the variables on which they were matched (i.e., index severity, average number of lifetime arrests, number of arrests twelve-months pre-enrollment, gender, race, substance use, and mental health diagnosis). ANOVAs were conducted for the continuous variables. Chi-square tests were conducted for the categorical variables. Results yielded no remaining significant differences between the MHC/SUD and Traditional/SUD groups on any of the matching variables, indicating that matching was successful.

Percentages and frequencies regarding demographic information for matched participants are presented in Table 2.

### MHC/SUD vs. Traditional/SUD

Analyses within this subsection compared participants in the MHC/SUD and Traditional/SUD groups. Analyses only included data that were matched using propensity matching procedures.

**Length of Time to Rearrest** A total of 73% ( $n = 73$ ) of the data for the Traditional/SUD group was censored (i.e., the participants lasted the full 365 days without being rearrested), while 90% ( $n = 90$ ) of the data in the MHC/SUD group was censored. The average survival time for the traditional court group was 297.59 days ( $SE = 12.28$ ). The average survival time for the MHC group was 346.35 days ( $SE = 6.38$ ). No median time could be calculated for either group since there was no point in which 50% of the participants in either group had been rearrested. Log rank, Breslow, and Tarone-Ware tests showed significant differences between groups in terms of length of time until rearrest (log rank:  $\chi^2(1) = 10.08$ ,  $p = .001$ ; Breslow:  $\chi^2(1) = 10.55$ ,  $p = .001$ ; Tarone-Ware:  $\chi^2(1) = 10.32$ ,  $p = .001$ ). Those in the MHC/SUD group displayed a much higher number of days to rearrest compared to those in the Traditional/SUD group (Traditional/SUD = 297.59; MHC/SUD = 346.35). Fig. 1 illustrates the differences in survival functions by groups.

Cox proportional hazard regression was performed to assess the effects of multiple covariates on survival, or length of time to reoffend, for groups. The addition of court group (MHC or Traditional) significantly improved the model  $\Delta\chi^2(1) = 12.03$ ,  $p = .001$ ; however, the overall model did not reach significance,  $\chi^2(14) = 18.59$ ,  $p = .18$  (See Table 3).

**Rearrest Severity** An independent samples  $t$  test was conducted to assess for differences in severity of rearrest between MHC/SUD and Traditional/SUD groups. Groups did not significantly differ in terms of mean severity of rearrest  $t(198) = 2.33$ ,  $p < .13$ . Logistic regression analyses assessing if group membership predicted rearrest severity while controlling for covariates were not statistically significant. Covariates, as well as group assignment, did not predict severity of rearrest,  $F(14, 23) = 1.50$ ,  $p = .187$ ,  $R^2 = .49$ . Results are presented in Table 4.

**Frequency of Rearrest** An independent samples  $t$  test was conducted to assess for differences in total number of rearrests post-index offense between MHC/SUD and Traditional/SUD groups. Groups did not significantly differ in terms of mean number of rearrests,  $t(198) = 2.33$ ,  $p = .13$ . Groups were also examined using a chi-square test to assess group differences in the number of participants who were rearrested at least one time during the course of the twelve months in which they

were tracked. Groups differed in that a significantly greater number of participants in the Traditional/SUDs group reoffended (27%) at least one time compared to those in the MHC group (10%);  $\chi^2(1) = 9.58$ ,  $p < .005$  (See Table 2).

Logistic regression analyses were conducted to assess if group membership predicted frequency, or total number or rearrests, while controlling for covariates. There were 37 rearrests across both groups (MHC/SUD rearrests = 10; Traditional/SUD rearrests = 27). Results of the model were not significant in that covariates, as well as group assignment, did not predict total number of rearrests,  $F(14, 23) = .618$ ,  $p = .848$ ,  $R^2 = .05$ . Results are presented in Table 5.

### MHC/MI Vs. MHC/SUD

Analyses within this subsection included unmatched data, as only participants within the MHC were examined and, therefore, non-random court assignment was not of concern.

**Length of Time to Rearrest** Of those enrolled in the MHC, a total of 87% ( $n = 222$ ) of MHC/MI participants and 85% ( $n = 134$ ) of MHC/SUD participants were censored. The average number of days to rearrest was 338.78 ( $SE = 4.89$ ) for the non-comorbid substance use group and 338.08 ( $SE = 6.19$ ) for the comorbid substance use group. Results of the log rank ( $\chi^2(1) = 0.21$ ,  $p = .645$ ), Breslow ( $\chi^2(1) = -0.18$ ,  $p = .668$ ), and Tarone-Ware ( $\chi^2(1) = 0.20$ ,  $p = .657$ ) tests were all non-significant, indicating that there were no differences in the mean number of days to rearrest by the presence of a substance use disorder within the MHC.

A Cox proportional hazard regression assessed if the covariates and substance abuse group predicted days until rearrest. The full model was statistically significant,  $\chi^2(9) = 21.44$ ,  $p = .011$ . Index severity was a significant predictor,  $B = -0.14$ ,  $p = .012$ ,  $\lambda = 0.87$ , suggesting that as index severity increased, the likelihood of being rearrested decreased and the number of days to rearrest increased. Psychotic disorder was a significant predictor of days to rearrest,  $B = -0.92$ ,  $p = .013$ ,  $\lambda = 0.40$ , suggesting that if the participant had a psychotic disorder, the likelihood of being rearrested decreased and the number of days to rearrest increased. No other predictors were significant, including the presence of a substance use disorder,  $B = 0.02$ ,  $p = .949$ ,  $\lambda = 1.02$ . Results of the Cox proportional hazards regression are presented in Table 6.

**Rearrest Severity** Group differences were not found for severity of rearrest between MHC/MI and MHC/SUD groups,  $t(46) = -1.757$ ,  $p = .032$ , (MHC/SUD group:  $M = 5.26$ ,  $SD = 2.95$ ; MHC/MI group:  $M = 3.93$ ,  $SD = 2.28$ ). Logistic regression was conducted to assess if group membership predicted rearrest severity while controlling for covariates. Results of the model were not significant in that covariates, as well as

**Table 2** Matched participants: demographic information and group comparisons

Demographic	Total ( <i>n</i> = 200)		MHC/SUD ( <i>n</i> = 100)		Traditional/SUD ( <i>n</i> = 100)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender						
Female	49	25	25	25	23	23
Male	151	76	75	75	77	77
Race/ethnicity						
White	90	45	48	48	41	41
Non-White	110	55	52	52	59	59
Substance use disorder						
Alcohol	51	25	25	25	26	26
Cannabis	23	11	11	11	12	12
Opioid	6	3	4	4	2	2
Cocaine	32	16	17	17	11	11
Polysubstance	60	30	27	33	27	33
Substance NOS	28	14	17	17	11	11
Mental disorder						
Intellectual disability	6	3	3	3	3	3
Depressive disorder	42	21	22	22	20	20
Bipolar disorder	41	20	20	20	21	21
Psychotic disorder	103	51	51	51	52	52
Anxiety disorder	9	5	7	7	2	2
Cognitive disorder	7	4	1	1	6	6
Personality disorder	6	3	3	3	3	3
Two or more disorders	14	7	7	7	7	7
Index type						
Misdemeanor	103	52	52	52	51	51
Felony	97	49	48	48	49	49
Index category						
Theft	18	9	9	9	9	9
Robbery	14	7	6	6	8	8
Drug offense	56	28	28	28	28	28
Assault/battery	36	18	18	18	18	18
Murder	–	–	–	–	–	–
Weapons	2	1	1	1	1	1
Driving	33	16.5	14	14	19	19
Fraud	5	2.5	3	3	2	2
Obstruction	11	5.5	5	5	6	6
Sex offense	6	3	3	3	3	3
Child abuse/neglect	2	1	2	2	–	–
Miscellaneous	17	8.5	11	11	6	6
Escape	–	–	–	–	–	–
Kidnapping	–	–	–	–	–	–
Arson	–	–	–	–	–	–
Misuse public office	–	–	–	–	–	–
Participants who reoffended by 1 year mark	37	18.50	10	10	27	27
	M	SD	M	SD	M	SD
Age at index offense	37.80	12.14	38.04	12.06	37.55	12.28
Lifetime arrests	5.35	7.11	7.06	8.46	3.63	4.90



**Table 2** (continued)

Demographic	Total ( <i>n</i> = 200)		MHC/SUD ( <i>n</i> = 100)		Traditional/SUD ( <i>n</i> = 100)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Arrests 12-mos. pre-index	0.34	0.65	0.42	0.75	0.26	0.50
Index severity	4.96	2.75	4.95	2.74	4.98	2.78

Note: Following propensity matching, groups no longer statistically differed on any of the above variables

group assignment, did not predict severity of rearrest,  $F(10, 37) = 1.06, p = .427, R^2 = .22$  (See Table 7).

**Frequency of Rearrest** MHC/SUD and MHC/MI groups did not significantly differ in terms of mean number of rearrests,  $t(198) = -.783, p = .434$  (MHC/SUD group:  $M = 0.22, SD = 0.65$ ; MHC/MI group:  $M = 0.18, SD = 0.54$ ). Groups did not differ in terms of the total number of participants who were rearrested at least one time during the course of the twelve months in which they were tracked ( $\chi^2(1) = .24, p = .36$ ) (12.9%, MHC/SUD; 14.6%, MHC/MI). Logistic regression analysis was conducted to assess if group membership predicted frequency, or total number or rearrests, while controlling for covariates. Results of the model were not significant in that covariates, as well as group assignment, did not predict total number of rearrests,  $F(10, 401) = 1.94, p = .060, R^2 = .046$ . Results are presented in Table 7.

**Within-Subjects Comparisons**

**Rearrest Severity** Within-subjects analyses utilized all participants in the MHC with comorbid SUDs (MHC/SUD group).

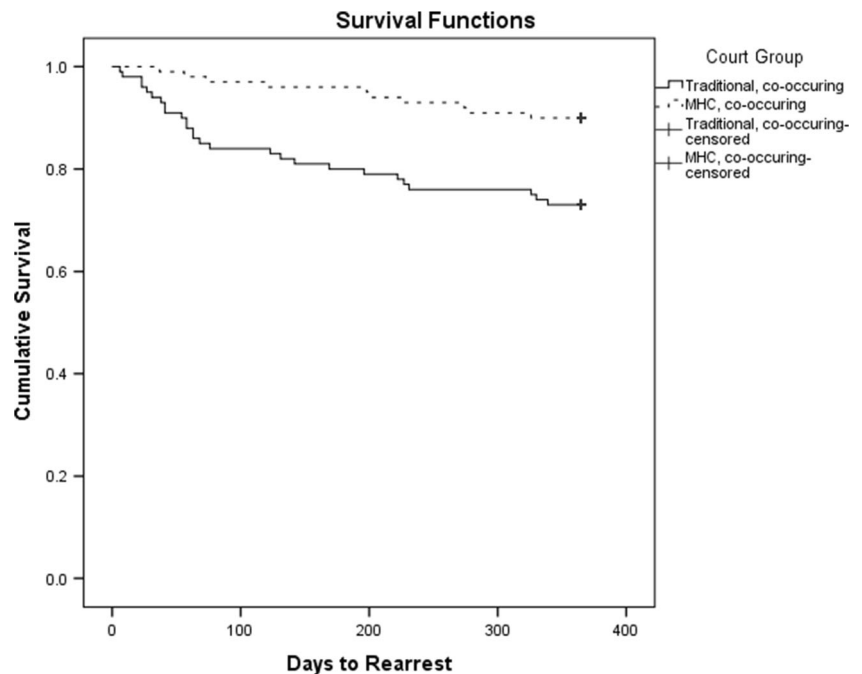
Results are presented in Table 8. A paired sample *t* test was conducted to examine differences for those in the MHC/SUD group in terms of severity of the index arrest compared to the severity of the very first arrest following the index-arrest. Results indicated no significant differences between index offense severity and rearrest severity, ( $t(47) = -.052, p = .604$ ).

**Frequency of Rearrest** A paired sample *t* test was also conducted to assess for differences in pre- and post-MHC arrest totals for all individuals in the MHC/SUD group. A significant difference in number of arrests twelve-month pre- and post-MHC enrollment was revealed, with the number of pre-MHC enrollment arrests ( $M = 0.46, SD = 0.89$ ) being significantly higher than post-MHC arrests ( $M = 0.19, SD = 0.59$ ),  $t(411) = 5.15, p < .001$ . Results are displayed in Table 8.

**Discussion**

The aim of this study was to examine the impact of a MHC on recidivism metrics (i.e., length of time until reoffense, frequency of reoffending, and severity of reoffense) for those

**Fig. 1** Survival functions across days to rearrest by court group (MHC/SUD vs. Traditional/SUD) for matched data



**Table 3** Cox proportional hazards regression with covariates and court group (MHC/SUD vs. Traditional/SUD) predicting days to rearrest

Variable	<i>B</i>	<i>SE</i>	Wald $\chi^2$	<i>p</i>	$\lambda$	95% CI for $\lambda$
Gender	0.66	0.44	2.268	.132	1.94	[0.82, 4.57]
Age	−0.01	0.01	0.02	.877	.10	[0.97, 1.03]
Race (White vs. Non-White)	0.15	0.36	0.16	.690	1.16	[0.57, 2.36]
Index severity	−0.06	0.07	0.84	.360	0.94	[0.82, 1.07]
Frequency of offending	0.16	0.53	0.09	.770	1.17	[0.41, 3.31]
Polysubstance use	−0.39	0.50	0.61	.434	0.68	[0.25, 1.81]
Alcohol	−0.23	0.49	0.22	.638	0.79	[0.30, 2.08]
Cocaine	−0.96	0.63	2.31	.129	0.38	[0.11, 1.32]
Substance NOS	−0.82	0.64	1.63	.201	0.44	[0.13, 1.55]
Depressive disorder	0.11	0.64	0.03	.869	1.11	[0.32, 3.90]
Bipolar disorder	0.62	0.62	1.01	.317	1.87	[0.55, 6.34]
Psychotic disorder	−0.05	0.60	0.01	.932	0.95	[0.29, 3.07]
Two or more disorders	−0.47	0.78	0.36	.548	0.63	[0.14, 2.87]
Court group	−1.24	0.38	10.55	.001	0.29	[0.14, 0.61]

Note: The following mental health diagnoses, or diagnostic categories, were omitted from the analysis due to low counts within each group: intellectual disability (*n* = 3), cognitive disorder (*n* = 1), personality disorder (*n* = 1), anxiety disorder (*n* = 1), presence of two or more disorders (*n* = 7). Cannabis use disorder (*n* = 23) and opioid use disorder (*n* = 6) were also removed due to low counts within each category

with serious mental illness and comorbid SUDs. Differences in outcome data for MHC participants with and without SUDs were also examined.

While MHC enrollment is associated with a number of positive recidivism outcomes (e.g., Anestis & Carbonell, 2014; Burns et al., 2012; Dirks-Linhorst & Linhorst, 2012;

Hiday et al., 2014; McNeil & Binder, 2007), clinical outcomes (Boothroyd, Poythress, McGaha, & Petrila, 2003; Herinckx et al., 2005), and increased access to and use of services (Cosden et al., 2003), there is a shortage of research examining individuals with SUDs within MHCs. This limitation is of particular concern given that research suggests those with

**Table 4** Results for logistic regression with covariates and court group (MHC/SUD vs. Traditional/SUD) predicting rearrest severity

Variable	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Gender	0.31	1.79	0.04	0.18	.863
Age	−0.12	0.04	−0.52	−2.72	.012
Race	0.10	1.18	0.02	−0.72	.493
Index severity	0.17	0.24	0.14	0.69	.497
Frequency of offending	−4.19	2.42	−0.29	−1.73	.098
Polysubstance	−1.01	1.87	−0.15	0.54	.595
Alcohol	−0.98	1.47	−0.15	−0.07	.511
Cocaine	−2.99	1.89	−0.31	−1.58	.128
Substance NOS	−1.01	1.87	−0.13	−0.63	.533
Depressive disorder	−1.63	1.80	−0.14	−0.57	.571
Bipolar disorder	−2.26	2.19	−0.20	−0.61	.549
Psychotic disorder	−0.80	1.81	0.03	0.09	.930
Two or more disorders	0.29	2.30	0.02	0.13	.901

Note: The following mental health diagnoses, or diagnostic categories, were omitted from the analysis due to low counts within each group: intellectual disability (matched, *n* = 6), cognitive disorder (*n* = 7), personality disorder (*n* = 6), and anxiety disorder (*n* = 9). Cannabis use disorder (*n* = 23) and opioid use disorder (*n* = 6) were also removed due to low counts within each category

**Table 5** Results for logistic regression with covariates and court group (MHC/SUD vs. Traditional/SUD) predicting frequency of rearrests

Variable	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
<b>Matched data</b>					
Gender	0.15	0.12	0.09	1.23	.220
Age	0.00	0.00	0.05	0.61	.540
Race	−0.05	0.11	−0.04	−0.51	.614
Index severity	−0.02	0.02	−0.09	−1.14	.256
Frequency of offending	−0.06	0.17	−0.03	−0.37	.713
Polysubstance	−0.22	0.17	−0.14	−1.29	.198
Alcohol	−0.13	0.17	−0.08	−0.78	.436
Cocaine	−0.18	0.19	−0.09	−0.96	.338
Substance NOS	−0.22	0.20	−0.11	−1.12	.266
Depressive disorder	0.12	0.19	0.07	0.60	.547
Bipolar disorder	0.16	0.19	0.09	0.85	.398
Psychotic disorder	0.09	0.17	0.06	0.51	.609
Two or more disorders	−0.17	0.22	−0.06	−0.79	.429

Note: The following mental health diagnoses, or diagnostic categories, were omitted from the analysis due to low counts within each group: mental retardation/intellectual disability (*n* = 6), cognitive disorder (*n* = 7), personality disorder (matched, *n* = 6), and anxiety disorder (*n* = 9). Cannabis use disorder (*n* = 23) and opioid use disorder (*n* = 6; full) were also removed due to low counts within each category

**Table 6** Cox proportional hazards regression with covariates and group (MHC/SUD vs. MHC/MI) predicting days to rearrest

Variable	<i>B</i>	<i>SE</i>	Wald $\chi^2$	<i>p</i>	$\lambda$	95% CI for $\lambda$
Gender	0.69	0.36	3.77	.052	2.00	[0.99, 4.04]
Age	0.02	0.01	1.85	.174	1.02	[0.99, 1.04]
Race	0.35	0.30	1.37	.242	1.43	[0.79, 2.58]
Index severity	-0.14	0.05	6.35	.012	0.87	[0.79, 0.97]
Frequency of offending	0.42	0.25	2.3	.088	1.52	[0.94, 2.46]
Depressive disorder	-0.60	0.43	1.93	.165	0.55	[0.23, 1.28]
Bipolar disorder	-0.64	0.41	2.45	.117	0.53	[0.23, 1.18]
Psychotic disorder	-0.92	0.37	6.11	.013	0.40	[0.19, 0.83]
More than one diagnosis	0.42	0.55	0.56	.454	1.52	[0.51, 4.49]
Substance use group	0.02	0.28	0.01	.949	1.02	[0.59, 1.75]

Note: The following mental health diagnoses, or diagnostic categories, were omitted from the analysis due to low counts within each group: mental retardation/intellectual disability (*n* = 12), cognitive disorder (*n* = 9), personality disorder (*n* = 9), and anxiety disorder (*n* = 26)

SUDs are at an even greater risk of reoffending or experiencing negative outcomes (Bonta et al., 1998; Burns et al., 2012; Callahan, 2011; Dirks-Linhorst & Linhorst, 2012; Hiday et al., 2014).

The current study supported the effectiveness of an MHC in reducing recidivism for those with severe mental illness and comorbid SUDs, in that MHC enrollment was associated with a significantly greater length of time until rearrest and a reduction in the likelihood of initial rearrest, compared to traditional

court. This is an important finding given the relationship between drug-related difficulties (drug-related charges and positive drug tests) and poor success in MHC (Hiday et al., 2014). Reoffenders in the MHC/SUD group lived offense-free for almost fifty days longer than those in the Traditional/SUD group and over twice as many individuals in the Traditional/SUD group reoffended at least one time following their index offense, compared to those in the MHC/SUD group. Results are particularly promising given that those within the MHC/

**Table 7** Results for logistic regression with covariates and group (MHC/SUD vs. MHC/MI) predicting rearrest severity and frequency of rearrest

Recidivism variable		<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Rearrest severity	Gender	0.37	1.09	0.06	0.34	.733
	Age	-0.03	0.03	-0.16	-0.99	.327
	Race	0.72	0.90	0.13	0.80	.429
	Index severity	0.18	0.16	0.18	1.16	.253
	Frequency of offending	-1.88	1.06	-0.29	-1.77	.085
	Depressive disorder	1.32	1.39	0.21	0.95	.348
	Bipolar disorder	1.30	1.43	0.22	0.91	.369
	Psychotic disorder	0.22	1.28	0.04	0.18	.862
	More than one diagnosis	-0.31	1.77	-0.03	-0.18	.862
	Substance use group	1.01	0.88	0.19	1.15	.260
Frequency of Reoffending	Gender	0.15	0.07	0.11	2.24	.026
	Age	0.01	0.01	0.04	0.87	.387
	Race	0.01	0.06	0.01	0.13	.893
	Index severity	-0.03	0.01	-0.14	-2.87	.004
	Frequency of offending	-0.12	0.80	0.07	1.53	.128
	Depressive disorder	-0.03	0.11	-0.02	-0.27	.788
	Bipolar disorder	-0.13	0.10	-0.09	-1.23	.221
	Psychotic disorder	-0.23	0.93	-0.09	-1.67	.245
	More than one diagnosis	0.23	0.12	0.01	0.20	.842
	Substance use group	0.20	0.60	0.17	0.34	.738

Note: The following mental health diagnoses, or diagnostic categories, were omitted from the analysis due to low counts within each group: mental retardation/intellectual disability (*n* = 12), cognitive disorder (*n* = 9), personality disorder (*n* = 9), and anxiety disorder (*n* = 26)

**Table 8** Results for paired sample *t* tests for MHC/SUD matched and non-matched groups, 12-months pre- and post-MHC enrollment

Recidivism variables	Pre-MHC		Post-MHC		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Severity of rearrest	4.21	2.60	4.46	2.63	-0.52	47	.604
Number of arrests	0.46	0.89	0.19	0.59	5.15	411	.001

SUD group were initially diverted into the community and potentially experienced more opportunities to reoffend, as compared to those in the Traditional/SUD group. Those originally assigned to traditional court likely opted to plea bargain, given that 95% of defendants enter into a plea bargain, rather than going to trial (Pastore & Maguire, 2003). If these individuals accepted a plea bargain, and served reduced sentences during the twelve months in which they were tracked in this study, they would have also had less opportunities to reoffend within the community, compared to MHC participants who were expeditiously diverted back into the community. Furthermore, those in traditional court who opted to go to trial may have been more likely to be sentenced and subsequently incarcerated within the twelve-month observation period. Therefore, it is highly possible that these group differences are actually underestimates of the impact of the MHC on those with SUDs. Unfortunately, lack of funding resulted in an inability to obtain data regarding incarceration of participants; therefore, such factors were not examined within this study.

Fewer MHC/SUD participants were arrested post-index offense, relative to those in the Traditional/SUD group during the 12-month observation period and individuals in the MHC/SUD group who did reoffend were more frequent reoffenders (i.e., the same small group of participants were arrested multiple times within the twelve months). While there were more participants in the Traditional/SUD group who reoffended overall, the majority of the participants in this group were only arrested one time, which was possibly due to a diminished length of time in the community due to incarceration. Lack of differences in mean number of reoffenses between the groups also may be due in part to a few chronic reoffenders within the MHC/SUD group. Therefore, participants in the MHC/SUD group were less likely to reoffend, but the few who did reoffend, reoffended at a greater frequency. As previously noted, a significant limitation of this study was the low rate of offending within the twelve-month post-index offense period, which may not have been a sufficient amount of time for individuals within the study to reoffend, and reoffend multiple times. However, this time-frame is typical of most MHC studies. Unfortunately, it was not possible to track participants for a longer period of time, as the court was terminated in the middle of this project due to lack of funding.

While the MHC proved beneficial in terms of the aforementioned outcome variables (length of time between offenses and number of rearrests), it was not associated with a reduction in rearrest severity. This may be due in part to the severity rating system utilized in this study. While it could certainly be considered superior to a dichotomous category of severity (felony vs. misdemeanor), the rating system was based solely on guidelines used to determine sentencing within the state of Florida and its construct validity is unknown. An additional consideration regarding lack of support for a reduction in rearrest severity may be related to the fact that police officers in the MHC jurisdiction were highly trained in identifying and appropriately managing those with severe mental illness. As part of the MHC initiative, a training program for first responders was developed to identify those with mental illness and divert them into services. On a quarterly basis, first responders participated in a 40-h per week training program that taught them to recognize mental illness and be cognizant of diversion programs in the community. Therefore, chronic and repeat offenders, especially those well known to local law enforcement, may have been accurately identified as mentally ill and brought to crisis stabilization units, rather than jail. This is very likely to have occurred if an individual committed a minor/less severe offense (i.e., misdemeanor), in which the law enforcement officer felt less compelled to arrest the individual and transport them to jail. Overlooking more minor rearrests could have significantly impacted results when examining severity of rearrest.

Consistent with research suggesting a strong relationship between substance use disorders and increased contact with the legal system (Swartz & Lurigio, 2007, James & Glaze, 2006; Bonta et al., 1998), participants in the MHC/SUD group exhibited a greater number of lifetime arrests prior to court enrollment, relative to those within the MHC/MI group. However, recidivism outcome data did not differ between the MHC/SUD and MHC/MI groups, despite the added difficulties faced by those with SUDs. Lack of differences may be due to the high rate of censored data within this sample, or it is possible that groups simply equally benefitted from treatment. One interesting finding was that as index severity increased, the number of days until rearrest also increased, regardless of the presence of a comorbid substance use disorder. Since all of these participants were enrolled in the MHC, it is unlikely that the increase in number of days until rearrest could be attributed to time spent in jail for having committed a more serious offense. Instead, it is possible that when an individual in the MHC committed a more serious offense, they were monitored more closely, and provided more services, resulting in behavior change. Lastly, the presence of a psychotic disorder significantly decreased the likelihood of being arrested and increased the number of days until rearrest, regardless of the presence of a comorbid substance use disorder. This finding is consistent with what would be expected for those with

psychotic disorders, given the fact that the negative symptoms of psychotic disorders (e.g., social isolation) arguably serve as protective factors against reoffending (Swanson, Swartz, Van Dorn, et al., 2006). Additionally, if a person was exhibiting overt and positive symptoms (e.g., visual hallucination or delusional beliefs), they may have been easily identified by law enforcement personnel and diverted into a psychiatric crisis stabilization unit, rather than jail. Another issue to consider is that individuals with psychotic disorders may have been hospitalized more frequently and for longer periods of time, relative to those without psychotic disorders.

In summary, the current study is notable for examining the impact of a MHC on reducing reoffending for those with comorbid SUDs. While a small number of studies have included data regarding substance use or substance use related disorders (e.g., Burns et al., 2012; Hiday et al., 2014; Cosden et al., 2003), none have specifically examined the impact of such courts on this chronic/treatment resistant population. This study yielded promising findings in that court enrollment was associated with a greater length of time to reoffend and a fewer overall number of participants who reoffended at least one time while enrolled in the court. These findings are particularly promising given that those with substance use disorders are at a greater risk for reoffending (e.g., James & Glaze, 2006; Swartz & Lurigio, 2007). The efficacy of the MHC in terms of reducing severity and frequency of rearrest was not supported; however, as previously mentioned, lack of findings may be due in part to the high number of censored data (i.e., overall low rate of rearrest for this sample), rather than lack of efficacy of the court. Additional limitations include lack of data regarding incarceration, psychiatric hospitalizations, and treatment provision, response, and compliance. Such factors would greatly add to our understanding of the impact of MHC on recidivism outcomes, in that they would allow for a more complete picture in terms of the mechanisms that may or may not be leading to success or failure within the court. As such, future MHC studies should aim to include these important factors.

**Acknowledgements** This study was supported in part by the State of Florida Substance Abuse and Reinvestment Grant (2009–2011).

## References

- Anestis, J. C., & Carbonell, J. L. (2014). Stopping the revolving door: effectiveness of mental health court in reducing recidivism by mentally ill offenders. *Psychiatric Services*, *65*(9), 1105–1112.
- Belenko, S. (2002). The challenges of conducting research in drug treatment court settings. *Substance Use and Misuse*, *37*(12 & 13), 1635–1664.
- Bonta, J., Law, M., & Hanson, K. (1998). The prediction of criminal and violent recidivism among mentally disordered offenders: a meta-analysis. *Psychological Bulletin*, *123*(2), 123–142.
- Boothroyd, R. A., Poythress, N. G., McGaha, A., & Petrila, J. (2003). The Broward mental health court: process, outcomes, and service utilization. *International Journal of Law and Psychiatry*, *26*, 55–71.
- Burns, P. J., Hiday, V. A., & Ray, B. (2012). Effectiveness 2 years postexit of a recently established mental health court. *American Behavioral Scientist*, *57*, 189–208.
- Callahan, L. (2011). The role of co-occurring disorders in outcomes in mental health courts. Retrieved from: <http://www.samhsa.gov/co-occurring/events/disorders-transcript.aspx>
- Cosden, M., Ellens, J., Schnell, J., & Yamini-Diouf, Y. (2005). Efficacy of a mental health treatment court with assertive community treatment. *Behavioral Sciences and the Law*, *23*, 199–214.
- Cosden, M., Ellens, J. K., Schnell, J. L., Yamini-Diouf, Y., & Wolfe, M. M. (2003). Evaluation of a mental health treatment court with assertive community treatment. *Behavioral Sciences and the Law*, *21*, 415–427.
- Costopoulos, J. S., & Wellman, B. L. (2017). The effectiveness of one mental health court: overcoming criminal history. *Psychological Injury and Law*, *10*(3), 254–263.
- Criminal Punishment Code (2010) Offense severity ranking chart, Fla. Stat. 921.0022.
- Denckla, D., & Berman, G., (2001). *Rethinking the revolving door: a look at mental illness in the courts*. New York: Center for Court Innovation. [Retrieved on August 27, 2004 from [http://www.courtinnovation.org/pdf/mental\\_health.pdf](http://www.courtinnovation.org/pdf/mental_health.pdf)].
- Dirks-Linhorst, P. A., & Linhorst, D. M. (2012). Arrests two years after exiting a well-established mental health court. *American Journal of Criminal Justice*, *37*, 76–91.
- Gottfredson, D. C., Najaka, S. S., & Kearley, B. (2003). Effectiveness of drug treatment courts: evidence from a randomized trial. *Criminology & Public Policy*, *2*(2), 171–196.
- Grant, B. F., Stinson, F. S., Dawson, D. A., Chou, S. P., Dufour, M. C., Compton, W., Pickering, R. P., & Kaplan, K. (2004). Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the National Epidemiologic Survey on alcohol and related conditions. *Archives of General Psychiatry*, *61*(8), 807–816.
- Herinckx, H. A., Swart, S. C., Ama, S. M., Dolezal, C. D., & King, S. (2005). Rearrest and linkage to mental health services among clients of the Clark county mental health court program. *Psychiatric Services*, *56*(7), 853–857.
- Hiday, V. A., & Ray, B. (2010). Arrests two years after exiting a well-established mental health court. *Psychiatric Services*, *61*, 463–468.
- Hiday, V. A., Ray, B., & Wales, V. A. (2014). Predictors of mental health court graduation. *Psychology, Public Policy, and Law*, *20*, 191–199.
- Jager, K. J., van Dijk, P. C., Zoccali, C., & Dekker, F. (2008). The analysis of survival data: the Kaplan-Meier method. *Kidney International*, *74*, 560–565.
- James, D. J., & Glaze, L. E. (2006). “Mental health problems of prison and jail inmates.” U.S. Department of Justice Document NCJ 213600.
- Lowder, E. M., Desmarais, S. L., & Baucom, D. J. (2016). Recidivism following mental health court exit: between and within-group comparisons. *Law and Human Behavior*, *40*(2), 118–127.
- McNiel, D. E., & Binder, R. L. (2007). Effectiveness of a mental health court in reducing criminal recidivism and violence. *American Journal of Psychiatry*, *164*, 1395–1403.
- Moore, M. E., & Hiday, V. A. (2006). Mental health court outcomes: a comparison of re-arrest and re-arrest severity between mental health court and traditional court participants. *Law and Human Behavior*, *30*, 659–674.
- Mueser, K. T., Bennett, M., & Kushner, M. G. (1995) Epidemiology of substance use disorders among persons with chronic mental illnesses. Lehman, A.F., Dixon, L., (Eds.), *Double Jeopardy: Chronic Mental Illness and Substance Abuse*. New York, NY, pp. 9–25.

- Mumola, C. J., & Karberg, J. C. (2006). *Drug use and dependence, federal prisoners (Bureau of Justice Statistics Special Report)*. Washington, DC: U.S. Department of Justice, Office of Justice Programs.
- Pastore, A., & Maguire, K. (2003). *Sourcebook of criminal justice statistics: 2002*. Washington, DC: U.S. Government Printing Office.
- Peters, R., & Osher, F. (2004). *Co-Occurring disorders and specialty courts*, 2nd Edition. The National GAINS Center.
- Rosenbaum, P. R., & Rubin, D. B. (1983). Assessing sensitivity to an unobserved binary covariate in an observational study with binary outcome. *Journal of the Royal Statistical Society*, *45*, 212–218.
- Schneider Institute for Health Policy at Brandeis University. (2001). *Substance abuse: the nation's number one health problem: key indicators for policy*. Princeton, NJ: Wood James Foundation.
- Steadman, H. J., Redlich, A., Callahan, L., Robbins, P. C., & Vesselinov, R. (2011). Effects of mental health court on arrests and jail days: a multisite study. *Archives on General Psychiatry*, *68*, 167–172.
- Swanson, J. W., Swartz, M. S., Van Dorn, R. A., et al. (2006). A national study of violent behaviour in persons with schizophrenia. *Archives of General Psychiatry*, *63*, 490–499.
- Swartz, J. A., & Lurigio, A. J. (2007). Serious mental illness and arrest: the generalized mediating effect of substance use. *Crime & Delinquency*, *53*(4), 581–604.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Teplin, L. A. (1990). Detecting disorder: the treatment of mental illness among jail detainees. *Journal of Consulting and Clinical Psychology*, *58*, 233–236.
- Woody, G. E., & Blaine, J. (1979). Depression in narcotic addicts quite possibly more than a chance association. In R. I. Dupont, A. Goldstein, & J. O'Donnell (Eds.), *Handbook on Drug Abuse* (pp. 227–287). Rockville, MD: National Institute on Drug Abuse.