# Targeting the Mental Health Needs of Misdemeanor Defendants

## An Impact Evaluation of the Bronx Mental Health Initiative

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# Acknowledgements

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# Executive Summary

Individuals suffering from mental health disorders are widely known to be overrepresented in the criminal justice system. To address the needs of this population, jurisdictions across the country have established specialized mental health courts and a range of pretrial and post-adjudication diversion programs. However, intensive diversion programming is often legally unfeasible for low-level misdemeanor populations, for whom the dictates of legal proportionality may require an intervention consisting of, at most, an assessment and perhaps several individual or group sessions. Research is therefore urgently needed regarding the potential effectiveness of short-term mental health interventions that seek to meet the needs of mentally ill defendants who are charged with low-level misdemeanor offenses.

To address this gap, the Center for Court Innovation launched a pilot mental health initiative in the Bronx Criminal Court in 2009. With funding from the New York City Mayor's Office of Criminal Justice, the initiative seeks to identify and provide services to individuals with mental health disorders who have been mandated to Bronx Community Solutions, an alternative sentencing program for misdemeanor offenders. These individuals receive a brief mental health screen at intake and, if appropriate, are assigned to a brief mental health intervention.

This current study evaluates the effectiveness of the Bronx Mental Health Initiative. The analysis draws on a sample of defendants arraigned from March 1, 2009 through June 30, 2012 and flagging for a mental health disorder (total n = 1,652). After matching samples on background characteristics, analyses compare those who received a brief mental health intervention (group and/or individual session) to similar offenders who did not receive any mental health intervention.

## Major Findings

- Prevalence of Mental Illness: In 2013, of 8,685 cases screened at Bronx Community Solutions, 1,950 (23%) flagged, indicating a possible need for a mental health intervention. Those who flagged were especially likely to be older, female, with substance use problems, and with a history of homelessness.

- Base Re-Arrest Rates: The misdemeanor population served at Bronx Community Solutions has a re-arrest rate of 55.4% after one year and 70.3% after two years for the entire sample. In general, such a chronic misdemeanor population is a highly appropriate one for testing treatment-based interventions.

- Program Impact on Re-Arrest: Offenders receiving a brief mental health intervention were significantly less likely to be re-arrested (53% vs. 58%) and on average experienced a significantly lower number of re-arrests (1.3 vs. 1.6) within one year. Over two years, the results continued to trend in the same direction, but the raw differences were more modest, and the gap in re-arrest rates was not statistically significant.

- Role of Intervention Type: Those receiving the most intensive intervention (group and individual counseling sessions combined) consistently achieved the best outcomes, improving on group without individual sessions or individual without group sessions. Overall, the greatest difference, and the only one consistently achieving statistical significance, was between *any* intervention (group, individual, or both) and none.

- Moderating Effect of Sex: A subgroup analysis revealed a significantly stronger intervention effect for female than for male participants. Specifically, within one year of initial arrest date, women receiving a mental health intervention were significantly less likely to be re-arrested (45% vs. 57%) compared to women who did not receive a mental health intervention. This is contrasted with the men-only comparison, where the one-year impact was much more modest (57% vs. 59%) and was not statistically significant.

Overall, these findings support the provision of brief mental health interventions for low-level offenders who flag positive on a mental health screen. Preferably, and where resources allow, the brief intervention should combine both a group-based session and a one-to-one individual counseling session that encourages participants to voluntarily pursue appropriate longer-term services after the required court mandate concludes.

# Chapter 1. The Bronx Mental Health Initiative

Individuals suffering from mental health disorders are overrepresented in criminal justice-involved populations across the country (Torrey, et al. 2010). Many have documented mental illness among defendants who are detained in correctional facilities (James and Glaze 2006; Wilper et al. 2009), but less is known about the mental health of low-level misdemeanor populations. This gap in knowledge results in part because the potential assessment and intervention time for many misdemeanor defendants is brief; in many jurisdictions, corresponding sentences are typically a few days of community service, a fine, or a relatively brief stay in jail. Therefore, time is limited for an in-depth mental health assessment, and the court often lacks sufficient legal leverage to mandate a long-term intervention and treatment, even where a real need for mental health treatment may be present.

Without adequate screening, diagnosis, and treatment, defendants suffering from mental disorders such as major depression, bipolar disorder, or schizophrenia may be more likely to experience increased homelessness, poverty, unemployment, and substance abuse in the future (Junginger et al. 2006). Some form of effective screening is the first step in properly addressing the mental health needs of such defendants. Multiple short mental health screening tools have been developed to quickly evaluate an individual's need for further assessment and have been employed across criminal justice settings (i.e. arrest, probation, prison intake, parole) (see Lurigio and Swartz 2006). Defendants who flag positive on these tools can then be referred to a targeted intervention that will address their needs; in the misdemeanor setting, for example, an intervention can take the form of a one or two session mandated program focused on mental health that encourages participants to seek longer-term treatment voluntarily after the court mandate ends.

In an effort to improve the criminal justice response to misdemeanor defendants with a mental health disorder, the Center for Court Innovation launched a pilot mental health initiative in the Bronx Criminal Court in 2009. The initiative is a collaboration among the New York City Mayor's Office of Criminal Justice, the New York City Department of Health and Mental Hygiene, and Bronx Community Solutions (BCS), an alternative sentencing program for misdemeanor offenders. The driving goals of the initiative were to test the extent to which individuals with mental health needs can be identified, and routed to a meaningful short-term intervention.

Beginning in 2009, all individuals who are court-ordered to Bronx Community Solutions received a brief mental health screen at intake and, if appropriate, were assigned to a brief in-house mental health intervention. The screen utilized at BCS is a composite of two existing short screening tools that were previously developed for criminal justice-involved populations (see below). Where a mental health intervention is indicated, Bronx Community Solutions clinical staff will assign participants to a group-based treatment readiness intervention, one to one individual counseling sessions, or both. This present study seeks to evaluate the impact of these Mental Health Initiative interventions on subsequent reoffending, through analysis of re-arrest data.

## About Bronx Community Solutions

For misdemeanor cases, Bronx Community Solutions provides a wide range of community and social service sentencing options as an alternative to traditional sentences, such as short-term jail, fines, and conditional discharges (which in traditional case processing often have no real conditions attached). By offering defendants targeted social and community service programs relevant to their needs and offense, the mandate compliance rate at BCS is consistently high (74% in 2013). In the same year, the top misdemeanor arrest charges coming though Bronx Community Solutions were theft of services, criminal possession of a controlled substance, and petit larceny. The majority of defendants with misdemeanor cases ordered to BCS plead guilty; whether a prosecutor seeks a guilty plea depends partly on prior criminal history and, potentially other factors that contribute to risk. It is likely that Bronx Community Solutions participants skew somewhat toward the high-risk category more than the average misdemeanor defendant in the Bronx.  Other than community service mandates, the most commonly assigned social service mandates include workshops that cover the following:

- Anger management;
- Decision-making;
- Drug treatment education;
- Healthy relationships;
- Health education;
- Financial literacy; and of course
- Mental health (groups and individual counseling sessions).

In 2013, there were more than 55,000 misdemeanor arrests and more than 36,000 cases that received a sentence or adjournment in contemplation of dismissal (ACD) in the Bronx (DCJS 2013). This same year, 8,943 misdemeanor cases were mandated to Bronx Community Solutions, representing more than 24% of all cases that received a sentence or ACD stemming from misdemeanor charges.

## The Mental Health Screening Tool

The mental health screening tool utilized for this initiative combines the results of two separate tools with overlapping questions. The first constituent tool is the Brief Jail Mental Health Screen (BJMHS), which has been validated as a brief initial standardized screening tool for inmates (Steadman et al. 2005). The Brief Jail Mental Health Screen is based on the Referral Decision Scale and is meant to flag an individual who has recent or acute symptoms associated with one or more of the three disorders: schizophrenia, bipolar disorders, and major depression. The tool consists of eight yes/no questions, six of which cover the occurrence of current mental health symptoms. The remaining two questions ask if the participant has ever been hospitalized for emotional or mental health problems or is currently taking psychotropic medication.

The first set of six Brief Jail Mental Health Screen questions in the Bronx Community Solutions screening tool that focus on current symptoms are set out below. If an individual answers yes to two or more of these questions, they will have flagged positive for a possible mental illness.

*Brief Jail Mental Health Screen:*
1. Do you currently believe that someone can control your mind by putting thoughts into your head or taking thoughts out of your head?
2. Do you currently feel that other people know your thoughts and can read your mind?
3. Have you currently lost or gained as much as two pounds a week for several weeks without even trying?
4. Have your family or friends noticed that you are currently much more active than you usually are?
5. Do you currently feel like you have to talk or move more slowly than you usually do?
6. Have there currently been a few weeks when you felt like you were useless or sinful?

If an individual answers yes to one or more of the remaining two questions that cover the domains of hospitalization and medication, they will also have flagged positive for a possible mental illness (even if the answers to all previous six questions are no).

*Brief Jail Mental Health Screen - continued:*
7. Are you currently taking any medication prescribed for you by a physician for any emotional or mental health problems?
8. Have you ever been in a hospital for emotional or mental health problems?

The second tool was developed by Treatment Alternatives for Safe Communities (TASC) for the Bronx Mental Health Court. This tool has not been validated. In its original form, it consists of a series of eight questions about the individual's past and current mental health, focusing on diagnosis, hospitalization, medication, and treatment (including one question on substance abuse). Four of these eight questions are also utilized in the Bronx Community Solutions screening tool and are set out below.

*TASC Bronx Screen questions*:
9. Has anyone ever told you that you have a psychiatric / mental health diagnosis?
10. What medications, have you taken in the past for psychiatric or mental health problems?
11. Are you currently in psychiatric / mental health treatment now?
12. What psychiatric treatment have you received in the past?

Again, if an individual answers yes to any one or more of these four questions, BCS intake staff will consider this a positive flag. The remaining four questions from the original Treatment Alternatives for Safe Communities screen are already covered in the Brief Jail Mental Health Screen tool and substance abuse questions are asked elsewhere during intake.[1]

In 2013, of 8,685 cases screened at Bronx Community Solutions, 1,950 (23%) flagged, indicating a possible need for a mental health intervention. As shown in Table 1.1 below, those who flag tend to be older, are more likely to be female, have substance use issues, and have a history of homelessness, as compared to those who do not flag. Seventy-five percent of those

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[1] Omitted TASC screen questions: 1) Do you have a psychiatric or emotional problem? 2) Have you ever been hospitalized for psychiatric of mental health problems? 3) What, if any medications, are you currently taking for psychiatric or mental health problems? 4) Have you ever been in substance abuse treatment?

flagging reported having received some form of mental health services in the past, which means that a quarter of this population have not received any treatment for their mental health needs. Finally, the top six arrest charges were broadly the same (and in similar proportions) for those who flagged and those who did not in 2013; the charge of possession of a controlled substance, 7th degree, was more prevalent among those who flagged.

**Table 1.1. Comparison of BCS Population Characteristics in 2013**

| | **Flagged on MH Screen** | **Not Flagged on MH Screen** |
|---|---|---|
| **Number of Cases: 7926** | **N = 1950 (23%)** | **N = 6735** |
| | | |
| **Demographics** | | |
| Age | 36* | 30 |
| Female | 31%*** | 19% |
| Currently homeless | 22%*** | 8% |
| Substance use | 33%*** | 20% |
| Currently Receiving MH services | 45%*** | 1% |
| Received MH services in past | 75%*** | 1% |
| Black | 35%*** | 40% |
| Hispanic | 53%*** | 40% |
| | | |
| **Charges** | | |
| Arrest Charge*** | | |
| Theft of Services | 16% | 19% |
| Poss of Controlled Substance (7th) | 24% | 16% |
| Petit Larceny | 14% | 12% |
| Poss of Marijuana (5th) | 3% | 5% |
| Assault (3rd) | 4% | 5% |
| Poss of Weapon (4th) | 3% | 4% |

+p<.10,* p<.05, ** p<.01, ***p<.001

As shown in Table 1.2, of the 1,652 individuals who flagged on the mental health screen from 2009 to 2012, 89% flagged on the TASC screen and 83% flagged on the BJMHS screen. This shows a high rate of overlap between the two screens. In fact, 77% flagged on both screening tools.

Eighty-four percent of the sample reported ever having a mental health diagnosis with over half having been hospitalized; only a quarter reported currently receiving any mental health treatment. Just over 35% of the sample reported having lost or gained as much as two pounds a week for several weeks without even trying, and just under 35% reported feeling useless or sinful in recent weeks. By contrast, only 10% reported that they currently believed someone could read or control their mind. The data also show that those flagging on both portions of the screening tool were more likely to subsequently receive a mental health-targeted intervention; of those flagging on the section of TASC questions, only one third went on to receive a Bronx Community Solutions mental health intervention, and of those flagging on the Brief Jail Mental

Health Screen section only, just slightly more did so (38%). Of those flagging on both sections, 61% received a mental health intervention (compared to 56% overall rate)[2].

**Table 1.2. Screen Flag and Item Response of Bronx Community Solutions Study Sample (N = 1652)**

| Screen/Item | Positive Flag/Response |
|---|:---:|
| TASC screen flag positive | 89.2% |
| BMHJS screen flag positive | 83.3% |
| Both TASC and BMHJS screens flag positive | 76.5% |
| TASC screen flag positive *only* | 12.8% |
| BMHJS screen flag positive *only* | 6.8% |
| **Individual Items** | |
| Ever diagnosed? | 84.2% |
| Past treatment | 48.2% |
| Past medications | 36.0% |
| Current treatment | 24.1% |
| Current medication | 56.5% |
| Ever hospitalized? | 54.9% |
| Weight change | 35.7% |
| Felt useless/sinful | 34.6% |
| Talk/move slowly | 27.4% |
| More active | 23.8% |
| Mind control | 10.0% |
| Read mind | 8.8% |

## Mental Health Initiative Interventions

Misdemeanor defendants are typically mandated to Bronx Community Solutions services for two to five days. BCS has access to a large proportion of the county's misdemeanor population—but for a very short period of time. The brief screening tool was designed to quickly identify present mental health issues and subsequently give clinical staff the opportunity to intervene with a more in-depth assessment and services. However, even if a mental health disorder is identified, sufficient legal coercion does not exist to mandate individuals to long-term treatment. Unlike currently incarcerated populations, or those potentially facing long-term jail sentences, the low-level misdemeanor offenders who are commonly mandated to Bronx Community Solutions can only be ordered to attend a brief intervention, during which they are encouraged to voluntarily

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[2] Note that this is not an analysis of the separate screens in their original entirety as four TASC tool questions were omitted from the Bronx Community Solutions screen.

seek long-term services and treatment in the future. Therefore, the intervention options were a mental health group session, an individual counseling session, or both.

### *Mental Health Group*

The mental health group conducted by Bronx Community Solutions clinical staff is described as a "treatment readiness program" and encourages individuals to engage with available voluntary services in the future. These voluntary services can be mental health-focused or target other needs such as substance abuse issues, prostitution diversion, GED/college preparation, employment assistance, or homeless services. Based on the Substance Abuse and Mental Health Services Administration's Evidenced-Based Practice Kit (www.samhsa.gov), the mental health group usually consists of 8-15 participants and lasts between 60- 90 minutes (usually one hour). Most eligible participants are assigned to this group, which satisfies one day of a court-imposed social service mandate. Curricula for the session covers facts about mental illness; stigma and strategies for responding to negative opinions/attitudes; symptoms of major mental illnesses; benefits and side effects of medication; and coping with "problem" and "negative" symptoms.

### *Individual Counseling Session*

As the name implies, the individual counseling session is more focused on the individual. Based on the Solution Focused Brief Therapy model, an individual counseling session usually lasts 30-60 minutes with participants typically completing one or two sessions (three or four in rare cases) in total. The sessions consist of strengths-based, psychosocial counseling based on motivational interviewing techniques. The focus is on looking to the future and developing strategies for positive change, while addressing the underlying mental health issues that accompanied the case-related arrest. Broadly speaking, and similar to the group sessions, participants are encouraged to engage with ongoing voluntary services that address their needs. Other than long-term mental health treatment, these services might include substance abuse treatment, homelessness services, GED and college preparation programs, and employment assistance and vocational training programs. Bronx Community Solutions clinical staff work one-to-one with participants and can provide the session in Spanish if preferred or necessary.

It is important to note that, clinically, an individual counseling session is not necessarily mandated to individuals with more need; Bronx Community Solutions intake staff describe the following scenarios, which might lead to assigning a flagged participant to an individual counseling session instead of a group mental health session:

- The court/judge imposes an explicit mandate that requires an individual counseling session;
- The client is Spanish-speaking and there is limited room available in an appropriate group;
- The client requests an individual counseling session;
- The client has a history with Bronx Community Solutions and may be in need of personalized intervention or follow-up; or
- There is a clinical reason why an individual counseling session is deemed a more appropriate intervention, such as a determination by BCS clinical staff that the client may have a complex mental health disorder. For example, an individual may not be suited for a group environment, due to paranoia.

If a client self-reports being in treatment with another provider, the mental health group is generally pursued instead of the individual counseling session.

### *No Mental Health Intervention Group (Comparison)*

The comparison group, containing those individuals who flagged on the initial mental health screen but did not receive a mental health intervention, is composed of defendants who were not assigned to a *targeted mental health* intervention as part of the mental health initiative at Bronx Community Solutions. Instead, the "no mental health intervention" group was either court-ordered exclusively to community service (i.e., the court's sentence precluded assignment to a mental health intervention) or was assigned by BCS staff to a different type of social service. Other social services at BCS for select defendant sub-populations, particularly young adult and prostitution-involved defendants, might include some mental health elements, but even those comparison group members who receive social service mandates with a mental health component do not receive the targeted interventions developed for this initiative. Specifically, other social services commonly assigned at Bronx Community Solutions include anger management, decision-making, and drug treatment education groups (see above).

Table 1.3 below shows that individuals belonging to this "no mental health intervention" sample group were slightly more likely to receive a community service mandate and were assigned more days on average of a community service mandate than the group receiving a mental health intervention. Individuals in this group were also mandated to slightly more days of any intervention (community or social services) on average. Finally, nearly 60% of the "no mental health intervention" group received some social service other than the mental health initiative options.

### Table 1.3. Other BCS Mandates (Non-Mental Health Interventions)

| Intervention Status | Any MH Intervention | No MH Intervention |
|---|---|---|
| **Number of cases: 1652** | **N =923** | **N = 729** |
| **MANDATES** <br> **Community Service** | | |
| Mandated (y/n) = yes | 41.7%* | 47.5% |
| Mandated units: average per case | 1.36 | 1.63 |
| **Social Service** | | |
| Mandated (y/n) = yes | 100%*** | 58.6% |
| Mandated units: average per case | 1.44*** | 1.20 |
| **Total Services** | | |
| Total Mandated units per case average | 2.80 | 2.94 |

+p<.10,* p<.05, ** p<.01, ***p<.001

# Chapter 2. Methods

All analyses are based on program data maintained by Bronx Community Solutions and criminal justice data provided by the New York State Division of Criminal Justice Services (DCJS). The study population was drawn from a particular segment of the wider criminal justice population of misdemeanants in the Bronx; specifically, those mandated to Bronx Community Solutions who have committed non-violent offences and alternatively, would have typically been given a conditional discharge or short-term jail sentence. An analysis of disposition outcomes for this population shows 96 percent pled guilty and three percent received an adjournment in contemplation of dismissal (ACD) (1% = other outcome). The sampling frame for this study is all Bronx Community Solutions cases opened between March 1, 2009 and June 30, 2012 for clients flagging on the mental health screen at intake (N = 3,094). Within this frame, cases were included for analysis if they contained accurate identification data, namely New York State Identification (NYSID) number and arrest date within BCS' program database.

It was not feasible to conduct a randomized controlled trial where defendants flagging on the screen would be randomly assigned to receive the treatment intervention or not. Therefore, utilizing a quasi-experimental study design, the comparison group is composed of defendants who flagged on the mental health screen but did not receive a mental health intervention for various reasons independent of this evaluation[3]. The selected sample was sent to DCJS, which supplied de-identified criminal history and recidivism data through February 2013 for all individuals included in the data file, matching on the common identifying variables. Some cases were not matched due to having been arrested on non-fingerprintable violation level charges (for which a NYSID is not assigned) or having missing or incomplete NYSIDs, resulting in a smaller sample size of 1,692 individuals. A further 39 matched cases with arrest dates older than 2008 were removed, as the intervention began in 2009 and these older cases may have been included in error. Finally, any missing data points in the DCJS file were filled in using Bronx Community Solutions data (e.g. age, sex, race and arrest charge); however one additional case was removed due to multiple missing data points. This brings the total number of cases included in the final analysis to 1,652.

## Samples and Analysis

### Variables for Analysis
DCJS arrest charge categories were regrouped (10 categories) to make them more relevant for this study's population and used to create dichotomous variables for analysis. For prior arrests, prior convictions, and prior misdemeanor arrests, one outlier in each variable was adjusted to the highest non-outlier value (135, 107 and 108 respectively). The distributions of most of these

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[3] These defendants were either court-ordered exclusively to community service, or assigned to another social service program. Again, those other programs might have included some mental health elements. For example, an individual with a prostitution-related case might be referred to a women-only clinic that not only has mental health services, but is also trained in trauma-informed practices and intimate partner violence needs. In another scenario, a young person may be referred to an external mental health clinic that specializes in serving youth instead of receiving one of the in-house BCS mental health interventions.

criminal history variables (prior arrests, prior convictions, prior misdemeanor arrests, prior drug arrests, prior felony arrests, and prior violent felony arrests) were highly right-skewed and required log transformations for analysis. Finally, the race variable was recoded as three dichotomous variables: black, Hispanic and white/Asian/other.

The main treatment variable was a binary indicator: received some Bronx Community Solutions mental health intervention (1) or received no Bronx Community Solutions mental health intervention at all (0). This variable was created by combining and recoding the four possible mental health initiative interventions received by individuals in the study sample:
- Mental health group combined with individual counseling session (1)
- Mental health group session only (1)
- Individual counseling session only (1)
- No mental health intervention (0)

### *Bivariate comparisons of sample groups*
Bivariate comparisons were conducted between the two collapsed intervention groups (no mental health intervention and any mental health intervention) and among the four more specific intervention groups (no mental health intervention, mental health group and individual counseling session, mental health group only, and individual counseling session only) on baseline characteristics for which we had data. Several statistically significant differences were found between the sample group receiving some mental health intervention at Bronx Community Solutions and the sample group that flagged on screening but received no mental health intervention subsequently. Table 2.1 below shows that the group receiving a mental health intervention was older, averaged a greater number of prior arrests (any) and misdemeanor arrests, and averaged a greater number and higher rate of prior drug arrests, felony arrests, and convictions (left-hand side 'Original').

### Table 2.1. Comparison of Baseline Characteristics

| | Original | | Adjusted | |
|---|---|---|---|---|
| **Intervention status** | **MH Intervention** | **No MH Intervention** | **MH Intervention** | **No MH Intervention** |
| **Number of Cases: 1652** | **N = 923** | **N = 729** | **N = 923** | **N = 729** |
| **DEMOGRAPHICS** | | | | |
| Age | 39.1*** | 33.9 | 36.8 | 36.8 |
| Female | 30.4%+ | 35.0% | 32.4% | 32.4% |
| Black y/n | 36.0%+ | 40.6% | 38.0% | 38.0% |
| Hispanic y/n | 56.1%+ | 51.9% | 54.4% | 54.0% |
| White/Asian/Other y/n | 7.9% | 7.5% | 7.6% | 8.0% |

+p<.10,* p<.05, ** p<.01, ***p<.001

## Table 2.1. Comparison of Baseline Characteristics *(Continued)*

| | Original | | Adjusted | |
|---|---|---|---|---|
| **Intervention status** | **MH Intervention** | **No MH Intervention** | **MH Intervention** | **No MH Intervention** |
| **Number of Cases: 1652** | **N = 923** | **N = 729** | **N = 923** | **N = 729** |
| **CRIMINAL HISTORY** | | | | |
| Prior Arrests | | | | |
| Any prior arrest | 88.4% | 87.2% | 87.9% | 87.9% |
| # prior arrests | 12.2* | 10.7 | 11.6 | 11.6 |
| Base 10 log of # prior arrests | 0.89** | 0.82 | 0.86 | 0.86 |
| Any prior drug arrest | 77.0%*** | 69.3% | 73.6% | 73.6% |
| # prior drug arrests | 5.3** | 4.4 | 4.9 | 5.0 |
| Base 10 log of # prior drug arrests | 0.60*** | 0.51 | 0.56 | 0.56 |
| Any prior felony arrest | 73.6%*** | 64.3% | 69.5% | 69.5% |
| # felony prior arrests | 4.4** | 3.7 | 4.0 | 4.1 |
| Base 10 log of # prior felony arrests | 0.54*** | 0.46 | 0.51 | 0.51 |
| Any prior misdemeanor arrest | 84.9% | 83.3% | 84.4% | 83.9% |
| # prior misdemeanor arrests | 8.0* | 7.0 | 7.6 | 7.5 |
| Base 10 log misdemeanor arrests | 0.73** | 0.67 | 0.71 | 0.70 |
| Any violent felony arrest | 45.3% | 42.7% | 44.1% | 44.1% |
| # violent felony arrests | 1.2 | 1.1 | 1.1 | 1.1 |
| Base 10 log violent felony arrests | 0.22 | 0.21 | 0.22 | 0.22 |
| Any prior conviction | 67.1%*** | 57.8% | 63.0% | 63.0% |
| # prior convictions | 6.6+ | 5.7 | 6.1 | 6.3 |
| Base 10 log of # prior convictions | 0.58** | 0.50 | 0.54 | 0.55 |
| **CURRENT CRIMINAL CASE** | | | | |
| Arrest Charges | | | | |
| Drug-Related | 40.1%** | 32.9% | 36.9% | **36.9%** |
| Marijuana | 8.0% | 8.5% | 8.1% | **8.4%** |
| Trespass | 7.4% | 7.1% | 7.1% | **7.5%** |
| Crime against Person | 6.7%** | 11.5% | 8.8% | **8.8%** |
| Petit Larceny | 10.9% | 9.5% | 10.5% | **10.0%** |
| Other Property | 5.6% | 4.5% | 5.1% | **5.1%** |
| Prostitution | 1.3%*** | 5.6% | 3.2% | **3.2%** |
| Criminal Possession of Weapon | 4.2% | 5.6% | 4.8% | **4.8%** |
| Theft of Services | 10.9% | 10.2% | 10.6% | **10.6%** |
| Other | 4.8% | 4.5% | 4.7% | **4.6%** |

+p<.10,* p<.05, ** p<.01, ***p<.001

The two sample groups also differed in their breakdown of arrest charges. The mental health intervention group experienced a higher proportion of drug-related charges (excluding marijuana) but fewer crime against the person and prostitution charges. Similar differences were found across the four intervention groups (see Appendix A). The sample intervention groups were therefore not comparable and employing propensity score modeling methods was justified.

*Propensity Score Model*
All 27 original baseline characteristics were used in a backward stepwise logistic regression, with the binary intervention measure (0 = no mental health intervention, 1 = any mental health intervention) as the dependent variable. Subsequent models removed the independent variables on a criterion of having a p-value of 0.50 or greater. The final regression model (see Table 2.2) included all 1,652 cases in generating propensity scores, with 0 missing data points. The resulting propensity scores were assessed for common support by comparing the extreme values between the sample groups. The distribution indicated the cases had common support and thus none were removed.

*GLM and adjusted models*
A propensity score matching adjustment method was not appropriate, considering that the samples are of similar size, with the number receiving treatment somewhat exceeding the comparison group (mental health intervention = 923, no mental health intervention = 729). Instead, the propensity scores were utilized through a covariate adjustment (i.e., controlling for propensity score in all outcome analyses). This procedure allowed us to balance baseline characteristics and produce similar treatment and comparison sample groups for analysis. By comparing the adjusted means of the two groups after controlling for propensity score, we could confirm that all of the initial significant differences were eliminated (see Table 2.1, right-hand side 'Adjusted').

**Table 2.2. Logistic Regression for Propensity Score Model: Predicting mental health intervention sample (MH Intervention vs. No MH Intervention)**

| Number of cases in sample = 1652<br>Number with mental health intervention = 923<br>Number with no intervention = 729 | |
|---|---|
| **Odds Ratio** | **β** |
| **DEMOGRAPHICS** | |
| Age | 1.04*** |
| Female | 0.88 |
| Black | .82+ |
| | |
| **CRIMINAL HISTORY** | |
| Prior Arrests | |
| Any prior arrest | .65+ |
| Any drug arrest | 1.18 |
| Any felony arrest | 1.63* |
| # felony arrests (log) | 0.64+ |
| Any violent felony arrest | 0.84 |
| # violent felony arrests (log) | 1.18 |
| Any prior conviction | 1.13 |

**Table 2.2. Logistic Regression for Propensity Score Model: Predicting mental health intervention sample (MH Intervention vs. No MH Intervention)** *(Continued)*

| | |
|---|---|
| **Number of cases in sample = 1652** | |
| **Number with mental health intervention = 923** | |
| **Number with no intervention = 729** | |
| **Odds Ratio** | **β** |
| | |
| **CURRENT CRIMINAL CASE** | |
| <u>Arrest charge type</u> | |
| Drug charge | 0.91 |
| Crime against person charge | 0.62* |
| Prostitution charge | 0.27*** |
| Other property charge | 1.32 |
| Weapon charge | 0.73 |
| Theft of services charge | 1.14 |
| Constant | 0.50** |

+p<.10, * p<.05, ** p<.01, ***p<.001

Stepwise removal from propensity score model: petit larceny arrest charge, # prior arrests (log), # prior drug arrests (log), marijuana arrest charge, trespassing arrest charge, Hispanic, # prior violent felony offense arrests (log).

Baseline comparisons were then repeated for the four-group intervention variables after controlling for the propensity scores that were created with the binary regression model. Some significant differences remained when utilizing a four-group independent variable: Age, log # prior arrests, log # prior drug arrests, drug arrest charge, and other property crime arrest charge variables still showed significant differences across the mental health intervention categories. These variables were therefore considered for inclusion as additional covariates in the final four-group intervention recidivism model (see Appendix B).

*Recidivism analysis*
All cases included in the recidivism analysis were assessed for compatibility with one- and two-year re-arrest measures (based on initial arrest date) and coded accordingly. The one-year and two-year recidivism measures used as dependent variables included:
- Any re-arrest (y/n)
- Number of re-arrests
- Any misdemeanor re-arrest (y/n)
- Number of misdemeanor re-arrests
- Any felony re-arrest (y/n)
- Number of felony re-arrests
- Any drug re-arrest (y/n)
- Number of drug re-arrests
- Number of days to first re-arrest

As previously stated, a covariate adjustment was employed in the one-year and two-year comparisons, controlling directly for propensity score in the general linear models. The four-category intervention models also contained covariates which remained statistically significant

after controlling for propensity scores in the earlier bivariate models. These are: age, log of the number of prior arrests, and drug-related arrest charge. Impact of the mental health intervention was assessed against all of the re-arrest dependent variables listed above as appropriate – with either linear (number of re-arrests) or logistic (any re-arrest) models. A survival analysis was then carried out using a Cox regression model on the variable number of days to first re-arrest. This model directly controlled for relevant variables instead of using propensity score as a covariate.

All re-arrest models were re-run separately for the male and female subsamples in this study (using the binary intervention variable). Since the propensity scores were calculated using the sex variable, they could not be used to control for baseline characteristics in this analysis. Instead, the models controlled directly for all baseline variables that were statistically significant in the initial bivariate analyses (see footnote of Table 3.2).

# Chapter 3. Findings and Discussion

## Main Recidivism Outcomes

One year after initial arrest date, 55.4% of individuals in the total study sample had been re-arrested. Two years after initial arrest, this proportion rose to 70.3%. The average number of days until first re-arrest for the total sample was 214. Results in Table 3.1 show some significant differences in re-arrest outcomes between the sample groups receiving some mental health intervention and those receiving no mental health intervention at all, implying that the mental health initiative interventions positively impacted recidivism. Specifically, after one year, the treatment group had significantly:

- Lower likelihood of any re-arrest (53% vs. 58%)
- Fewer average re-arrests (1.3 vs. 1.6)
- Lower likelihood of any misdemeanor re-arrests (45% vs. 53%)
- Fewer average misdemeanor re-arrests (1.0 vs. 1.3)
- Fewer average drug re-arrests (0.5 vs. 0.7)

Receiving a mental health intervention did not have an effect on felony re-arrests (occurrence or count), nor on the *proportion* experiencing a drug-related re-arrest after one year.

## Table 3.1. Impact on Re-Arrests

| Intervention Status | Any MH Intervention | No MH Intervention |
|---|---|---|
| **RECIDIVISM** | | |
| **One Year (N = 1440)** | **N = 787** | **N = 653** |
| Any re-arrest | 52.9%* | 58.4% |
| # re-arrests | 1.28** | 1.63 |
| Any misdemeanor re-arrest | 44.9%** | 52.6% |
| # misdemeanor re-arrests | 1.01** | 1.32 |
| Any felony re-arrest | 20.4% | 22.6% |
| # felony re-arrests | 0.27 | 0.31 |
| Any drug re-arrest | 33.0% | 35.6% |
| # drug re-arrests | 0.50** | 0.66 |

+$p<.10$,* $p<.05$, ** $p<.01$, ***$p<.001$

Controlling for propensity score

**Table 3.1. Impact on Re-Arrests** *(Continued)*

| Intervention Status | Any MH Intervention | No MH Intervention |
|---|---|---|
| **RECIDIVISM** | | |
| **Two Years (N = 976)** | **N = 490** | **N = 486** |
| Any re-arrest | 68.8% | 71.8% |
| # re-arrests | 2.32** | 2.89 |
| Any misdemeanor re-arrest | 61.1%+ | 66.4% |
| # misdemeanor re-arrests | 1.78** | 2.30 |
| Any felony re-arrest | 35.2% | 33.2% |
| # felony re-arrests | 0.53 | 0.59 |
| Any drug re-arrest | 48.6% | 47.3% |
| # drug re-arrests | 0.91** | 1.21 |

+$p<.10$,* $p<.05$, ** $p<.01$, ***$p<.001$

Controlling for propensity score

The two-year recidivism analysis produced similar results. Here, the treatment group receiving a Bronx Community Solutions mental health intervention had significantly:

- Fewer average re-arrests (2.3 vs. 2.9)
- Fewer average misdemeanor re-arrests (1.8 vs. 2.3)
- Lower likelihood of any misdemeanor re-arrests (61% vs. 66%)
- Fewer average drug re-arrests (0.9 vs. 1.2)

Again, there was no documented effect on felony re-arrests (occurrence or count), nor on the proportion experiencing drug-related re-arrests. Interestingly, the significant positive impact on the proportion experiencing any re-arrest disappeared at the two-year threshold, although the raw percentages still trended in favor of those receiving a mental health intervention. Finally, receiving a targeted intervention did not appear to lead to a longer arrest-free time period post treatment.[4]

### *Impact by Intervention Type: Four-Group Model*
In order to explore whether one *type* of intervention had more impact on re-arrest, effects across the four groups of possible mental health intervention[5] were also compared. Between the groups receiving some type of mental health intervention, differences in recidivism outcomes were small; as hypothesized, across both one-year and two-year re-arrest timeframes, those Bronx

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[4]Survival models were used to analyze the 'time to first re-arrest' variable (measured in number of days) based on initial arrest date. However there were no significant differences found between the sample group receiving a Bronx Community Solutions mental health intervention and the group receiving no intervention at all.

[5] Initially there were 6 categories of intervention planned for this study: 5) mental health group only with a peer specialist present and 6) this plus an individual counseling session. Trained peer specialists have histories of mental illness and criminal justice involvement. Their role in the mental health initiative was to escort participants to outside agencies and co-facilitate the treatment readiness group. However, this distinction was not included in the quantitative recidivism analysis here due to small sample size.

Community Solutions participants receiving the most intensive intervention—combined mental health group and individual counseling session—showed the most positive outcomes. Below is a summary of these findings (also see Appendix D).

Impact on Any Re-Arrest:

- One year: The group of study participants who received both the mental health group and individual counseling sessions achieved the best outcomes across all re-arrest measures (51% for any re-arrest), with no significant effect on felony re-arrest; the group receiving no mental health intervention at all experienced the worst outcomes (highest likelihood of re-arrest) (59% for any re-arrest). The sample receiving the mental health group only had better outcomes than the sample receiving the individual counseling session only. Not all differences were statistically significant.

- Two years: There was an overall significant difference across the four intervention groups for "any" and "misdemeanor" re-arrests. The mental health group and individual counseling session combined sample had the lowest proportion experiencing any re-arrest and drug re-arrests specifically. The mental health group only sample showed the highest re-arrest rates for both any re-arrest and misdemeanor re-arrests (i.e. higher rates than the no mental health intervention group). Post hoc analyses however, do not show the mental health group only population to be significantly different from any other group on re-arrest outcomes.

Impact on Number of Re-Arrests:

- One year: Data show the fewest number of re-arrests for the mental health group and individual counseling session combined sample, and highest number of re-arrests for the no mental health intervention group (for any, misdemeanor and drug measures, but no effect for felony). Also, after one year from initial arrest, the mental health group only sample consistently had fewer re-arrests on average than the individual counseling session only sample.

- Two years: Again, the combined intervention sample group (mental health group plus individual counseling session) achieved the fewest number of re-arrests across the outcome measures and the no mental health intervention group experienced the highest number of re-arrests on average (still no significant effect on felony arrests). The individual counseling session only sample consistently had fewer re-arrests on average than the mental health group only sample.

Post-hoc ANOVA and chi-squared tests for significance were carried out for all significant intervention and recidivism relationships. For continuous dependent variables (number of re-arrests) a Least Significant Difference (LSD) method was employed. Tests on dichotomous dependent variables (any re-arrest) used a standardized residual critical value of -1.96. The purpose of this exercise was to investigate the pairwise differences between individual intervention groups. Results confirmed that the Bronx Community Solutions mental health intervention effects exist mainly between those receiving some mental health intervention and those receiving no mental health intervention at all. Although the most positive outcomes are

consistently achieved by the group receiving both the mental health group and individual counseling session, the differences are not statistically significant (see Appendices E and F for "number of re-arrests" post-hoc analysis results).

*Impact by Sex*

The analyses were re-run on single sex subsamples in order to explore differences in mental health intervention impact between male and female misdemeanor defendants (Table 3.2). Results show a stronger intervention effect for female than for male participants. Specifically, within one year of initial arrest date, women receiving a Bronx Community Solutions mental health intervention were significantly less likely to be re-arrested (45% vs. 57%) and on average experienced a significantly lower number of re-arrests (1.1 vs. 1.7) compared to women who did not receive a BCS mental health intervention. This is contrasted with the men-only group comparison; those receiving a Bronx Community Solutions mental health intervention were also less likely to be re-arrested (57% vs. 59%) and on average experienced a lower number of re-arrests (1.4 vs. 1.6) but the differences are not significant. Women were also less likely to be re-arrested for any misdemeanor or drug offense, and experienced a lower average number of these re-arrests, compared to men at both the one- and two-year measures. Consistently no significant effects on felony re-arrests were seen.

## Table 3.2. Impact on Re-Arrests by Sex

| | FEMALE | | MALE | |
| --- | --- | --- | --- | --- |
| **Intervention Status** | **Any MH Intervention** | **No MH Intervention** | **Any MH Intervention** | **No MH Intervention** |
| **RECIDIVISM** | | | | |
| **One Year  (N:  F = 482; M = 958)** | **N = 245** | **N = 237** | **N = 542** | **N = 416** |
| Any re-arrest | 45.1%** | 57.1% | 57.0% | 58.5% |
| # re-arrests | 1.11** | 1.65 | 1.38 | 1.59 |
| Any misdemeanor re-arrest | 38.3%** | 51.6% | 48.3% | 52.6% |
| # misdemeanor re-arrests | 0.91** | 1.42 | 1.08 | 1.24 |
| Any felony re-arrest | 15.5% | 17.7% | 23.1% | 24.7% |
| # felony re-arrests | 0.20 | 0.23 | 0.31 | 0.35 |
| Any drug re-arrest | 32.5%* | 42.0% | 37.6% | 35.1% |
| # drug re-arrests | 0.36*** | 0.67 | 0.58 | 0.63 |
| **Two Years (N: F = 314; M = 662)** | **N = 142** | **N = 172** | **N = 348** | **N = 314** |
| Any re-arrest | 59.3%+ | 69.0% | 71.9% | 74.2% |
| # re-arrests | 2.08** | 3.07 | 2.36* | 2.85 |
| Any misdemeanor re-arrest | 51.4%** | 65.7% | 64.4% | 67.5% |
| # misdemeanor re-arrests | 1.75* | 2.62 | 1.75* | 2.18 |
| Any felony re-arrest | 25.8% | 31.0% | 39.0% | 34.5% |
| # felony re-arrests | 0.33 | 0.45 | 0.62 | 0.66 |
| Any drug re-arrest | 23.5%** | 35.6% | 53.5% | 49.3% |
| # drug re-arrests | 0.66*** | 1.20 | 1.02 | 1.21 |

+p<.10,* p<.05, ** p<.01, ***p<.001

Controlling for age, log # prior arrests, any prior drug arrest, log # prior drug arrests, any prior felony arrest, log # prior felony arrests, log # prior misdemeanor arrests, any prior conviction, log # prior convictions, drug arrest charge, crime against person arrest charge, and prostitution arrest charge.

## Discussion

In summary, the findings in this study support the hypothesis that receiving a brief mental health intervention when flagging on a mental health screening tool leads to better criminal justice outcomes than receiving no mental health intervention at all. It is important to note, however, that this study does not address whether clinical outcomes are improved for Bronx Community Solutions participants receiving a mental health intervention. Measured outcomes are limited exclusively to official recidivism. We also cannot identify those participants who actually sought continued voluntary engagement with mental health services and for how long.

Analyses revealed that one year after initial arrest, individuals receiving a mental health intervention were less likely to be re-arrested and experienced fewer re-arrests compared to those who received no mental health intervention at all. This also holds for misdemeanor re-arrests and for the total number of drug charge-related re-arrests. These positive impacts are still present at two years post initial arrest, except that the likelihood of any re-arrest is no longer significantly lower for the intervention group (although it is still lower). In general, effect sizes appear to wane somewhat between the one-year and two-year marks. Looking at the impact on men and women separately, the Bronx Community Solutions intervention had a stronger positive effect on the female misdemeanor population.

These findings suggest that addressing mental health needs of misdemeanor offenders can help reduce the likelihood of re-arrest. The research literature indicates that mental illness itself does not directly increase the risk of re-arrest or arrest—that is, individuals with mental health disorders are not any more likely to offend than individuals without them (Bonta, Hanson, and Law 1998). However, individuals with mental illness may be associated with established predictors of criminal behavior (namely criminal history) and actually be at higher risk for criminogenic needs such as substance abuse. This means that the effect of mental illness on criminal behavior may be indirect or mediated instead of direct (Skeem, Manchak, and Peterson 2011). Certain behaviors such as public intoxication, creating public disturbances, and homelessness may also increase visibility of individuals with mental illness to law enforcement and therefore the likelihood of entering the criminal justice system (Prins and Draper, 2009). Alternatively, individuals who receive adequate mental health interventions may subsequently refrain from impaired judgment or impulses, which may in turn reduce associated criminal behavior which leads to arrest (Lamb and Weinberger 2013). In short, the underlying relationship between mental illness and recidivism is complex, and the use of targeted brief interventions for mental illness appears to be a promising strategy.

Whether or not addressing mental health issues directly results in lower propensities to reoffend, the number of individuals experiencing mental illness such as depression, bipolar disorder and schizophrenia in the criminal justice-involved population is disproportionately high, especially among women. This indicates that there is a clinical need for mental health service interventions in populations such as those coming through the Bronx Criminal Court. Referrals to other organizations for appropriate services may result in amelioration of co-occurring issues of social disadvantage such as substance abuse, unemployment and homelessness, leading to lesser likelihood to reoffend in the future.

Looking at the intervention effects over time, the results here suggest that receiving the mental health group only intervention (without an accompanying individual counseling session) does not help to reduce re-arrest rates in the longer time-frame of two years after initial arrest. It is possible that the beneficial effects from the group sessions, for example increased awareness, change in behavioral or thinking strategies, and utilization of other service linkages, tend to dissipate. Effects of outpatient mental health services have been shown to decrease over time with a greater reduction in arrests in the immediate future after the intervention (Constantine, et al. 2012). Further investigation would be necessary to understand why this is less apparent for those receiving only an individual counseling session.

Finally, the sample of Bronx defendants analyzed in this study demonstrates the revolving door of criminal justice contact common among misdemeanor populations, given that the two-year re-arrest rate for the entire combined sample was 70.3%. Considering the prevalence of mental health disorders in this population, this story is particularly problematic; each contact may represent an opportunity to identify and address an individual's mental health and related needs. To put these findings in context, this study looked at prior arrests and re-arrests since the intervention at Bronx Community Solutions. In total, 24,275 arrests were made for these 1,652 individuals included in the dataset; this means an average of 14.7 arrests per person (median = 11). Only seven percent of the sample experienced just one arrest, and 30% experienced five or less; however over half have experienced more than 10 arrests and just under a quarter more than 20 throughout their life course.

The results of this study clearly show that targeted mental health interventions should continue to be developed and implemented for misdemeanor populations. Programs such as Bronx Community Solutions should utilize their brief contact with misdemeanor defendants to conduct an effective short screen, enroll individuals with mental health problems in mental health services to satisfy their mandate, and encourage them to voluntarily seek long-term treatment. A vital aim of this initiative is to continue connecting individuals to service providers that can address their needs. Where appropriate, and where resources allow, individuals should receive treatment readiness group sessions and one or more individual counseling sessions in order to reduce the risk of reoffending and re-arrest.[6]

The role of sex should also be considered further. A higher proportion of women coming through Bronx Community Solutions flag on the mental health screen than men, consistent with evidence that female offenders generally experience higher rates of mental illness (James and Glaze 2006). Data from this present study show that there are differences between the male and female misdemeanor populations at Bronx Community Solutions; women are slightly less likely to receive an intervention if they do flag[7], were less likely to be re-arrested after both one and two years post-intervention compared to men, and even less likely to be re-arrested within the sample

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[6] Bronx Community Solutions continues to develop responsive, targeted mental health interventions in order to expand group numbers and the scope of the material covered. In 2014, a new 2-part Behavioral Health Management program was added to the mental health initiative efforts in the Bronx. The group is based on ideas of illness management and recovery, focusing on coping skills and building social support; specifically, it targets those experiencing substance addiction. The use of a multi-session program in this way, speaks to the findings in this present study.

[7] This may partially be due to the higher proportion of female prostitution-involved defendants, who receive other targeted services.

who received a mental health targeted intervention at BCS. As the data analyses here revealed, the positive impact of the mental health intervention was stronger for women than for men.

Future study should also be undertaken to validate the composite, short mental health screening tool utilized at Bronx Community Solutions. Previous research has shown the Brief Jail Mental Health Screen to be less accurate for women in jail settings (Steadman et al. 2007); accuracy in identifying mental illness across sex and gender identities will ensure that the right individuals receive services and benefit from reduced reoffending rates.

## Conclusions and Policy Implications

Possible policy implications suggested by this research are set out below:

1. *Mental health screening tool*: Utilizing an evidence-based screening tool to identify possible mental illness is an essential first step in addressing defendants' mental health needs. The screening should be brief and implemented as part of standard intake. Ideally, any screening will incorporate mental health needs as well as classic criminogenic factors, including criminal history, criminal thinking, anti-social associates, substance abuse, and school/employment problems. In this regard, the Center for Court Innovation is in the mid-stages of a federally-funded initiative to develop a risk-needs screening tool designed and validated on a misdemeanant population, which flags for mental health, trauma, and the other aforementioned criminogenic factors.

2. *Targeted intervention*: Misdemeanor defendants who flag on the mental health screen should receive a targeted mental health intervention which seeks to address their needs, again utilizing evidence-based practices where possible. Due to the short duration of mandates for this population, the interventions should employ a strong focus on longer-term voluntary engagement with other mental health service providers.

3. *Intensive intervention*: Findings here suggest that more intensive interventions, consisting of both one-to-one individual counseling sessions and group counseling sessions, lead to a larger positive impact on reducing future re-arrest rates. Accordingly, where legal leverage in a case allows a longer or more intensive mandate, this opportunity should be utilized to provide a higher dosage of mental health treatment.

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# Appendix A

## Comparison of Original Baseline Characteristics - 4 MH Intervention Groups

| Intervention status | | ORIGINAL | | | |
|---|---|---|---|---|---|
| | | MH Group & ICS | Group only | ICS only | No MH Intervention |
| **Number of Cases: 1652** | | **N = 182** | **N = 232** | **N = 509** | **N = 729** |
| **DEMOGRAPHICS** | | | | | |
| Age | *** | 43.2 | 41.2 | 36.7 | 33.9 |
| Female | | 29.7% | 31.0% | 30.5% | 35.0% |
| Black y/n | | 36.3% | 37.5% | 35.2% | 40.6% |
| Hispanic y/n | | 53.3% | 54.3% | 58.0% | 51.9% |
| White/Asian/Other y/n | | 10.4% | 8.2% | 6.9% | 7.5% |
| | | | | | |
| **CRIMINAL HISTORY** | | | | | |
| Prior Arrests | - | | | | |
| Any prior arrest | | 92.9% | 89.2% | 86.4% | 87.2% |
| # prior arrests | ** | 13.84 | 13.83 | 11.03 | 10.65 |
| Base 10 log of # prior arrests | *** | 1.00 | 0.93 | 0.84 | 0.82 |
| Any prior drug arrest | *** | 87.4% | 78.0% | 72.9% | 69.3% |
| # prior drug arrests | *** | 6.36 | 5.79 | 4.74 | 4.43 |
| Base 10 log of # prior drug arrests | *** | 0.71 | 0.64 | 0.55 | 0.51 |
| Any prior felony arrest | *** | 81.3% | 77.6% | 69.0% | 64.3% |
| # felony prior arrests | ** | 5.10 | 4.62 | 3.94 | 3.68 |
| Base 10 log of # prior felony arrests | *** | 0.63 | 0.57 | 0.49 | 0.46 |
| Any prior misdemeanor arrest | + | 90.1% | 86.2% | 82.5% | 83.3% |
| # prior misdemeanor arrests | ** | 8.73 | 9.22 | 7.10 | 6.97 |
| Base 10 log misdemeanor arrests | *** | 0.81 | 0.78 | 0.69 | 0.67 |
| Any violent felony arrest | | 46.2% | 49.6% | 43.0% | 42.7% |
| # violent felony arrests | | 1.27 | 1.15 | 1.10 | 1.07 |
| Base 10 log violent felony arrests | | 0.24 | 0.23 | 0.21 | 0.21 |
| Any prior conviction | *** | 76.9% | 72.8% | 60.9% | 57.8% |
| # prior convictions | * | 7.37 | 7.57 | 5.83 | 5.70 |
| Base 10 log of # prior convictions | *** | 0.68 | 0.63 | 0.52 | 0.50 |
| | | | | | |
| **CURRENT CRIMINAL CASE** | | | | | |
| Arrest Charges | - | | | | |
| Drug-Related | *** | 51.6% | 44.8% | 33.8% | 32.9% |
| Marijuana | + | 11.0% | 4.3% | 8.6% | 8.5% |
| Trespass | | 3.8% | 7.3% | 8.6% | 7.1% |
| Crime against Person | ** | 5.5% | 5.6% | 7.7% | 11.5% |
| Petit Larceny | | 9.9% | 10.8% | 11.4% | 9.5% |
| Other Property | + | 2.7% | 4.7% | 7.1% | 4.5% |
| Prostitution | *** | 0.0% | 2.2% | 1.4% | 5.6% |
| Criminal Possession of Weapon | | 3.3% | 4.3% | 4.5% | 5.6% |
| Theft of Services | | 9.9% | 9.1% | 12.2% | 10.2% |
| Other | | 2.2% | 6.9% | 4.7% | 4.5% |

+p<.10,* p<.05, ** p<.01, ***p<.001

# Appendix B

## Comparison of Adjusted Baseline Characteristics - 4 MH Intervention Groups

| Intervention status | | ADJUSTED | | | |
|---|---|---|---|---|---|
| | | MH Group & ICS | Group only | ICS only | No MH Intervention |
| Number of Cases: 1652 | | N = 182 | N = 232 | N = 509 | N = 729 |
| **DEMOGRAPHICS** | | | | | |
| Age | *** | 38.2 | 37.9 | 35.8 | 36.8 |
| Female | | 34.1% | 34.0% | 31.2% | 32.4% |
| Black y/n | | 40.8% | 40.5% | 36.0% | 37.9% |
| Hispanic y/n | | 49.4% | 51.7% | 57.3% | 54.1% |
| White/Asian/Other y/n | | 9.7% | 7.7% | 6.8% | 8.0% |
| | | | | | |
| **CRIMINAL HISTORY** | | | | | |
| Prior Arrests | | | | | |
| Any prior arrest | | 91.9% | 88.6% | 86.3% | 87.8% |
| # prior arrests | | 12.32 | 12.83 | 10.76 | 11.53 |
| Base 10 log of # prior arrests | * | 0.93 | 0.89 | 0.82 | 0.86 |
| Any prior drug arrest | | 80.1% | 73.2% | 71.6% | 73.5% |
| # prior drug arrests | | 5.44 | 5.18 | 4.58 | 4.97 |
| Base 10 log of # prior drug arrests | * | 0.63 | 0.57 | 0.53 | 0.56 |
| Any prior felony arrest | | 72.6% | 71.8% | 67.4% | 69.4% |
| # felony prior arrests | | 4.45 | 4.18 | 3.83 | 4.06 |
| Base 10 log of # prior felony arrests | | 0.56 | 0.52 | 0.48 | 0.51 |
| Any prior misdemeanor arrest | | 89.1% | 85.5% | 82.3% | 83.8% |
| # prior misdemeanor arrests | | 7.87 | 8.64 | 6.95 | 7.47 |
| Base 10 log misdemeanor arrests | + | 0.76 | 0.74 | 0.68 | 0.70 |
| Any violent felony arrest | | 43.7% | 47.9% | 42.6% | 44.1% |
| # violent felony arrests | | 1.18 | 1.09 | 1.09 | 1.12 |
| Base 10 log violent felony arrests | | 0.23 | 0.22 | 0.21 | 0.21 |
| Any prior conviction | + | 68.2% | 67.0% | 59.4% | 62.8% |
| # prior convictions | | 6.32 | 6.87 | 5.65 | 6.31 |
| Base 10 log of # prior convictions | | 0.60 | 0.58 | 0.51 | 0.55 |
| | | | | | |
| **CURRENT CRIMINAL CASE** | | | | | |
| Arrest Charges | | | | | |
| Drug-Related | * | 45.1% | 40.4% | 32.6% | 36.8% |
| Marijuana | + | 11.2% | 4.5% | 8.7% | 8.4% |
| Trespass | | 3.1% | 6.8% | 8.5% | 7.6% |
| Crime against Person | | 10.1% | 8.7% | 8.5% | 8.8% |
| Petit Larceny | | 9.0% | 10.2% | 11.2% | 10.0% |
| Other Property | * | 1.6% | 4.0% | 6.9% | 5.2% |
| Prostitution | | 4.2% | 5.0% | 2.1% | 3.2% |
| Criminal Possession of Weapon | | 4.6% | 5.2% | 4.8% | 4.8% |
| Theft of Services | | 9.1% | 8.5% | 12.0% | 10.6% |
| Other | | 2.0% | 6.8% | 4.7% | 4.6% |

+p<.10,* p<.05, ** p<.01, ***p<.001

# Appendix C

## Impact on Re-Arrests - 4 MH Intervention Groups

| Intervention Status | | MH Group & ICS | MH Group only | ICS only | No MH Intervention |
|---|---|---|---|---|---|
| **RECIDIVISM** | | | | | |
| **One Year (N = 1440)** | | | | | |
| Any re-arrest | | 50.5% | 50.8% | 54.8% | 58.5% |
| # re-arrests | ** | 1.13 | 1.25 | 1.35 | 1.64 |
| Any misdemeanor re-arrest | * | 42.7% | 42.8% | 46.8% | 52.6% |
| # misdemeanor re-arrests | ** | 0.87 | 0.98 | 1.07 | 1.32 |
| Any felony re-arrest | | 18.9% | 19.2% | 21.4% | 22.6% |
| # felony re-arrests | | 0.26 | 0.26 | 0.27 | 0.31 |
| Any drug re-arrest | | 30.9% | 31.3% | 34.6% | 35.6% |
| # drug re-arrests | * | 0.44 | 0.47 | 0.54 | 0.66 |
| | | | | | |
| **Two Years (N = 1005)** | | | | | |
| Any re-arrest | * | 63.6% | 77.3% | 65.8% | 72.3% |
| # re-arrests | ** | 1.93 | 2.51 | 2.30 | 2.94 |
| Any misdemeanor re-arrest | ** | 59.3% | 70.9% | 56.4% | 66.8% |
| # misdemeanor re-arrests | ** | 1.41 | 1.95 | 1.79 | 2.34 |
| Any felony re-arrest | | 34.3% | 34.6% | 35.0% | 33.7% |
| # felony re-arrests | | 0.53 | 0.56 | 0.51 | 0.60 |
| Any drug re-arrest | | 44.3% | 53.3% | 47.2% | 47.8% |
| # drug re-arrests | ** | 0.71 | 0.97 | 0.93 | 1.23 |

+p<.10,* p<.05, ** p<.01, ***p<.001

Controlling for propensity score, age, log # prior arrests, and drug arrest charge

# Appendix D

**Impact on Re-Arrests - 4 MH Intervention Groups:**
**For each re-arrest measure, 1 = best outcome (dark grey); 4 = worst outcome (light grey)**

| Intervention Status | | MH Group & ICS | MH Group only | ICS only | No MH Intervention |
|---|---|---|---|---|---|
| **RECIDIVISM** | | | | | |
| **One Year (N = 1440)** | | | | | |
| Any re-arrest | | 1 | 2 | 3 | 4 |
| # re-arrests | ** | 1 | 2 | 3 | 4 |
| Any misdemeanor re-arrest | * | 1 | 2 | 3 | 4 |
| # misdemeanor re-arrests | ** | 1 | 2 | 3 | 4 |
| Any felony re-arrest | | 1 | 2 | 3 | 4 |
| # felony re-arrests | | 1 | 2 | 3 | 4 |
| Any drug re-arrest | | 1 | 2 | 3 | 4 |
| # drug re-arrests | * | 1 | 2 | 3 | 4 |
| | | | | | |
| **Two Years (N = 976)** | | | | | |
| Any re-arrest | * | 1 | 4 | 2 | 3 |
| # re-arrests | ** | 1 | 3 | 2 | 4 |
| Any misdemeanor re-arrest | ** | 2 | 4 | 1 | 3 |
| # misdemeanor re-arrests | ** | 1 | 3 | 2 | 4 |
| Any felony re-arrest | | 2 | 3 | 4 | 1 |
| # felony re-arrests | | 2 | 3 | 1 | 4 |
| Any drug re-arrest | | 1 | 4 | 2 | 3 |
| # drug re-arrests | ** | 1 | 3 | 2 | 4 |
| | | | | | |
| **Any re-arrest (no timeframe)** | ** | 1 | 3 | 2 | 4 |

| +p<.10,* p<.05, ** p<.01, ***p<.001 | 1s | 14 | 0 | 2 | 1 |
|---|---|---|---|---|---|
| Controlling for propensity score, age, log # prior arrests, and drug arrest charge | 2s | 3 | 8 | 6 | 0 |
| | 3s | 0 | 6 | 8 | 3 |
| | 4s | 0 | 3 | 1 | 13 |

# Appendix E

**YEAR 1 Post Hoc Analysis: Impact on Number of Re-Arrests**
**4 MH Intervention Groups (Highlight = outcome for groups is significantly different)**

| Recidivism - One Year | Intervention status | Intervention group - compared | Mean Difference |
|---|---|---|---|
| **Re-arrests** | No MH Intervention | MH Group and ICS | 0.68* |
| | | MH Group only | 0.58* |
| | | ICS only | 0.42* |
| | MH Group and ICS | No MH Intervention | -0.68* |
| | | MH Group only | -0.10 |
| | | ICS only | -0.26 |
| | MH Group only | No MH Intervention | -0.58* |
| | | MH Group and ICS | 0.10 |
| | | ICS only | -0.16 |
| | ICS only | No MH Intervention | -0.42 |
| | | MH Group and ICS | 0.26 |
| | | MH Group only | 0.16 |
| **Misdemeanor Re-arrests** | No MH Intervention | MH Group and ICS | 0.62* |
| | | MH Group only | 0.51* |
| | | ICS only | 0.36* |
| | MH Group and ICS | No MH Intervention | -0.62* |
| | | MH Group only | -0.11 |
| | | ICS only | -0.26 |
| | MH Group only | No MH Intervention | -0.51* |
| | | MH Group and ICS | 0.11 |
| | | ICS only | -0.16 |
| | ICS only | No MH Intervention | -0.36* |
| | | MH Group and ICS | 0.26 |
| | | MH Group only | 0.16 |
| **Drug Re-arrests** | No MH Intervention | MH Group and ICS | 0.15 |
| | | MH Group only | 0.17* |
| | | ICS only | 0.13* |
| | MH Group and ICS | Nothing | -0.15 |
| | | MH Group only | 0.02 |
| | | ICS only | -0.02 |
| | MH Group only | No MH Intervention | -0.17* |
| | | MH Group and ICS | -0.02 |
| | | ICS only | -0.04 |
| | ICS only | No MH Intervention | -0.13* |
| | | MH Group and ICS | 0.02 |
| | | MH Group only | 0.04 |

+p<.10,* p<.05, ** p<.01, ***p<.001

# Appendix F

**YEAR 2 Post Hoc Analysis: Impact on Number of Re-Arrests**
**4 MH Intervention Groups (Highlight = outcome for groups is significantly different)**

| Recidivism - Two Years | Intervention status | Intervention group - compared | Mean Difference |
|---|---|---|---|
| **Re-Arrests** | No MH Intervention | MH group and ICS | 1.29* |
| | | Group only | 0.83* |
| | | ICS only | 0.78* |
| | MH group and ICS | No MH Intervention | -1.28* |
| | | Group only | -0.46 |
| | | ICS only | -0.51 |
| | Group only | No MH Intervention | -0.83* |
| | | MH group and ICS | 0.46 |
| | | ICS only | -0.05 |
| | ICS only | No MH Intervention | -0.78* |
| | | MH group and ICS | 0.51 |
| | | Group only | 0.05 |
| **Misdemeanor Re-Arrests** | No MH Intervention | MH group and ICS | 1.21* |
| | | Group only | 0.73* |
| | | ICS only | 0.69* |
| | MH group and ICS | No MH Intervention | -1.21* |
| | | Group only | -0.48 |
| | | ICS only | -0.52 |
| | Group only | No MH Intervention | -0.73* |
| | | MH group and ICS | 0.48 |
| | | ICS only | -0.04 |
| | ICS only | No MH Intervention | -0.69* |
| | | MH group and ICS | 0.52 |
| | | Group only | 0.04 |
| **Drug Re-Arrests** | No MH Intervention | MH group and ICS | 0.36* |
| | | Group only | 0.23 |
| | | ICS only | 0.29* |
| | MH group and ICS | No MH Intervention | -0.36* |
| | | Group only | -0.13 |
| | | ICS only | -0.07 |
| | Group only | No MH Intervention | -0.23 |
| | | MH group and ICS | 0.13 |
| | | ICS only | 0.06 |
| | ICS only | No MH Intervention | -0.29* |
| | | MH group and ICS | 0.07 |
| | | Group only | -0.06 |

+$p<.10$,* $p<.05$, ** $p<.01$, ***$p<.001$