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A B S T R A C T

This paper describes the recidivism patterns over a 4 year period for a cohort of people admitted to a large US urban jail system in 2003 and analyzes how these patterns vary based on presence of mental illness and substance abuse. Analyses were merged for all admissions to a large urban jail system in 2003 (N = 24,290). Descriptive statistics were used to analyze the recidivism patterns for people admitted to jail in 2003 (N = 20,112) over a four year period. Recidivism patterns of people without mental illness or substance use disorders were compared with people with serious mental illness, substance abuse disorders, and dual diagnoses. These analyses found that over half of the people who returned to jail during the 4 year follow-up period did so in the first year. This finding did not differ by any diagnostic category. Analysis of the number of people readmitted to the jail found that people who had a diagnosis of mental illness alone had the lowest number of readmissions to jail in the 4 years after release with 50% having at least one readmission after their initial release. People with dual diagnoses, in contrast, had the highest number of readmissions to jail during the study time frame, with 68% having at least one readmission during the 4 years after release. Substance use is a driving force behind the recidivism of people with mental illness leaving a US urban jail. These findings illustrate the importance of developing interventions that provide timely access to intensive co-occurring substance abuse and mental health treatment during the immediate period after release that are capable of addressing both individual and environment factors that promote the return to drug use after release.

1. Introduction

Nearly 8 million people are released from jails and prisons every year in the United States (Freudenberg, Daniels, Crum, Perkins, & Richie, 2005). While most research to date has focused on the 600,000 yearly releases from prison, increasing attention is being paid to the 7 million people leaving jail each year (Freudenberg et al., 2005). People with mental illness are often singled out for special attention in reentry discussions in part because it is believed that they are at greater risk of recidivism than those without mental illness. Estimates of the prevalence of people with serious mental illness in jails vary based on study methodology, setting, and definition of mental illness (Steadman, Osher, Robbins, Case, & Samuel, 2009). Even the most rigorous estimates suggest that somewhere between 6.4 and 14.5% of men and 12.2 and 31.0% of women, involved in the criminal justice system will have a serious mental illness (Steadman et al., 2009; Teplin, 1990; Teplin, Abram, & McClelland, 1996). Estimates such as these illustrate that a substantial portion of the 7 million jail releases each year involves a person with serious mental illness.

Research has found that as many as 2/3rd of the people being released from incarceration each year will recidivate within 3 years of their release (Langan & Levin, 2002). People with mental illness are thought to be vulnerable to even higher rates of recidivism than those found in the general population due to unmet treatment needs (Baillargeon, Binswanger, Penn, Williams, & Murray, 2009; Lovell, Gagliardi, & Peterson, 2002; Messina, Burdon, Hagopain, & Prendergast, 2004). There is a small, but growing body of research on recidivism patterns among people with mental illness being released from prisons. For example, Baillargeon et al. (Baillargeon et al., 2009; Baillargeon, Penn, Knight, Harzke, Baillargeon, & Becker, 2010) have conducted retrospective analyses of the prior incarceration patterns of a cohort of people with serious mental illness incarcerated in the Texas prison system. These analyses found that people with serious mental illness were more likely than those without to have repeated incarcerations.
during the 6 years prior to their current incarceration (Baillargeon et al., 2009), and that those with co-occurring mental health and substance abuse disorders had a substantially elevated risk for multiple prior incarcerations when compared with people who only had a diagnosis of serious mental illness or substance abuse alone (Baillargeon et al., 2010).

Several studies have also examined re-arrest rates among people with serious mental illness after release from prison. Lovell et al. (2002) found that new charges and supervision violations occurred among 70% of their sample of people with serious mental illness leaving prison in Washington. Silver, Cohen, and Spodak (1989) examined the 5 year re-arrest rates for a cohort of people being released from Maryland state prisons and found that 73.3% of mentally ill offenders were rearrested as compared to 65.4% of offenders found Not Guilty by Reason of Insanity. Feder (1991) looked at recidivism among a cohort of individuals released from New York’s state prisons and found that 64% of offenders with mental illness were rearrested within 18 months of release as compared to 60% of offenders without a mental illness.

Hartwell (2004) examined return to custody rates among a sample of participants in a reentry program for people with serious mental illness leaving prison in Massachusetts. This analysis found that individuals with co-occurring mental health and substance abuse disorders were significantly more likely to return to custody as compared to people with serious mental illness alone. Messina et al. (2004) also examined the role that co-occurring disorders played in return to custody rates among participants in a prison based Therapeutic Community in California. This analysis found that people with co-occurring mental health and substance abuse disorders were significantly more likely to be re-incarcerated during their first year after release when compared to individuals with substance abuse diagnoses alone.

The studies above demonstrate a pattern of recidivism among people with serious mental illness leaving prison wherein they are recidivating more often than those without and that these patterns of recidivism are most pronounced among people with co-occurring disorders. Findings such as these demonstrate the importance of engaging in more analyses of the recidivism patterns among people with mental illness, especially among jail populations which account for a much greater proportion of releases to the community each year. Research has yet to examine recidivism patterns of people with serious mental illness in jails in any substantial way. The few studies that have been published on this issue have found high rates of recidivism.

For example, Teplin, Abram, and McClelland (1994) conducted one of the first studies on jail recidivism among people with mental illness. This analysis focused on identifying predictors of violent crime in a sample of 728 randomly selected jail inmates over a 6 year follow-up period. The study found that nearly half the sample was rearrested for a violent crime during this follow-up period, but that the presence of psychiatric disorder did not increase the chances of re-arrest for violent crime. Ventura, Gassel, Jacoby, and Huang (1998), conducted one of the only other studies of recidivism among jail detainees with mental illness using a sample of 261 inmates released from a county jail in Ohio, diagnosed with a broad array of mental health disorders. This analysis found that 72% were rearrested within 3 years of release. These findings suggest that people with mental illness leaving jail could be as highly recidivistic as those leaving prison, yet much is yet to be learned about recidivism patterns among people with serious mental illness in jail settings and how these patterns might vary based on the presence of substance abuse disorders. The analysis presented here intended to contribute to this area of knowledge by examining the following questions: Among people with serious mental illness being released from a larger urban jail system a) How many return to custody within 4 years of their initial release? b) To what extent does the proportion of people with serious mental illness alone who return to jail during this time period compare with individuals with substance use disorders and those with no disorders?

2. Methods

To respond to these questions, data from two sources were used to examine the recidivism patterns for people with serious mental illness and co-occurring substance abuse disorders leaving jail in a major urban center of the US. The data were drawn from two administrative datasets: Medicaid records from the Philadelphia city behavioral health system and data provided by Philadelphia County’s jail system which included data on admission and release dates and basic demographic information such as birth date, sex, and race/ethnicity. Medicaid data was drawn for all adults between the ages of 18 and 64, living in the city of Philadelphia, who were eligible for Medicaid in the state of Pennsylvania in 2003 and matched with the jail records for all admissions in 2003. Cases were matched using an algorithm that selects matching records using a combination of factors that included first and last name, date of birth, sex, and social security number (Campbell, Deck, & Krupski, 2008).

These matched files were then appended to a file that contained Medicaid and jail data for all individuals with an admissions to the jail in 2003 (N = 20,112). Jail data included all admissions and releases that occurred during the four year follow-up period after the person’s initial admission to jail in 2003. The four year follow-up period was tied to each participant’s first admission to jail in 2003 in order to ensure the equivalence of follow-up period across participants. Diagnostic information was pulled from Medicaid claims data for 2001 through 2003 to identify people with serious mental illness and substance dependence. Serious mental illness was defined as including diagnoses in the schizophrenia spectrum or major affective disorders (295 and 296). Substance abuse was defined as including diagnoses of dependence on alcohol or substances (303 and 304). Diagnoses were identified in Medicaid claims where a person had one inpatient or two outpatient claims with one of the above specified diagnoses within the specified time period. For the purpose of the analyses conducted here the diagnostic information described above was used to create a variable that had four categories which indicated whether a person had a serious mental illness only (295 and 296), substance abuse diagnosis only (303 and 304), a co-occurring mental health and substance abuse disorder (one of the diagnostic codes from both the serious mental illness and substance abuse categories), and no mental health or substance abuse diagnoses.

Descriptive statistics were used to examine the number of people who had a readmission to the county jail during each of the four year follow-up period (N = 12,124), broken out by the four diagnostic categories described above. A Chi-square test (Moore & McCabe, 1998) was used to examine whether there were significant differences in the percentages of individuals with readmissions during each year of follow-up broken out by diagnostic category. Then Chi-square tests were used again in post hoc analyses, with a Bonferroni correction, which set the .05 significance level at .008, to conduct six 2 × 2 comparisons of the differences in percentage of individuals within each diagnostic category who had a readmission during each of the four year follow-up period. All data management, matching, and analyses were performed using SAS statistical software. Institutional Review Boards for the University of Pennsylvania and the City of Philadelphia Department of Public Health approved and oversaw this research.

3. Results

Table 1 illustrates the socio demographic characteristics of people admitted to jail in 2003 (N = 20,112). Chi-square analyses found significant differences in gender and racial categories across diagnostic categories. Examinations of the table percentages suggest that there was greater diversity in gender and ethnicity among individuals
with substance abuse and/or serious mental health diagnoses. Comparison of the mean ages across diagnostic groups using One-way Analysis of Variance with multiple comparisons (Moore & McCabe, 1998) found that there were significant differences in the mean ages across all of the diagnostic groups except people with serious mental illness only, where the only significant difference in mean age occurred between people with serious mental illness only and those with no diagnosis.

The results displayed in Table 2 shows that a third of the sample had a readmission to jail within the first year of their index admission and that 60% had at least one readmission within 4 years. However, when readmission rates are broken out by diagnostic category it is interesting to note that people with a serious mental illness alone had the lowest rate of readmission over the four year follow-up period, with only 50% having at least one readmission to jail after their initial release. People with dual diagnoses, in contrast, had the highest number of readmissions to jail during the study time frame, with 68% having at least one readmission during the 4 years after release. This trend is illustrated best in Fig. 1 which provides a bar chart that illustrates the comparative readmission rates over the four year follow-up period, with only 50% of individuals having at least one readmission to jail after their initial release. People with co-occurring mental health and substance use disorders return to custody more often by diagnostic category. This chart shows that people with co-occurring disorders, except for their comparison with people with substance abuse diagnosis only during the 4th year of follow-up. It is also important to note that all of the statistically significant differences in recidivism patterns among individual diagnostic categories in this analysis involve people using substances. This point is highlighted best by the finding that there were no statistically significant differences between the proportions of people with serious mental illness only who return to jail when compared to those with no diagnosis across the four year follow-up period.

### Table 2

<table>
<thead>
<tr>
<th>Number of individuals admitted to jail in 2003 N = 20,112</th>
<th>Number of individuals with at least 1 jail readmission 1 year N = 6,645 (32%) (X² = 35.538)[***]</th>
<th>Number of individuals with at least 1 jail readmission at 2 years N = 9,922 (45%) (X² = 59.209)[***]</th>
<th>Number of individuals with at least 1 jail readmission at 3 years N = 10,834 (54%) (X² = 54.608)[***]</th>
<th>Number of individuals with at least 1 jail readmission at 4 years N = 12,124 (60%) (X² = 49.163)[***]</th>
</tr>
</thead>
<tbody>
<tr>
<td>People with diagnosis of serious mental illness only N = 376</td>
<td>People with substance abuse diagnosis only N = 1,531</td>
<td>People with co-occurring SMI and substance abuse diagnoses N = 808</td>
<td>People with no diagnosis N = 17,397</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>226</td>
<td>213</td>
<td>154</td>
<td>34</td>
</tr>
<tr>
<td>Female</td>
<td>110</td>
<td>75</td>
<td>59</td>
<td>20</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>213</td>
<td>92</td>
<td>73</td>
<td>3</td>
</tr>
<tr>
<td>Caucasian</td>
<td>75</td>
<td>38</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>82</td>
<td>152</td>
<td>95</td>
<td>32</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>34</td>
<td>33</td>
<td>36</td>
<td>35</td>
</tr>
<tr>
<td>Median</td>
<td>34</td>
<td>34</td>
<td>37</td>
<td>35</td>
</tr>
<tr>
<td>Mode</td>
<td>20</td>
<td>20</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

Bonferroni correction (0.05/6 = 0.008), .05 significance level is readjusted to p = .008 for all 2 × 2 comparisons.

### Discussion

This analysis shows that as a group and within each diagnostic category, the vast majority of recidivism occurred within the first year, with half of the people who returned to jail during the 4 year follow-up period did so during this time period. The results of this analysis also demonstrate that when serious mental illness is broken individual diagnostic categories for each year of follow-up are presented in Table 2. These results show that the most consistent pattern of significant differences between the percentages of individuals in each diagnostic group with a readmission during each year of follow-up occurs among individuals with co-occurring disorders. This is demonstrated by the finding that the proportion who returns to custody each year is significantly different in every 2 × 2 comparison involving people with co-occurring disorders, except for their comparison with people with substance abuse diagnosis only during the 4th year of follow-up. It is also important to note that all of the statistically significant differences in recidivism patterns among individual diagnostic categories in this analysis involve people using substances. This point is highlighted best by the finding that there were no statistically significant differences between the proportions of people with serious mental illness only who return to jail when compared to those with no diagnosis across the four year follow-up period.
out by presence of substance use, and compared with individuals who have no diagnoses at all, return to custody rates look different than those currently published in the literature. In this study, fewer people with serious mental illness alone return to jail over the four year follow-up period than any other group. This finding provides a more nuanced understanding of recidivism rates among this population, and challenges the prevailing assumption that all people with serious mental illness have high recidivism rates.

The findings from this analysis are consistent with other research in that people with co-occurring disorders have higher rates of recidivism than other groups (Hartwell, 2004; Messina et al., 2004). However, this is the first analysis to date that the authors are aware of that includes a direct comparison of recidivism rates among people with serious mental illness, substance abuse, and no disorders in a jail population. The fact that this type of analysis revealed that a smaller proportion of people with serious mental illness alone returned to jail each year, than any other group, even those with no diagnoses at all, suggests that further examinations such as these are required.

5. Capacity of administrative data in this analysis

This paper builds on the strengths of administrative data analysis, which represents the only practical means by which to identify treated, serious mental illnesses among a large number of persons who were incarcerated in a county jail system. Such a method, however, has its limitations. While a four year follow-up period should be sufficient to capture the vast majority of readmissions to jail in this population, this readmission data does not include admissions to jails in other jurisdictions. This situation creates the possibility that the return to custody rates is higher than the ones presented here. However, the percentage of people with readmission to the jail during the four year follow-up period is similar to rates found in other studies (Langan & Levin, 2002). Another potential limitation to the data used in this study is that the presence of mental illness and substance abuse disorders was established using administrative claims data over a three year period. This time period was used to maximize the number of people identified as having been treated for mental illness or substance abuse, yet a number of persons will be missed through the matching process described earlier, either due to data shortcomings or by not having received treatment. The extent of unidentified serious mental illness and substance abuse among this jail population is unknown. Furthermore, these data are from one public mental health and jail system which is relatively resourceful with multiple means of service linkage, and other systems may have differing results.

6. Conclusion and implications

Serious mental illness alone does not explain greater jail recidivism. However, co-occurring substance use and serious mental illness does. The criminalization hypothesis, as originally conceived, focused on mental illness related behaviors as the causal mechanism for greater arrests. In these data, as in other research (Schwartz & Lurigio, 2007) such a claim has little or no support. This carries several implications for behavioral health services, and responses of service systems to individuals who are living in the community after a jail release.

Many have observed the importance of co-occurring substance use in developing interventions and policies for people with serious mental illness involved in the criminal justice system (Raillargeon et al., 2010; Chandler & Spicer, 2006; Hartwell, 2004). However, this analysis raises some questions about the role of mental illness per se in interaction with arrest and jail incarceration. Several plausible explanations can be seen to underlie the seemingly protective role of mental illness alone in explaining recidivism. First, mental illness alone may not be associated with the circumstances and behaviors that elicit return to custody. For example, the police may react differently to an individual with mental illness with no signs of substance use at the time of the interaction; choosing to take someone like this to an emergency room rather than jail.

Second, it may be that the receipt of mental health services provides protection for individuals with mental illness uncomplicated by substance use against the risk of recidivism. In this case, it may be useful to develop a better understanding of the relationship between services and reduced risk of recidivism. Is it the treatment of symptoms, or is it the provision of living supports, such as supported housing, that are associated with this reduced risk? Related to this, it may be that those individuals whose mental illness is uncomplicated by substance use are, for many reasons, more likely to find services responsive to their needs. Provided that these results show themselves to be robust in subsequent analyses, all these plausible explanations deserve greater attention, as they relate to different dynamics of illness, service effectiveness, and the responsiveness of service systems to people with mental illness who are involved in the criminal justice system.

If services are more responsive to people with SMI alone, as opposed to those with SMI and co-occurring substance use disorders, then this carries familiar implications for service delivery systems. The need for coordination and effective intervention for co-occurring disorders is nowhere more urgent than it is among those who are leaving jail. The experience of incarceration, addiction, and mental
illness together are inextricably linked to problems with housing, personal safety, and recovery. Service systems need to generate potent, intensive, and creative interventions that tackle this issue.

Many of these intersecting problems are linked to personal behaviors such as adherence to psychiatric medication or use of street drugs. However, one cannot allocate all explanatory power for the incarceration and reincarceration rates to individual behavior alone. Nor can we empirically expect to see behaviorally based interventions solve the problems of incarceration of people with co-occurring SMI and substance use across the population affected. Much of the explanation for these incarceration rates are attributed to the intensive criminalization of drug use in urban US communities, and the severe penalties that come with being arrested on drug charges (Alexander, 2010; Tonry, 2011). Many of the strategies associated with the differential arrest of African-Americans, such as types of drugs used, locations of sale, and networks of users and sellers (Tonry, 2011), may also be associated with greater likelihood of arrest of people with SMI. At the local level, behavioral health systems can collaborate with law enforcement to institute jail diversion programs such as Crisis Intervention Teams (CIT) (Compton, Bahora, Watson, & Oliva, 2008), which train and support police in alternative dispositions to arrest in many cases. Prosecutors can take initiative to diminish or eliminate the criminal treatment of drug use. At state and national levels in the US, steps can be taken to decriminalize drug use, create efficient funding streams for co-occurring mental illness and addiction treatment, reduce the severity of sentences, and expedite healthcare benefits for those who are incarcerated, so that they can have the resources to seek treatment for addiction as a healthcare concern immediately upon release.

In summary, the jail experience of people with mental illness and co-occurring substance use disorders represents an exclusion from not only the community, but also from service systems and social supports that can more effectively respond to their needs. Research can continue to address this public health problem at multiple levels.

References


