Predictors of General and Violent Recidivism Among SMI Prisoners Returning to Communities in New York State

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Correctional and forensic mental health systems throughout the country are routinely called on to manage and provide treatment for mentally ill prison inmates. This study identifies criminal justice and mental health predictors of general re-arrest and re-arrest for violence in seriously mentally ill (SMI) persons leaving prison in New York State. Both length and diversity of criminal history predicted general re-arrest, as did substance abuse diagnoses, participation in community mental health treatment, parole supervision, and coordinated parole and mental health services. Only demographics and criminal justice measures were predictive of re-arrest for violence. The rate of re-arrest for violence in this SMI sample was lower than that of general prison release populations.

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Correctional and forensic mental health systems throughout the country are routinely called on to manage and provide treatment for mentally ill inmates. These inmates require special care and treatment during the course of incarceration and throughout reintegration into the community. In this study, we explored the community outcomes in terms of general re-arrest and re-arrest for violence of seriously mentally ill persons leaving prison in New York State (NYS). We sought to identify predictors of re-arrest and to weigh the relative contribution of criminal history and mental health indicators to that prediction.

Prior research suggests that mentally ill offenders returning to the community are re-arrested and re-turned to prison at rates similar to those without mental illness. One outcome study of a relatively small sample of mentally ill inmates released from prison in NYS found that 64 percent were re-arrested within 18 months of release compared with 60 percent of offenders without mental illness.[1] Similarly, a follow-up study of mentally ill offenders released from prisons in Washington State in 1996 and 1997 produced a one-year re-arrest rate of 61 percent for any crime and 41 percent for a felony offense, compared with a felony re-arrest rate of 37 percent for all persons released from prison in Washington over the same period.[2] Other research found a lower rate of re-arrest among mentally ill offenders compared with that of the general offender population, although rates remained high for both groups.[3,4]

The high rate of failure among prisoners returning to the community is often attributed to the challenges inherent in the process of transitioning from prison to the community. Regardless of their mental health status, ex-offenders are routinely confronted with a host of obstacles when returning to the community, including limited access to employment, to adequate housing, and to drug treatment.[5] Mentally ill inmates face even greater challenges. They also

must secure mental health treatment, establish a therapeutic relationship with a new treatment provider, and obtain the psychotropic medications needed to maintain stability.[6] Moreover, barriers to employment, housing, and drug treatment are often greater for mentally ill ex-offenders, as many community programs established to support the transition from prison to the community are not prepared to handle this population. Likewise, community-based services for the mentally ill are poorly prepared to deal with the unique needs of recently incarcerated individuals, who often carry with them dysfunctional behaviors learned through the prison culture, such as nondisclosure of problems, use of intimidation to preempt threats, and low involvement with others.[7] Both service systems naturally triage their applicant pool to focus their resources on the population that they are best equipped to serve, and mentally ill offenders may well fall through the gaps in this social welfare safety net.

The period of transition from prison to the community is stressful for most returning prisoners, and failure in terms of re-arrest and reincarceration often occurs during the first year of release[8]; but the factors frequently identified as most predictive of both general and violent recidivism in the general population of returning prisoners are largely intrinsic to the individual rather than to specific stressors associated with re-entry. The most comprehensive effort to identify predictors of re-arrest within the general offender population involved a meta-analysis undertaken by Gendreau et al.,[9] in which they reviewed 131 recidivism studies involving nearly 750,000 individuals. Potential predictors of recidivism common to many of the studies included largely static characteristics, such as demographics, criminal history, and intellect, as well as potentially dynamic characteristics, such as antisocial cognitions, values, and behavior; antisocial personality traits; criminal companions; family support; personal distress (mental health and self-esteem); substance abuse; and social achievement. The strongest predictors of recidivism were criminal history; antisocial cognitions, values, and behavior; antisocial personality; and criminal peers.[9] Personal distress measures were largely unrelated to recidivism, whereas substance abuse, family support, and social achievement emerged as weaker, though significant, effects.[9] The most predictive dynamic risk factors, including antisocial cognitions, values, and behavior and antisocial

personality, are arguably overlapping constructs. Indeed, their distinction is, in part, the consequence of the nature of meta-analyses in which personality test scales have been used in some studies, but not in others. Whether the constructs relating to measures of antisociality are distinct, however, is less important than the collective strength of their relationship with recidivism. This body of research has resulted in the focus of greater attention on challenging and changing the value systems of prisoners, restructuring cognitions, and guiding prisoners in practicing new ways of solving problems.

Although the meta-analysis of Gendreau et al.[9] determined that personal distress measures, including measures of mental illness, are, at best, very weak predictors of recidivism in the general offender population, the research left unanswered the core question of whether the same set of traits predicts recidivism among the mentally ill subpopulation. In a subsequent meta-analysis, Bonta et al.[10] focused exclusively on mentally disordered offender samples and confirmed the importance of antisocial personality and criminal history in predicting recidivism for that subpopulation as well. On the basis of findings across 58 studies, the authors concluded that the strongest predictors of recidivism and violent recidivism in the mentally disordered offender population were prior criminal history and antisocial personality. Family problems, substance abuse, and poor living arrangements were weaker predictors, whereas measures of serious mental illness such as diagnoses of psychosis or mood disorder and treatment history were unrelated or inversely related to recidivism.

Although psychosis did not emerge in their meta-analysis as a significant predictor of recidivism, as Bonta et al.[10] noted, the episodic nature of psychosis may obscure that relationship. This is particularly true, given the rather global and often historical measures of mental health used in most research on recidivism. Within the public at large, in contrast, acute psychosis and in particular, paranoid ideation have been shown to contribute to violent behavior.[11,12] Similarly, co-occurring disorders of mental illness and substance abuse predict violence in community samples, even though a history of substance abuse is a weaker predictor of recidivism for mentally ill prisoners returning to the community.[13] Although these meta-analyses suggest that substance abuse predicts recidivism among general offenders about as well as it does among mentally disordered individu-

als, there is some evidence that failure under supervision is higher in persons with co-occurring disorders. A recent study of inmates released to parole supervision in Texas found that the presence of a major mental illness alone or substance use disorder diagnosis alone did not increase risk of parole revocation for either a technical violation or a new offense.[14] These researchers did find, on the other hand, that those individuals with co-occurring mental illness and substance abuse were more likely to have their paroles revoked. Outside the context of criminal behavior, substance abuse also is associated with treatment noncompliance, relapse, and rehospitalization.[15]

Perhaps the most critical question to be addressed by this research is the magnitude of the relationship between mental health treatment in the community and recidivism. Little research is available to shed light on this question. A study of re-arrest among mentally ill persons released from prison in the state of Washington found no statistically significant relationship between community treatment and re-arrest for felonies or offenses against the person.[2] Re-arrest was associated with commonly identified static and dynamic risk factors, such as number of prior arrests, number of different types of offenses in the individual's criminal history (versatility measure), age at onset of criminal behavior, and prison behavior. Although more than 60 percent of the sample accessed treatment in the community during their first year of release, the authors posited that the intensity of treatment (typically two to five hours per month) may have been too low to improve outcomes in the community. Intensity of treatment may have contributed to other research findings indicating that the New York Assisted Outpatient Treatment (AOT) Program, also known as mandated outpatient treatment, was associated with decreased hospitalizations and decreased likelihood of arrest. However, sustained improvements in service engagement and decreased hospitalizations were attained after only 12 months in the program, suggesting that a longer period of treatment is necessary for significant change to take hold.[16]

A study of jail recidivism in Washington State and Florida showed that having Medicaid at release and accessing behavioral health services were associated with only a small improvement in the average number of subsequent detentions. Mental health service use was unexpectedly associated with higher rates of violent offending. It was speculated that this association reflects a tendency to target services to individuals seen as more at risk.[17] Although they did not specifically address recidivism, researchers in a Florida study examined, among other factors, the relationship between having outpatient mental health contact and arrest. Lack of outpatient mental health contact during the previous quarter increased the odds of misdemeanor arrest significantly and increased the odds of felony arrest to a lesser degree.[18]

In summary, prior research suggests that static and dynamic risk factors predictive of recidivism in the general offender population are much more likely to predict re-arrest among mentally ill persons released from prison than are factors such as diagnosis history or participation in treatment subsequent to release from prison. Substance abuse and mental illness appear to exert a synergistic effect on re-arrest, although substance abuse tends to be related to recidivism within the general population of offenders as well. The present research serves to add to this body of knowledge and improve on prior research through use of a large sample and dynamic measurement of treatment participation subsequent to release from prison.

Treatment and Re-entry of Mentally Ill Prisoners in NYS

Prisoner re-entry services in NYS are provided under the auspices of the Central New York Psychiatric Center (CNYPC). The CNYPC comprises a 206-bed maximum security forensic psychiatric center dedicated to serving the inpatient needs of inmates confined to NYS's correctional facilities and 29 corrections-based satellite mental health units. Twenty-five prerelease coordinators (PRCs) work within these units and have primary responsibility for developing aftercare plans and submitting entitlement applications for inmates with serious mental illness returning to New York's communities.

PRCs have several resources at their disposal to assist them in release planning. These include the Medication Grant Program (MGP), which provides ex-offenders with access to medications while their Medicaid applications are pending approval; assistance from entitlement specialists for filing applications for Medicaid, SSI, and SSDI; access to two specialized re-entry units (the Community Orientation and Reentry Program (CORP) for SMI male inmates at Sing Sing Correctional Facility, and Safe

Transition and Empowerment Project (STEP) for females at Bedford Hills Correctional Facility); and, in rare instances, Assisted Outpatient Treatment (AOT) court orders. Upon release from custody, inmates generally receive aftercare services from the community mental health system with some noteworthy exceptions.

A small number of SMI inmates returning to NYC also are provided coordinated parole supervision, case management, treatment, and supported housing through the Parole Supported Treatment Program (PSTP). PSTP participants are supervised by specially trained parole officers who are assigned a reduced caseload (generally 25:1) and work with community treatment providers to ensure successful and safe re-entry. To complement the services of these officers, the NYS Office of Mental Health (OMH) established a transition case management service consisting of Intensive and Supportive Case Managers (ICMs and SCMs) who specialize in serving ex-offenders during the initial three months of community placement. ICMs and SCMs engage these former inmates on release from prison and assist them in community adjustment (e.g., keeping scheduled aftercare appointments and completing remaining entitlement documents) and navigating community systems of care (medical and psychiatric). Once acclimated, the former inmates are transitioned to other case management programs. The treatment component of PSTP provides Assertive Community Treatment-type services and includes a part-time psychiatrist, part-time registered nurse, full-time team leader, two nonmedical mental health professionals, administrative support, and a peer specialist. Services provided include psychiatric consultation and support services, vocational assistance, case management services, nutritional counseling, and peer support. PSTP participants have access to 50 supported housing beds and 10 graduate housing beds and a clinical component. Parolees are assigned to scattered-site, two-bedroom apartments across the city and are visited regularly by both parole officers and case managers.

PSTP has been in operation since July 2002. To be eligible for participation, candidates must carry diagnoses of serious and persistent mental illness (SPMI) and have a history of substance abuse, have a minimum of two years postrelease supervision, be able to self-administer medication, and agree to sign a consent for the release of information to facilitate communication among case managers, treatment providers, and parole officers. Like SMI, SPMI generally includes persons carrying a diagnosis of a psychotic or major mood disorder, but on occasion encompasses other diagnoses when they cause extended impairment in functioning.

Sample Selection

The sample included all seriously mentally ill inmate-patients leaving prison in NYS in 2006 and 2007. Serious mental illness was defined as all psychoses and major mood disorders. Individuals were classified on the basis of psychiatric diagnosis at the time of release. All diagnoses are made by CNYPC licensed clinicians under the supervision of treating psychiatrists. If a subject was released more than once during the study period, only the first release episode was included in the analysis. A total of 2,185 subjects met the sampling criteria.

This study protocol was reviewed and approved by the Institutional Review Board of the Research Foundation for Mental Hygiene, Inc., and the New York State Office of Mental Health. Identities of research subjects were maintained in a separate, confidential file subsequent to the integration of records from the various data sources.

Data Sources

Data were collected from the Mental Health Automated Record System (MHARS), the New York State Medicaid database, release data logs maintained by OMH PRCs, admission logs maintained by the New York State Forensic LINK team and PSTP, and the New York State Computerized Criminal History (CCH) file. MHARS provided data on all inpatient stays before and subsequent to incarceration and all contacts with state outpatient clinics subsequent to release from prison. Medicaid data included all Medicaid-reimbursed, mental health-related clinic and hospital visits subsequent to release from prison. In addition, a relatively small number of the subjects received transitional mental health services through LINK and PSTP; thus, their admission and discharge logs represent another source of treatment data. Given that this population is unlikely to have private insurance, these data sources capture most of the mental health contacts. Finally, the New York State Computerized Criminal History (CCH) file provided data on all unsealed misdemeanor and

felony arrests in the subjects' criminal histories, as well as associated dispositions and sentences. The CCH also provided dates of all prison admissions and releases for the purpose of measuring time at risk subsequent to release.

Measures

Dependent Variables

The numbers of days between release from prison and both general re-arrest and re-arrest for violence were the dependent variables. Violence was defined as including the following offenses: homicide, robbery, sexual assault (rape and other sexual assaults), arson, kidnapping, and other types of assault (aggravated and simple). If no re-arrest occurred during the follow-up period, the time at risk was calculated as the time from release to the end of the follow-up period. If the individual was reincarcerated on a parole violation during the follow-up period without an arrest for another charge, the time at risk was measured from the date of release to the date of reincarceration. The measure associated with re-arrest for violence essentially ignored arrests for nonviolence and computed the time at risk in the same manner. Thus, an individual may have different values for the dependent variable if first arrested for a nonviolent offense and later arrested for a violent offense without any intervening incarceration. Any arrest that occurred subsequent to a period of reincarceration was excluded.

Predictor Variables

Both dependent and predictor variables are presented in Table 1. Predictor variables include demographics, criminal and mental health histories before release from prison, transitional services at the time of release, and parole supervision and treatment after release. Regarding mental health measures, the diagnostic indicators used in this research reflect diagnoses at any time during the course of treatment before release from prison. An individual may have two or more diagnoses recorded in the data. This research also measured prior commitment to a state civil psychiatric facility, which would have occurred at some time before sentencing to prison. In addition, we recorded the mental health service level of the person at the time of release. The levels range from 1 to 4, with lower levels receiving more intensive prison-based services. Inmates in mental health Level 1 generally have a major mental illness and

Table 1 Characteristics of the Sample

Sample (N=2005)	Mean	Median	SD
Follow-up and outcome			
Maximum days in follow-up period, n	1,045.4	1,044.0	207.1
Arrested before terminal event, %	45.9		
Arrested for violence before terminal event, %	11.0		
Demographics			
Age at release, y	39.3	39.8	9.3
Race, %			
White, non-Hispanic	27.9		
Black, non-Hispanic	53.8		
Hispanic	18.4		
Male, %	70.7		
Criminal history, n			
Arrests before release	11.5	8.0	11.9
Violent arrests before release	1.9	1.0	2.3
Prison terms before release	1.9	1.0	1.4
Diversity of criminal history, score	2.7	3.0	1.3
Max expirations, %	14.9		
Years in prison before release, n	1.9	1.1	2.4
Mental health history, %			
Mental health service level			
Level 1	24.6		
Level 2	43.4		
Level 3 or 4	32.0		
Prior non-CNYPC state inpatient	27.0		
Diagnosis			
Antisocial personality	16.3		
Bipolar disorder	25.9		
Major depression	18.9		
Psychosis	20.4		
Schizophrenia	29.3		
Substance abuse	59.6		
Transition and community, %			
CORP release	5.6		
Released on psychotropic medication	86.1		
Released to NYC	56.7		
PTSP	3.0		
Months in community with mental health (MH) contact	23.4		
Months in community with MH or substance abuse contact	35.0		

are actively symptomatic. Level 2 inmates are similarly diagnosed, but are medication compliant and stable, though still in need of clinic-level care. Level 3 and 4 inmates are neither actively symptomatic nor in need of clinic-level care, despite the fact that those in this study carried an SMI diagnosis at the time of their release from prison.

Diversity of criminal history was measured by assigning a point when one of the following offenses occurred in the criminal history and totaling the results, to create a diversity scale of 1 to 8: homicide, robbery, sex offense, theft, drug offense, driving while intoxicated (DWI), burglary, and assault. The number of prison sentences was also drawn from the

criminal history file as was the length of the subject's incarceration before release.

Since all of the returning inmates in this research were SMI, they all would be considered for the full panoply of transitional services including referrals for case management and treatment services and preparation of entitlement applications. In this regard, the research included measurements for participation in CORP and PSTP, use of psychotropic medications at the time of release, whether the individual had parole supervision in the community, and whether the person participated in mental health treatment in the community. Postrelease treatment in the community was measured dynamically on a monthly basis. As noted earlier, treatment services were identified if they occurred in a state-operated inpatient or outpatient program, involved the state forensic LINK team or PSTP, or were reimbursed through Medicaid.

Results

Profile of Subjects

Complete data were available for 92 percent of the sampled individuals. This sample of prisoners with serious mental illness returning to communities across NYS was largely nonwhite (72%) and male (71%). While these statistics show a significant overrepresentation of nonwhites and males compared with the state's general population (40% nonwhite and 49% male, in 2009), they under-represent those populations when compared with the state's prison release population (77% non-white and 93% male, in 2009). Those in the sample averaged approximately 12 arrests per their criminal histories (median of 8), across an average of nearly three types of offenses. When they began the incarceration included in the study, they had an average of two prior arrests for violence and had spent nearly two years in prison; 85 percent were released to the supervision of parole.

Regarding their mental health history, 27 percent had been admitted to a state nonforensic psychiatric facility before entering prison. This is a significant percentage, given that the state civil psychiatric system largely admits patients who are not responsive to treatment in psychiatric units of local hospitals and have longer term treatment needs. It is possible, however, that a substantial portion of the stays in state civil psychiatric facilities is the result of incompetency findings associated with prior arrests. While nearly all patients in the state system are first triaged through local psychiatric units, the exceptions are those whose misdemeanor charges are dismissed because of a finding of incompetent to stand trial and who are transferred directly to a state psychiatric facility without first being triaged through the local system.

The most common Axis I diagnosis was schizophrenia (29%). Nearly 60 percent carried a diagnosis of substance abuse, and 16 percent were identified as having antisocial personality disorder (ASPD). These SMIs were at a variety of mental health services levels at the time of their release, with 25 percent receiving the highest level of services as MH Level 1 prisoners.

When mentally ill prisoners are nearing their release, PRCs located throughout the prison system prepare entitlement applications, such as Medicaid, and link the individuals to case managers and treatment providers in the community. Although most SMIs do not have entitlements in place at the time of their release from prison, NYS provides access to psychotropic medications to bridge individuals while their Medicaid applications are pending consideration. Most (86%) of the subjects in this research were on psychotropic medications at the time of their release from prison.

While prison-based re-entry services are important to a smooth transition back into the community, support when in the community is equally if not more critical, as are inreach services that can provide continuity of treatment between prison and the community. A small portion of this sample (6%) was enrolled in CORP, which provides enhanced release preparation as well as inreach services. Another small segment (3%) entered PSTP subsequent to release and thus was supervised by mental health-trained parole officers with access to intensive case management, a consulting psychiatrist, and supported housing.

By the time arrest data were collected on the sample, an average of nearly three years had elapsed since the inmates were released from prison. For the purpose of the survival analysis, time at risk was measured from the date of release to the date of arrest, the date of reincarceration (if no arrest occurred before reincarceration), or the date of the end of the follow-up period (if neither an arrest nor reincarceration occurred). Although reincarceration without an arrest marked the end of the follow-up period, it was not counted as a failure for the purpose of the survival
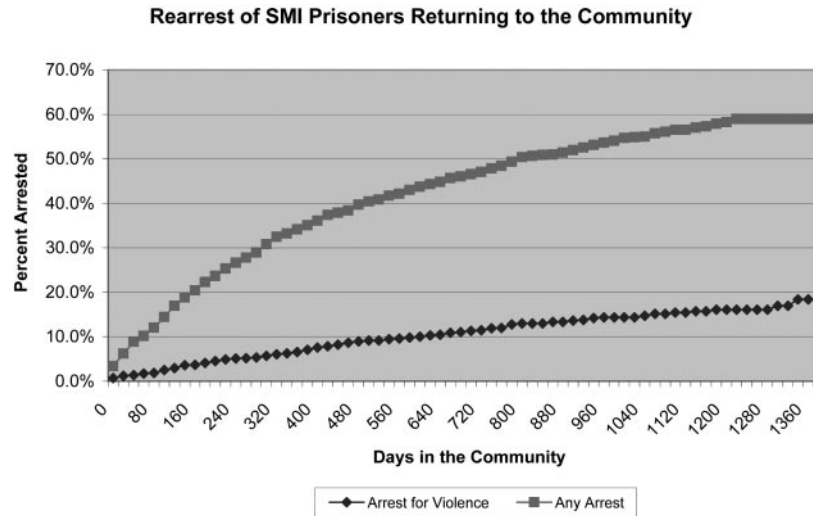
Rearrest of SMI Prisoners Returning to the Community

Figure 1. Re-arrest of SMI prisoners returning to the community.

analysis. Approximately 46 percent were re-arrested during the follow-up period (which ranged from 683 to 1410 days), but only 11 percent were re-arrested for crimes involving violence.

Survival curves of time to first arrest and time to first arrest for violence appear in Figure 1. Forty-seven percent were estimated to be re-arrested within two years of release and 12 percent were estimated to be re-arrested for crimes involving violence. Whereas over half of those re-arrested during the follow-up period were re-arrested during the first year of release, re-arrests for violence occurred more gradually. The trajectory of re-arrest in this sample of SMI individuals leaving prison was similar to that found in the general population of prisoners returning to the community in NYS. A study of released prisoners in NYS in 2002, for example, revealed that 42 percent of females and 56 percent of males were re-arrested within two years of their release from prison.[19]

Multivariate Analysis

A Cox proportional hazards regression model was used to assess which of the independent variables accounted for unique variance in the time until re-arrest after release from prison. Cox regression is a form of survival analysis used to measure the effect of independent variables on a dependent variable that represents the amount of time a specific event takes to occur. Survival analysis is used when subjects have been at risk of the occurrence of an event for various amounts of time. Rather than exclude subjects that were not at risk for a given time, survival analysis creates estimates based on outcome information from all subjects, taking into account their time at risk. Cox regression performs similarly, but allows for independent variables to be added to the analysis.

Traditional Cox regression presumes that the effects of independent variables on a dependent variable are constant over time (time invariant). For example, age at the time of release from prison is historically predictive of re-arrest. While the ages of persons in the sample change over time, the effect will be constant unless the relative differences between trajectories of re-arrest for different ages are not constant over time. However, when independent variables are dynamic, a time-dependent Cox regression is needed for adequate modeling of the outcome. Time-dependent effects are those that change over time. While all effects in the model must be examined for time dependency and the undue influence of outliers in the sample, effects that clearly change with time are modeled as time dependent from the outset.

Time-dependent effects can be modeled as segmented, where they have a value assigned for each predefined segment of time, or as simply the product of the variable (measured at a given time) and the time at risk. Segmented measures are particularly useful when an individual's status ebbs and flows over time, as is the case with treatment in the community. In the present study, treatment in the community was modeled as a segmented, time-dependent variable. It was segmented into 45 30-day periods. Each subject's participation was measured

Table 2   Model for Prediction of Re-arrest for Any Offense

	Sig. Level	Exp(B)	Exp(B)−1
Treatment by month	.036	.837	−16.3%
Diversity	.000	1.194	19.4%
Age at release	.000	.972	−2.8%
NYC resident	.000	1.469	46.9%
No. prior arrests	.000	1.018	1.8%
No. prior violent arrests	.006	.952	−4.8%
No. prison terms	.000	1.141	14.1%
ME release	.000	2.071	107.1%
No. days of last prison term	.000	.939	−6.1%
Race	.000		
White vs. Hispanic	.012	1.346	34.6%
Black vs. Hispanic	.000	1.455	45.5%
Substance abuse diagnosis	.001	1.255	25.5%
Specialized parole (PSTP)	.006	.539	−46.1%
ME release * time	.002	.999	−0.1%

dichotomously (yes/no) for each time segment. Any periods occurring after the end of the at-risk period were ignored, and therefore only segments occurring before the terminating event (i.e., arrest, reincarceration, or end of follow-up period) were considered. The estimate of the effect of time was determined by comparing treatment participation during the prior month of those who survived a time segment (were not re-arrested) with that of those who did not. Treatment participation in the prior 30-day period was referenced to avoid measuring treatment that may have occurred subsequent to arrest.

All the remaining predictors were initially modeled as time invariant, and residual values were saved and examined, relative to time at risk, through multiple scattergrams. Dfbeta values were also saved and used to identify any outlier cases that might disproportionately influence the relationships between independent and dependent variables.

The initial model for both dependent variables was developed through backward elimination, in which the weakest, nonstatistically significant variable was removed in each iteration, and the remaining effects were recomputed without it, until the only remaining effects were those that reached a .05 level of significance. At that point, residuals and dfbetas were computed and analyzed to test the assumption of time invariance and the effect of outliers, if any.

Model of Re-arrest for Any Offense

The final model predicting re-arrest for any type of offense is presented in Table 2. The two treatment-related variables monthly treatment participation and PSTP enrollment emerged as significant predic-

tors of time to re-arrest. These results indicate that participation in treatment is associated with a reduced likelihood of re-arrest in the subsequent 30-day period. While the effect of treatment was only modest (participation in treatment in any given month reduced the odds of re-arrest in the following month by 16%), it did appear to offer a pathway to improving outcomes for severely mentally ill prisoners returning to the community.

Participation in PSTP was significantly and inversely related to re-arrest. While participation was measured only at the time of release and was quite rare, it reduced the hazard of re-arrest by 46 percent. A residual analysis showed no interaction between PSTP participation and time.

Having parole supervision at the time of release into the community was also associated with lower rates of re-arrest, reducing the hazard by 107 percent. Moreover, the effect of parole supervision was time dependent. It decreased over time, perhaps because of people who were moving off parole, although other explanations such as reductions in supervision over time are equally plausible.

None of the major Axis I diagnoses elevated the hazard of re-arrest within this SMI sample. The hazard of re-arrest was 26 percent greater for persons carrying a diagnosis of substance abuse (in addition to the Axis I diagnosis that resulted in their SMI classification), which comports with the findings of prior research.

As expected, age was inversely related to the hazard of re-arrest, as was the length of the most recent incarceration. Older returning prisoners and those spending more time in prison failed less quickly than younger, shorter term inmates. These effects were independent of each other, and so they are not the product of older inmates' having served longer sentences. However, the effect of sentence length should not be interpreted as indicating that longer sentences reduce rates of reoffending. Short stays in prison may be the result of a parole violation, which in turn, would be indicative of prior failure in the community. That persons serving shorter sentences did more poorly may be due to their greater propensity to fail rather than any rehabilitative effect of longer sentences.

The number of prior arrests, the diversity of those arrests, and the number of prior prison terms were positively related to the hazard of re-arrest. These results were expected, as history is usually a good

predictor of future behavior. The number of violent arrests, however, was inversely related to the hazard of re-arrest.

Hispanics in this research did significantly better than either white or black non-Hispanics. The latter two groups were undifferentiated in their outcomes. While unmeasured factors may account for the better outcomes for Hispanics, this difference was independent of criminal history and all of the other measured effects.

Finally, returning to New York City (NYC) was positively associated with re-arrest in this sample. The hazard of re-arrest was 47 percent greater for persons returning to NYC. Again, this effect was independent of all the other factors controlled for in the research. Thus, the NYC effect cannot be explained by, for example, lower rates of treatment participation. In fact, persons returning to NYC were slightly more likely to participate in treatment each month, and so treatment participation was not only controlled for, but its effect was opposite from the one expected.

Model of Re-arrest for Violence

The same predictors and statistical techniques were used to model re-arrest for violence. It is always more difficult to explain more rare events, such as violence, and fewer predictors tend to reach levels of statistical significance. As shown in Table 3, neither treatment nor participation in PSTP emerged as predictive of violence. As with prior research, this study found that age (younger at time of release from prison), gender (male), and prior history of violence (higher number) correlated positively with re-arrest for violence. The hazard of re-arrest for violence decreased by seven percent with each year of age at the time of release from prison. The hazard for males was 94 percent greater than for females. In addition, returning to NYC and having no parole at the time of release were positively associated with re-arrest for violence. Neither treatment nor PSTP reduced the hazard of re-arrest for violence, and none of the aforementioned effects was time dependent.

Discussion

Prior research suggests that predictors of recidivism are similar whether all released prisoners or only those who have serious mental illness are under consideration. This research lends further support to those findings, but raises important caveats as well.

Table 3 Model for Prediction of Re-arrest for Violent Offense

	Sig. Level	Exp(B)	Exp(B)−1
Diversity	.013	1.178	17.8%
Age at release	.000	.935	−6.5%
NYC resident	.035	1.429	42.9%
Race	.044		
White vs. Hispanic	.020	1.865	86.5%
Black vs. Hispanic	.023	1.636	63.6%
No. prior violent arrests	.000	1.115	11.5%
No. prison terms	.000	1.231	23.1%
Male gender	.001	1.939	93.9%
ME release	.019	1.474	47.4%

Clearly, history matters, and persons with longer and more diverse criminal histories are at greater risk of re-arrest. Moreover, as with all released prisoners, those in this seriously mentally ill sample were more likely to be re-arrested when they had a history of substance abuse. Other commonly identified static risk factors such as age and gender also emerged as important predictors in this research, though gender was relevant only to risk of violent recidivism. Although none of these historical/static characteristics provides targets for intervention, they do help to identify who may need greater support and supervision when returning to the community.

The unique and significant contribution of substance abuse to the prediction of re-arrest among SMI prisoners returning to the community reinforces the importance of drug abuse treatment for this population. Although we did not address the question of whether substance abuse histories are more predictive of recidivism among the mentally ill than in the general population of released prisoners, our findings support the notion that prior substance abuse is a risk factor that should be attended to on return to the community. As noted earlier, the dually diagnosed former prisoner is at a significant disadvantage in securing treatment, as his mental illness presents challenges for substance abuse treatment providers, and his substance abuse and criminal history place him outside the mainstream mental health treatment system. NYS is currently engaged in an effort to cross-train both provider systems to improve their ability to serve the complex needs of this population. These research findings serve as a reminder of the importance of that effort.

An individual's psychiatric history, in contrast, did not add to the prediction of re-arrest. Diagnoses, level of mental health need before release from prison, or history of psychiatric hospitalization did

not differentiate those re-arrested. However, psychiatric stability subsequent to release may well influence the success in the community of this population. The inverse relationship between treatment participation in any given month and arrest in a subsequent month suggests that maintenance in treatment would keep some individuals from becoming reinvolved in crime, although it showed no effect on violence. Likewise, comprehensive services such as those provided through PSTP may help some seriously mentally ill persons avoid re-arrest after release from prison. However, other interpretations are possible. For example, willingness to participate in treatment may be part of a constellation of prosocial behaviors, including avoidance of crime. Nonexperimental research can make only temporal associations; it cannot speak to causation. Similarly, although those receiving comprehensive services from PSTP were at lower risk of re-arrest, assignment to the program is not randomized and could have affected the outcome. Thus, these findings should be followed up by efforts either to develop experimental design research or to identify naturally occurring variation in prevalence and level of services that are unrelated to the help-seeking behavior of participants or to the admission decisions of program managers.

Perhaps the most troubling finding of this research is the heightened odds of re-arrest for those returning to NYC. The NYC effect was not limited to any borough within the city and occurred among both males and females. While the catchment areas of PSTP and CORP are largely limited to the city, exclusion of those measures from the analysis did not alter the NYC effect. The NYC Police Department is well known for its active quality-of-life enforcement practices, which could play some role in elevating the odds of re-arrest. Active enforcement, however, seems less likely to explain the higher odds of re-arrest for violence among those returning to the city. Moreover, studies of recidivism in the general population of prisoners returning to NYS show slightly lower failure rates for those returning to NYC.[20]

One of the challenges of seriously mentally ill persons returning to the community is securing adequate housing, which is particularly difficult to obtain in the NYC area. While housing stability has not been identified as a predictor of recidivism among returning prisoners in general, it may hold particular significance for the seriously mentally ill. It is note-worthy that supported housing is one component of the PSTP program whose participants fared well in this study. Likewise, Hispanics did better and that effect also may be tied to more stable living situations. Race/ethnicity has generally been unrelated to re-arrest[10]; thus, the lower risk of re-arrest among Hispanics in this research was unexpected. The protective effect of being Hispanic occurred both within and outside NYC and across all boroughs of the city. It also occurred in both the male and female subsamples. These broad trends suggest that the Hispanic effect is not related to any particular community-based service, leaving one to speculate that these returning inmates may be the beneficiaries of stronger family ties and more stable living situations. Future research should be conducted to explore this finding further.

Much of the public concern with mentally ill offenders stems from the perception that this population is dangerous. Yet, this sample showed a relatively low propensity for violence, below what one would expect from a cohort of ex-prisoners. Moreover, no mental health indicators were related to re-arrest for violence. Still, the mental health system may be able to intercede in patterns of both general and violent recidivism by attending to the dynamic risk factors as well as the traditional mental health needs of the recipient population. The possibility of strong rapport between therapists and recipients presents another important opportunity to help these individuals to address behavioral and cognitive deficits that are causative of failure in the community. Although the correctional system arguably holds much of the responsibility for re-entry services, the finding that mental health treatment does have some effect on re-arrest, even if modest, suggests that these services should be considered a shared responsibility of the correctional and community mental health systems.

Finally, this research adds to the literature on risk assessment as it relates to a forensic population and largely affirms the importance of nonclinical risk factors in the long-term prediction of risk for re-arrest. Criminal history measures explain approximately twice the variance in re-arrest compared with demographics and four times the amount explained by historical and dynamic mental health measures. However, acute dynamic measures of mental health, particularly psychosis, have been shown to predict violence in the short-term, and this research lacked

appropriate measures to speak to that possibility. Moreover, research that focuses on characteristics of individuals and not the environments in which they live is invariably limited in its explanatory power.[21] Overall, actuarial measures of risk of recidivism are likely to be similar for SMI and non-SMI populations, and programs that target antisocial attitudes, impulsivity, and poor problem-solving skills are arguably equally important in both populations.

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