RESEARCH ARTICLE

Do timely mental health services reduce re-incarceration among prison releasees with severe mental illness?

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Objective: To examine whether the receipt of timely mental health services is associated with changes in criminal justice interactions.

Data Sources: We used linked administrative data from Medicaid, mental health, and criminal justice settings in Washington State for persons with severe mental illness released from prison (n = 3086).

Study Design: We estimate local and average treatment effects to examine measures of criminal justice use in the year following release as a function of timely mental health services.

Data Extraction Methods: Measures of timely service and criminal justice use within 12 months postrelease were created from administrative data.

Principal Findings: Individuals receiving timely mental health services are more likely to experience prison re-incarceration overall and specifically for technical violations 12 months postrelease. The effect of service receipt on incarceration for new charges was negative but not significant.

Conclusions: The finding that mental health services receipt is associated with increased risk of re-incarceration due to technical violations speaks to the complexity of the relationship between mental health and criminal justice services for justice-involved persons with severe mental illness. Further research should examine strategies at the interface of criminal justice and mental health that can improve mental health and criminal justice outcomes for this vulnerable population.

KEYWORDS

incarceration, Medicaid enrollment, prison release, severe mental illness

1 | INTRODUCTION

The incarceration rate in the United States is the highest in the world, more than five times the rate of most other countries.¹ Compared to the general population, people with severe mental illness are over-represented in the US criminal justice system.² Approximately 18 percent of US adults have any mental illness in a year and 4 percent have a serious mental illness.³ By contrast, prevalence estimates

among state prisoners range from 11 percent to 31 percent for any mental illness and 6 percent to 14 percent with a serious mental illness.⁴ Upon release from prison, people with serious mental illness face greater challenges with reentry into the community than the general population; many do not receive needed mental health care and do not receive adequate transition planning.² Together, growing prevalence and poor reentry outcomes underscore a significant public health and public safety challenge.

Some observers have argued that recent policy changes, such as Medicaid expansion and mental health parity legislation, represent opportunities to decrease incarceration of people with mental illness by connecting them to behavioral health services.⁵⁻⁷ Medicaid is an important facilitator of treatment for this population.⁸⁻¹⁰ These expectations rest on an as yet inadequately tested assumption: that receipt of mental health services fueled by Medicaid enrollment will reduce criminal offending and incarceration of people with serious mental illness.

The empirical evidence about the relationship between mental health treatment and criminal recidivism is sparse, with varying samples, designs, outcome measures, and mixed results.¹¹ Using a difference-in-differences design, a Washington State study found that chemical dependency treatment provided to low-income non-Medicaid adults was associated with a significant decrease in arrests compared to similar individuals who did not receive treatment.¹² Van Dorn and colleagues found that having more than 90 days' supply of dispensed medication after hospital discharge and the number of outpatient visits both reduced the probability of subsequent arrests among adult Medicaid enrollees with severe mental illness.¹³ Calsyn and colleagues, however, found that neither the type nor the amount of behavioral health treatment were predictors of subsequent criminal activity among previously homeless individuals with co-occurring mental illness and substance use disorders and previous criminal justice contact.¹⁴

A series of earlier studies suggested that the use of behavioral health services after release may *increase* rather than *decrease* the risk of criminal justice involvements. In a randomized controlled trial of assertive community treatment (ACT), forensic intensive case management (FICM), and standard community mental health services, Solomon and Draine found that consumers who received ACT returned to jail within 1 year at higher rates compared to those who received FICM or standard care (60 percent vs 40 percent vs 36 percent, respectively), although the sample size was underpowered to detect differences.¹⁵ In a follow-up study, Solomon and Draine conducted interviews with case managers from the FICM and ACT teams and found that case managers sought treatment stipulations as a condition of probation, and the clients of case managers who sought treatment stipulations were more likely to return to jail compared to clients of case managers who did not seek treatment stipulations in court.¹⁶ The authors suggested that the increased monitoring associated with more intensive treatment increased opportunities and reasons for *technical violations*, or violations of the technical conditions of probation or parole when individuals did not comply with their treatment plans.

In subsequent research, Draine and Solomon¹⁷ found that among releasees assigned to psychiatric care, those whose parole or probation officers reported collaborating with mental health workers had significantly higher odds of being threatened with incarceration. Solomon et al¹⁸ also found, in a nonexperimental study of individuals in psychiatric probation or parole, therapy was associated with a lower risk of technical violations,

but intensive case management was associated with a higher risk. Prior research supports these results. The RAND Corporation conducted a randomized field experiment in the early 1990s of the general population of criminal offenders in fourteen jurisdictions in nine states and found that intensive supervision probation did not decrease the frequency or seriousness of new arrests but did increase the incidence of technical violations and jail terms.¹⁹ Further, there is strong evidence from other studies showing that rates of technical violations for offenders with serious mental illness are more than twice as large as for the general corrections population.²⁰

What remains unanswered from prior literature is the extent to which insurance changes, such as through Medicaid expansion or outreach, can induce treatment changes that can affect rates of criminal justice contact. Recent research has examined the effect of expedited Medicaid enrollment in a statewide sample of offenders with severe mental illness released from Washington State prisons. Although Medicaid enrollment and health service use were significantly greater in the expedited group than in propensity score-weighted controls, there were no significant between-group differences in arrests or re-incarceration either at 12-month²¹ or 36-month follow-up periods.²²

The implication of these studies is that while Medicaid enrollment substantially improves access to mental health treatment, this greater level of treatment does not correspond to reductions in incarceration. Another possibility is these studies have failed to properly account for timeliness or intensity of mental health service use upon release from institutional settings.

Our efforts to understand these findings led us to examine whether the timeliness of service use affects rates of incarceration. One of the challenges in examining this hypothesis with administrative data is the problem of selection bias and endogeneity. Specifically, there may be unmeasured factors that affect both the receipt of timely mental health treatment and return to criminal justice settings. In this paper, we address the endogeneity of treatment directly with instrumental variable methods while providing an estimate of the extent to which timely mental health service use decreases re-arrest or re-incarceration for released prisoners with severe mental illness.

In particular, we address two separate policy questions. First, what is the effect of timely mental health treatment on incarceration among those brought to care through the provision of expedited Medicaid? And second, what would be the average effect of providing timely mental health treatment to the full population of adults with severe mental illness released from prison? These questions correspond to the local average treatment effect and the average treatment effect, respectively, which are generated using different techniques. The degree to which the answer differs reveals information about the variability in the effect of treatment in this population. We conduct several stratified analyses to examine how treatment may interact with criminal justice and social characteristics resulting in heterogeneous effects.

2 | METHODS

2.1 | Design and data

Using linked administrative data from the Medicaid, mental health, and criminal justice settings in Washington State, we identify Medicaid enrollment and quantify timely mental health services receipt among people with severe mental illness who were released from prison in 2005 or 2006. This data source included measures of inpatient and outpatient mental health service use reflected from Medicaid claims and public mental health system utilization, criminal justice interactions, as well as demographic and clinical information.

Using these data, we identified 3086 offenders who were released from prison (referred to as their “index release”) during the first 2 years (January 1, 2006–December 31, 2007) of an expedited Medicaid policy for prisoners in Washington with severe mental illness, which was operationalized in our analysis based on a diagnosis of schizophrenia or bipolar disorder recorded either in prison records or in Department of Social and Health Services files. We identified adults who received referral to the expedited Medicaid program during the 12 months post-index release. Control subjects were retained if they enrolled in Medicaid through some mechanism other than the expedited program; 82 people who received an expedited Medicaid referral more than 31 days after release were recoded as controls rather than treated individuals. These may be individuals who deferred finalizing their Medicaid enrollment or who were referred to the expedited program during a subsequent hospitalization or stay in the criminal justice setting.²³ These 82 individuals had substantially higher rates of subsequent contact with the Department of Corrections ($P < 0.001$) or jail ($P < 0.002$) and a greater number of arrests ($P < 0.001$) in the 12 months post-index release than did other study subjects, making a referral after a subsequent re-incarceration a likely explanation. Because our focus in this manuscript is on timely mental health services receipt, we used this stricter definition of program referral within 31 days of index release than did prior literature, but also conducted sensitivity analyses excluding these 82 individuals. Results were largely similar to those from the main sample and are not reported separately.

2.2 | Outcome measures

2.2.1 | Dependent variables

We use several binary measures of criminal justice system involvement during 12 months post-index release: arrests, jail use, and any prison. Arrests were based on Washington State Patrol records. Due to termination of a vendor processing contract, jail use was only available in our data for a truncated period from January 2005 to June 2006. Prison use was measured overall, as well as separated by whether the criminal justice contact was for sentencing on a new crime or for a technical violation of the terms or conditions of parole.

Technical violations typically include failure of offenders to comply with mental health treatment plans, to pass alcohol and drug urinalysis screens, or to attend meetings with probation officers. Prior research in Washington State has not found a connection between re-incarceration for technical violations and the probability of committing a new crime.²⁴

Prisoners placed on parole are released prior to the end of their sentence contingent upon prosocial behaviors, participating in mandated treatment, not using drugs or alcohol, finding a job, and maintaining contact with a designated parole officer. In Washington State, the Department of Corrections contracted with local jails (violator facilities) where short-term incarcerations for technical violations were served. We operationalize prison stays for technical violations through a location indicator in the prison file that indicates stays in violator facilities.

2.2.2 | Mental health treatment

We report results on two measures of timely mental health treatment. Our first measure requires one or more outpatient mental health visits and one or more fills of antipsychotic medications or mood stabilizers within the first 90 days postrelease from the index incarceration. Outpatient visits were drawn both from Medicaid claims data with either a diagnostic code indicating a mental illness or a procedure code indicating the receipt of a behavioral health service and from mental health services provided through the regional public mental health system. Because the rate of receipt of this first measure of timely mental health care was low in our data (described below), we also use a second, less restrictive, measure indicating receipt of *either* an appropriate psychotropic medication or the receipt of a mental health service within 90 days of release. We refer to these measures as “moderately adequate treatment” and “minimally adequate treatment,” respectively. Substance abuse services not coded as having a mental health component were not captured in either reported mental health treatment variable. We conducted sensitivity analyses including measures of inpatient, outpatient, medication, case management, or detox substance use treatment services in the minimally adequate treatment measure. We only find less than 3 percent of the sample received only substance use treatment services without also receiving mental health services, and thus, our results are very similar to those reported using the broader measure, although all statistically significant results became slightly larger in magnitude.

2.3 | Analytic methods

We model criminal justice outcomes post-index release as a function of timely mental health care received. Because of concerns about selection bias into treatment and the interest in generating answers for two different margins of patients, we utilize different instrumental variable approaches to model the binary outcome models as a function of binary, endogenous treatment and exogenous factors, comparing adults with severe mental illness who receive mental

health treatment soon upon release, with those who did not. We run two-stage least-squares (2SLS) models to estimate the local average treatment effect (LATE), or the effect of timely mental health services receipt among those who received treatment because of being referred to the expedited Medicaid program. This group is the subgroup, or margin, of the population most affected by the policy change in WA. Recent studies^{25,26} demonstrated that 2SLS has the least bias in estimating LATE even with binary outcomes. In order to estimate the average effect of timely mental health services for the full population, as if timely treatment had been provided to all, we also estimate bivariate probit and two-stage residual inclusion (2SRI) models. Recent simulations have shown that the bivariate probit generally minimizes the bias in estimating average treatment effects (ATE) regardless of the proportion of the population receiving treatment or outcomes, although in some cases 2SRI serves as a close substitute.²⁶ Because of the sensitivity of bivariate probit models to parametric assumptions, we estimate 2SRI models with standard residuals. Finally, we present naïve OLS models that do not model the endogeneity of timely treatment for comparison purposes, but do not lend any credence to those results because of endogeneity bias.

The instrument for the receipt of timely treatment is referral to expedited Medicaid within 31 days of release. Prior research²¹ demonstrated that expedited Medicaid enrollment is associated with the receipt of mental health services and psychotropic medication over a 12-month period. In this analysis, we find that it is also highly associated with the receipt of timely mental health services or that it serves as a strong instrument, with linear *F*-statistics well over 100 in all models on the full sample and over 20 in all subsample models, controlling for 59 additional exogenous variables. The primary reason for lack of referral was due to capacity constraints in identifying and recommending individuals to the program, which was just started in 2006.^{21,23} We believe that referral to expedited Medicaid is not otherwise associated with criminal justice use except through the receipt of mental health treatment, once we control for a large number of baseline criminal justice and history of mental health services variables that occurred prior to the index incarceration. We use delta-method standard errors for bivariate probit and 2SLS models and bootstrapped standard errors from 1000 replications for 2SRI models.

We conduct a number of specification tests of our models. We test the endogeneity of treatment using Durbin and Wu-Hausman tests. For bivariate probit models, we examine the Murphy score test of departures from normality.

In addition to the full sample results, we also stratified our results by several baseline factors to determine whether the effect of treatment is similar across subpopulations. These strata include community supervision (parole) status from the index incarceration; number of prior arrests fewer than five vs five or more²⁷; whether the index incarceration was for a drug-related crime; and whether we see evidence of formal-sector employment prior to the index incarceration. Community supervision is of particular interest because of the prior research reviewed above. Offenders with mental illness who are on parole receive mental health services from the regular public mental

health system often with parole officer assistance. Our data do not allow a linkage between a technical violation and the period or terms of parole that were violated, so technical violations may not be linked to the index incarceration. Finally, we also examine the subgroup of people who are in the community for the first 60 days postrelease, without a subsequent hospitalization or re-incarceration that could reduce the probability of receiving timely mental health services after the index incarceration.

3 | RESULTS

3.1 | Sample description

Our sample consists of 3086 adults with severe mental illness who were released from prison in 2006 or 2007. There were 871 adults referred to the expedited Medicaid program within 31 days of index discharge, our instrumental variable, while 2215 adults were not referred, but may have enrolled in Medicaid through other means upon release. Table 1 presents descriptive statistics of the outcomes, treatment rates, and exogenous baseline factors for releasees by expedited Medicaid enrollment status. In the 12 months postrelease, over half of releasees were re-arrested within 12 months of the index release, over a third had a jail stay, and nearly half had a prison stay. Over 40 percent of the sample had prison stays for technical violations related to previous charges, whereas just over 12 percent of the sample had one or more prison stays for new charges in the 12-month postrelease period.

Just under 13 percent of the population of adults with severe mental illness released from prison received moderately adequate community-based mental health services (i.e., the receipt of both a mental health service and an appropriate psychotropic medication) in a timely manner within 90 days of release. Those in the referral group had much higher rates of services receipt as reflected in this measure (30 percent) than did those in the control group (6 percent), which is consistent with prior research.²¹ Using the broader definition of minimally adequate treatment (i.e., the receipt of either a mental health service or an appropriate psychotropic medication), we see that just over a third of the population received such treatment, again with higher rates in the referred population (60 percent) than in the nonreferred group (24 percent).

The sample was roughly evenly split between individuals with psychotic and bipolar disorders, and over half of the sample also had indicators of substance use disorders. Approximately one-fifth of the sample were African American, and 6 percent were Latino. Women comprise about one-quarter of the sample. Over fifty percent of the sample had prior work histories. On average, the index incarceration was just under 2 years and the average number of arrests prior to the index incarceration was five, although just over half of the sample had no history of a prison stay in Washington State prior to their index incarceration. The two most common crimes associated with the index incarceration were drug offenses (23 percent) and aggravated assault (17 percent). The average individual in the sample had been on Medicaid for

TABLE 1 Characteristics of state prison releasees with severe mental illness by expedited Medicaid referral status

Characteristic	Variable means, by value of IV (expedited Medicaid)		
	Referred to Expedited Medicaid (N = 871)	Not referred to Expedited Medicaid (N = 2215)	P-value for difference by IV status
12-mo outcomes			
Any arrest (%)	57.7	55.0	0.165
Any jail (%)	41.9	33.9	0.050
Any prison (%)	53.2	47.0	0.002
Prison for technical violation (%)	48.2	39.7	0.000
Prison for new charges (%)	11.7	12.8	0.401
Treatment			
Moderately adequate treatment (%)	29.6	5.9	0.000
Minimally adequate treatment (%)	59.6	23.6	0.000
Exogenous and baseline factors			
<i>Demographic and diagnostic</i>			
Bipolar disorder (referent psychotic disorder) (%)	42.7	59.3	0.000
Alcohol or drug use disorder (%)	57.4%	52.5%	0.013
Average months with AOD treatment needs noted	11.7 ± 12.4	12.0 ± 12.6	0.617
Age at release (M ± SD)	36.9 ± 9.6	35.6 ± 9.4	0.000
Race (%; white referent)			
African American	24.3	18.6	0.000
Other race	6.0	8.6	0.015
Latino ethnicity	5.4	6.7	0.187
Female (%)	23.8	28.1	0.014
SSI/SSDI indicator (%)	49.7	32.6	0.000
Ever homeless (%)	52.7	52.4	0.870
Any paid work (%)	48.1	57.5	0.000
<i>Criminal justice history</i>			
Time served during index incarceration (M ± SD days)	551.2 ± 603.9	482.8 ± 543.1	0.002
Prior DOC days (M ± SD)			
Total	164.1 ± 270.3	143.6 ± 246.1	0.043
For criminal charges	146.9 ± 259.2	130.4 ± 236.7	0.090
For technical violations	16.9 ± 45.3	13.0 ± 35.5	0.010
Arrests (M ± SD)			
Total	5.3 ± 4.9	5.0 ± 4.0	0.138
For criminal charges	4.4 ± 4.0	4.2 ± 3.3	0.187
For technical violations	.8 ± 1.4	.7 ± 1.4	0.966
Jail days (M ± SD)	94.9 ± 166.0	72.2 ± 134.0	0.000
No prior DOC history (%)	51.1	51.0	0.952
Criminal conviction associated with index incarceration (%)			
Aggravated assault	19.7	16.0	0.012
Burglary	9.1	9.8	0.562

(Continues)

TABLE 1 (Continued)

Characteristic	Variable means, by value of IV (expedited Medicaid)		
	Referred to Expedited Medicaid (N = 871)	Not referred to Expedited Medicaid (N = 2215)	P-value for difference by IV status
Drug offense	20.3	23.7	0.044
Domestic violence	4.2	4.3	0.960
Forgery	3.9	4.7	0.313
Larceny or theft	6.0	9.0	0.005
Rape	4.4	2.0	0.000
Robbery	8.4	8.8	0.679
Sex offense other than rape	5.5	2.6	0.000
Stolen property	4.5	4.7	0.796
Weapon	3.9	5.4	0.082
Other	5.9	5.1	0.401
<i>Insurance before index incarceration (M ± SD)</i>			
Months on Medicaid	12.4 ± 15.9	10.3 ± 14.3	0.000
Months on general assistance	1.4 ± 3.6	1.3 ± 3.7	0.390
Months on ADATSA ^a	.9 ± 2.8	1.0 ± 2.8	0.185
Months on partial Medicaid	.4 ± 2.2	.6 ± 2.7	0.080
Months with dual Medicaid and Medicare	2.6 ± 9.2	1.3 ± 6.5	0.000
<i>Mental health and general medical history before index incarceration</i>			
State hospital days (M ± SD)	8.3 ± 36.8	3.6 ± 32.5	0.001
Any use of local hospital with a psychiatric diagnosis (%)	10.3	5.3	0.000
Any public outpatient mental health visit (%)	77.3	68.2	0.000
Any public outpatient mental health visit in 12 months before index incarceration (%)	57.2	42.2	0.000
Medication management visits (M ± SD)	5.1 ± 43.3	1.2 ± 5.1	0.000
<i>Prescription fills (M ± SD)</i>			
Antipsychotic	4.7 ± 12.6	1.8 ± 6.8	0.000
Antimania	.5 ± 3.0	.3 ± 2.2	0.042
Antidepressant	4.2 ± 10.4	2.9 ± 8.7	0.000
Antianxiety	1.0 ± 3.7	.8 ± 4.0	0.389
<i>Other control variables</i>			
Months observed (M ± SD)	40.8 ± 13.0	40.9 ± 11.7	0.802
County indicators	Not reported		2 out of 12 were different at P < 0.05

^aADATSA is a state-run insurance program for individuals with substance use disorders.

almost a year. Less than 9 percent of the sample had a prior stay in a state psychiatric hospital in Washington, but the vast majority of the sample (71 percent) had received an outpatient mental health visit from the public outpatient system prior to the index

incarceration. We found no differences in means for 34 out of 63 baseline covariates. All 63 exogenous covariates are included in the instrumental variable models to control for any remaining observable differences.

TABLE 2 Results from binary outcome models with endogenous indicators of timely treatment

12-mo Outcome variables	Moderately adequate treatment effects				Minimally adequate treatment effects			
	OLS	2SLS (LATE)	Bivariate probit (ATE)	2SRI	OLS	2SLS (LATE)	Bivariate probit (ATE)	2SRI
Any arrest	-0.074** (0.027)	0.10 ^A (0.10)	0.124 (0.068)	0.044 (0.057)	-0.003 (0.019)	0.070 ^A (0.070)	0.144* (0.064)	0.142* (0.056)
Any jail	-0.014 (0.046)	0.38* (0.16)	0.03 ^B (0.13)	0.074 (0.084)	0.024 (0.033)	0.28 ^A (0.11)	0.097* (0.094)	0.060 (0.088)
Any prison	-0.005 (0.028)	0.25* (0.11)	0.211** (0.065)	0.079 (0.060)	0.048* (0.020)	0.173 ^A (0.073)	0.166** (0.063)	0.116* (0.058)
Any prison for new charges	-0.031 (0.018)	-0.049 ^A (0.071)	-0.035 (0.046)	-0.057 (0.044)	0.0003 (0.014)	-0.034 ^A (0.049)	-0.001 (0.045)	-0.004 (0.039)
Violator stays	0.006 (0.028)	0.40** (0.11)	0.285** (0.062)	0.140* (0.062)	0.045* (0.020)	0.271** (0.074)	0.245** (0.057)	0.170** (0.057)

n = 3086.

A = does not reject exogeneity at $P < 0.05$; B = Murphy score—violation of normality; C = Murphy score test not able to produce estimates.** $P < 0.01$; * $P < 0.05$.

3.2 | Multivariate average treatment effect estimates

Table 2 presents the multivariate estimates of the local and average treatment effects from the binary outcomes models. We present results for moderately and minimally adequate mental health service use with four model specifications for each criminal justice outcome (OLS, 2SLS, bivariate probit, and 2SRI). There are a number of important findings to glean from this table. First, despite a negative estimate from the OLS model which treats treatment as exogenous, we see little evidence of a protective effect of timely treatment on criminal justice activity and generally find a positive relationship. That is, results from the 2SLS models show that receiving timely mental health services is associated with a greater probability of re-incarceration in jail, prison, and violator facilities within 12 months for those who were brought into treatment by the expedited Medicaid program. Specifically, the models indicate that among those who receive timely treatment because of referral to the expedited Medicaid program, we observe a 38 percent point *increase* in the probability of a jail stay within twelve months. This is a relatively large effect, almost doubling the baseline rate of jail use. This effect decreases in magnitude to a 28 percent point effect when we consider minimally adequate mental health treatment, which might include medication-only treatment. We find that timely treatment receipt via referral to the expedited Medicaid program increases the probability of returning to prison by 25 percent points (or 17 percent points with minimally adequate treatment), which is large in relative magnitude (about 50 percent of the baseline rate). This effect seems to be due to a substantially higher rate of stays in violator facilities (40 percent and 27 percent point increase, respectively, for moderately and minimally adequate treatment induced by Medicaid coverage). We find no significant effect of timely treatment induced by Medicaid on prison re-incarceration for new charges.

The bivariate probit (ATE) models show that both moderately and minimally adequate treatments are associated with an increased probability of re-incarceration in prison. We again find that this effect is concentrated in technical violations across the full population. The magnitude of these estimates is lower for the ATE than LATE models, indicating the presence of essential heterogeneity, or different treatment effects potentially due in part to selection bias. The results show no significant effect of timely treatment on the use of jails over the full population, indicating that the jail effects are concentrated in those accessing treatment through Medicaid coverage.

3.3 | Stratified analyses

Table 3 presents the results of stratified analyses in which we explore the LATE findings further. The effect of timely mental health treatment on re-incarceration in prison in the marginal population is much larger in those who were released under community supervision, those with four or fewer prior arrests, and those without a prior employment history than in the full population. These effects are replicated in the results on violator stays, although the

TABLE 3 2SLS estimates of LATE from stratified analyses

Subsample	Moderately adequate treatment				Minimally adequate treatment					
	Arrests	Prison	Violator Prison	Non-violator Prison	Jail	Arrests	Prison	Violator Prison	Non-violator Prison	Jail
Full sample (n = 3086)	0.10 ^A (0.10)	0.25* (0.11)	0.40** (0.11)	-0.049 ^A (0.071)	0.38* (0.16)	0.070 ^A (0.070)	0.173 ^{~A} (0.073)	0.271** (0.074)	-0.034 ^A (0.049)	0.28 ^{~A} (0.11)
Community custody (n = 2204)	0.06 ^A (0.12)	0.37** (0.13)	0.49** (0.13)	-0.045 ^A (0.082)	0.33 ^A (0.20)	0.041 ^A (0.084)	0.254** (0.086)	0.336** (0.089)	-0.030 ^A (0.056)	0.24 ^A (0.14)
No community custody (n = 882)	0.19 ^A (0.18)	-0.26 ^A (0.17)	-0.11 ^A (0.15)	-0.05 ^A (0.14)	0.33 ^A (0.27)	0.13 ^A (0.13)	-0.18 ^A (0.12)	-0.08 ^A (0.10)	-0.04 ^A (0.10)	0.28 ^A (0.22)
Four or fewer prior arrests (n = 1640)	0.15 ^A (0.12)	0.33** (0.13)	0.38** (0.13)	-0.006 ^A (0.076)	0.38 ^{~A} (0.18)	0.096 ^A (0.080)	0.213** ^{~A} (0.081)	0.248** (0.081)	-0.004 ^A (0.049)	0.27 ^{~A} (0.13)
Five or more prior arrests (n = 1446)	0.15 ^A (0.18)	0.19 ^A (0.20)	0.46 ^{~A} (0.20)	-0.08 ^A (0.14)	0.64 ^A (0.34)	0.11 ^A (0.13)	0.14 ^A (0.14)	0.32 ^{~A} (0.15)	-0.06 ^A (0.10)	0.39 ^A (0.20)
Drug crime (n = 702)	-0.15 ^A (0.31)	0.46 ^A (0.34)	0.62 ^A (0.34)	0.04 ^A (0.15)	0.77 ^A (0.63)	-0.11 ^A (0.23)	0.33 ^A (0.24)	0.45 ^A (0.24)	0.03 ^A (0.11)	1.71 ^A (2.49)
Non-drug crime (n = 2384)	0.17 ^A (0.11)	0.21 ^A (0.11)	0.36** (0.11)	-0.070 ^A (0.080)	0.29 ^A (0.16)	0.112 ^A (0.072)	0.144 ^A (0.074)	0.240** (0.075)	-0.047 ^A (0.054)	0.20 ^A (0.11)
Employed prior to index crime (n = 1693)	0.24 ^A (0.16)	0.20 ^A (0.17)	0.38 ^{~A} (0.17)	-0.08 ^A (0.11)	0.79** (0.24)	0.146 ^A (0.098)	0.12 ^A (0.10)	0.23 ^{~A} (0.10)	-0.048 ^A (0.067)	0.56** (0.18)
Not employed prior to index crime (n = 1393)	0.06 ^A (0.13)	0.35* (0.14)	0.45** (0.14)	0.003 ^A (0.094)	0.16 ^A (0.20)	0.05 ^A (0.10)	0.26 ^{~A} (0.11)	0.34** (0.11)	0.002 ^A (0.072)	0.13 ^{~A} (0.16)
In the community for 60 d postrelease (n = 2222)	0.07 ^A (0.11)	0.19 ^{~A} (0.12)	0.41** (0.12)	-0.115 ^A (0.067)	0.37 ^{~A} (0.17)	0.047 ^A (0.082)	0.201 ^{~A} (0.083)	0.285** (0.083)	-0.080 ^A (0.047)	0.27 ^{~A} (0.12)

A = does not reject exogeneity at $P < 0.05$.** $P < 0.01$; * $P < 0.05$.

subpopulation with a larger number of prior arrests (5+) has a larger effect than those with a less extensive criminal history. Timely treatment has significant effects on jail stays in only three subsamples, although the estimates are uniformly positive. The estimate of the effect of timely treatment motivated by Medicaid coverage on return to jail is much larger in the previously employed subsample than the subsample without an employment history. Results were again similar but of lower magnitude in the minimally adequate treatment models.

4 | DISCUSSION AND LIMITATIONS

These findings have important implications for structuring the interface between postrelease mental health and community supervision (probation and parole) systems. Rather than serving as a means of rehabilitation or protection from further criminal justice contacts, the receipt of timely mental health services is seen here as a catalyst for deeper criminal justice involvement. These results are consistent with previous work suggesting that mental health treatment can function as a form of monitoring that increases the likelihood of technical violations, particularly for individuals in parole or probation.^{15,17,18,28} In these studies, greater contact with more intensive program supervision was positively associated with greater levels of recidivism. In contrast, the estimates from the subsample of persons who did not receive any form of community custody upon release suggest that timely treatment may in fact have a protective effect on subsequent prison use, although these estimates did not reach statistical significance. Only a minority of study participants received timely mental health treatment. This could indicate that mental health workers in the present study may have had fewer opportunities to influence re-incarceration through the use of leveraging community supervision and parole than those in prior work.

We also found that the local average treatment effects on prison re-incarceration were larger in those without a prior employment history. This may be a marker for adults with severe mental illness who were either incarcerated at a younger age (we control for age at release), or for those who may be more seriously ill and unable to undergo active employment.

We use a low bar to define timely treatment, a single visit or psychotropic medication fill within 3 months of release, and thus cannot comment on whether sustained mental health services could have a different effect. The low level of receipt of even a single mental health visit coupled with a single psychotropic medication fill (13 percent) means that the rate of adults with severe mental illness in this sample who received sustained treatment is strikingly low, yet consistent with prior work. Wang and colleagues examined reported treatment rates from national survey and found that 56 percent of adults with nonaffective psychotic disorders received any treatment and only 7 percent received minimally adequate treatment (defined with a higher bar of medication plus four visits).²⁹ These findings suggest that usual mental health treatment, whether under community supervision or not, is unlikely to address criminogenic risks that can

reduce risk of recidivism among people with severe mental illness and high rates of substance use disorders.³⁰⁻³³ In addition to mental health service use, other needs must be addressed to avoid repeated criminal justice involvement. Safe housing, substance abuse support for those with dual diagnoses, job support, and education can support successful reentry.^{14,34-39} As availability of these services varies between contexts, the apparent association between mental health service use and criminal justice outcomes may also vary.

Justice-involved people with mental illnesses have more criminogenic risk factors which contributes to the disproportionate representation of people with mental illnesses in the justice system.⁴⁰ Recent research has highlighted different profiles and typologies of justice-involved persons with mental illnesses,⁴¹ which is driving the development of interventions that address both mental illness and criminogenic needs. More research along these lines is needed to grow the evidence for interventions that address mental health needs and criminogenic risks among justice-involved people with mental illnesses.

Given that almost three-fourths (72 percent) of our sample remained in the community for at least 60 days before entering another criminal justice or health care institution, the substantial opportunity for observing adequate community-based care cannot fully explain these results. Even releasees enrolled in expedited Medicaid received low levels of timely treatment (28 percent). Consistent with previous work, these results suggest insurance coverage alone does not lead to treatment access or utilization. Barriers to treatment for people with severe mental illness and a criminal history can be especially difficult to overcome. Future work should focus on understanding and removing barriers to treatment that may be specific to this population of prison releasees with severe mental illness.

Our findings call attention to parole officers' decision-making and their interactions with mental health providers. Indeed, probationers who have mental illness also have high rates of probation violations and revocations⁴² and low mental health treatment adherence rates.^{43,44} Whether the high rates of technical violations reported here occur disproportionately for offenders with mental illness or are characteristic of the overall community supervision population cannot be determined from our data. Nor can we determine whether they reflect punitive probation practices or efforts to use technical violations to leverage treatment or manage caseloads by shifting custody responsibilities back to jails and prisons. These practices have prompted many jurisdictions to organize specialty mental health probation programs to manage offenders with severe mental illness. The evidence that specialty mental health probation programs lower recidivism among probationers with mental illness is promising,^{45,46} but further research is needed.

Our findings should be considered in light of a number of limitations. We cannot observe the factors that brought individuals into treatment, which may include court orders, a family or caregiver advocate, or other protective factors. However, while this may affect our ATE estimates, our LATE estimates should focus on those who were brought in for treatment because of the referral to the expedited Medicaid program. Criminogenic risks nor the extent of

involvement in the socioeconomic safety net of other programs such as WIC or food stamps are also not observed in our data. Other limitations include the use of secondary sources of data, which may miss services received outside the Medicaid or public mental health treatment sectors. In addition, our findings are from a single state and may not apply to released offenders with mental illness in other states, where treatment and criminal justice systems may be configured differently. We were also unable to observe criminal justice interactions that may have occurred outside of Washington State.

In conclusion, these findings call attention to community supervision, one of the principal interfaces between the mental health and criminal justice systems. The finding that timely treatment could be serving as a pathway to deeper involvement in the criminal justice system is worthy of serious reflection and action. Because technical violations are not new crimes, they overestimate the extent to which people with severe mental illness are a threat to public safety. As the downsizing of prisons and jails continues into the next decade due to budgetary shortfalls and sentencing reforms,⁴⁷ more and more mentally ill offenders will be placed under supervised release in the community. This anticipated growth underscores an urgent need to determine how the mental health and community supervision systems can work together in ways that improve chances for this population to live safely in the community unburdened by further criminal justice involvements.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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