

Assessing Two Decades of Insanity Acquittee Release from the North Carolina Forensic Program

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Over the past two decades, an increasing proportion of North Carolina state psychiatric hospital beds have been used to house forensic patients. Insanity acquittees occupy almost all forensic-designated beds in the state. Despite the effect insanity acquittees have on state hospital use in North Carolina, outcomes for acquittees after they are released from the state hospital are unknown because of a lack of previous research. This study evaluates postrelease outcomes for insanity acquittees discharged from the North Carolina Forensic Treatment Program between 1996 and 2020. The study also describes the association between the demographic, psychiatric, and criminological characteristics of insanity acquittees and outcomes of recidivism or rehospitalization. The results show that insanity acquittees in North Carolina have higher rates of criminal recidivism than acquittees in other states. There is also evidence of systemic bias against minority race acquittees in the insanity commitment and release process in North Carolina. Outcomes for insanity acquittees released from the state Forensic Treatment Program could be improved through the introduction of evidence-based practices widely used in other states.

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State psychiatric hospitals are an essential part of the continuum of care for persons with severe mental illness (SMI) in the United States. Since the 1960s, the role of state hospitals has evolved in response to shifts in health and social policy, which have prioritized the provision of care in the community instead of

institutions whenever possible.¹ Nonetheless, state hospitals continue to provide safety-net inpatient psychiatric care, especially for underinsured patients. In addition, state hospitals are the predominant sites for inpatient psychiatric treatment of forensic patients. These patients are typically justice-involved individuals hospitalized by court order for various legal purposes.

Over the past few decades, forensic patients have occupied greater proportions of state hospital beds in the United States, as the total number of state hospital beds has declined dramatically. States in the Northeast reported increases of 50 to 379 percent in the proportion of state hospital admissions that were forensic in nature between 1988 and 2008.¹ A survey of state hospitals in 2016 revealed that forensic patients occupied more than 50 percent of state hospital beds in 15 states and 25 to 49 percent in another 19.² At that time, Mississippi was the only state with less than 10 percent of state hospital beds occupied by forensic patients. Patient rights organizations, such as the Treatment Advocacy Center, have expressed concerns that the ongoing “forensification” of state hospitals contributes

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to inadequate access to state hospital care for civil patients.²

This trend of state hospital forensicification can also be observed in North Carolina and is described below. The state has three state psychiatric hospitals: Broughton, Central Regional, and Cherry Hospital serving Western, Central, and Eastern North Carolina, respectively. Combined, the three facilities have about 750 adult beds. Secure forensic units in the North Carolina state hospitals are centralized at Central Regional Hospital and collectively described as the North Carolina Forensic Treatment Program (FTP). These secure units contain 76 forensic-designated beds, distributed across three security levels (minimum, medium, and maximum security). The Forensic Treatment Program was relocated to its present location at Central Regional from the now-defunct Dorothea Dix Hospital in the early 2010s.

Annual state hospital admissions have been declining in North Carolina, from a peak of 17,419 in 2007 to a nadir of 1,897 in 2019. Over the same period, forensic admissions have increased from three percent of all adult admissions in 2000 to more than 25 percent of adult admissions by 2020.³ As of 2017, forensic patients occupied approximately 44 percent of all adult state beds in North Carolina. As the forensic utilization of state beds has risen, civil patients in North Carolina have faced greater barriers for state hospital admissions.⁴

Emergency department (ED) boarding times serve as one metric by which access to care can be measured. Between 2012 and 2019 (prior to any delays attributable to the effect of the COVID pandemic), the ED boarding time doubled for civil patients referred to the state hospitals from EDs in the community.⁵ While forensic bed use is certainly not the sole cause of declining state bed availability in North Carolina, the correlation between rising forensic use and reduced access for civil patients suggests it contributes significantly. Further, the state psychiatric hospitals hold approximately 27 percent of the adult psychiatric beds in North Carolina that serve underinsured patients (defined as patients with no insurance or Medicaid only).⁶ Therefore, the high forensic utilization of state beds may have an especially detrimental effect on access to care for underinsured patients in the state.

State hospital admissions serve essential psychiatric-legal functions for patients referred from the criminal justice system. North Carolina has few, if

any, community-based alternatives that provide these forensic psychiatric services in lieu of state hospitals.⁴ Nonetheless, because increased forensic utilization of the North Carolina state hospitals is diverting precious state-funded inpatient psychiatric beds from underinsured civil patients to forensic patients, there is a need to reassess the role and efficacy of state hospital forensic services in North Carolina.

Two major categories of forensic inpatients are served in the North Carolina state hospitals. The first group consists of individuals acquitted of criminal charges by a verdict of not guilty by reason of insanity (NGRI). With rare exceptions, the acquittees are subsequently hospitalized in the centralized, secure forensic units of the North Carolina Forensic Treatment Program at Central Regional Hospital.

The second group comprises pretrial defendants who have been adjudicated incompetent to proceed to trial (ITP) and involuntarily committed to the state hospital for competency restoration. Most competency evaluations either take place in county jails or defendants are transported to the regional state hospital for an outpatient visit, during which a state hospital forensic clinician evaluates them.

Historically, ITP defendants admitted for competency restoration were housed in the secure forensic units of the FTP whenever possible. Because forensic beds in North Carolina are now almost exclusively occupied by insanity acquittees, ITP defendants are admitted to the first available bed on any adult unit.⁴ Thus, even though North Carolina has the lowest insanity acquittee admission rate in the country (<.1 per 100,000; 34 states reported),⁷ acquittees have a disproportionately high effect on state bed utilization through their monopolization of forensic beds, which contributes to the diversion of ITP defendants to civil units.

To the best of our knowledge, there has been no previous empirical research in North Carolina involving insanity acquittees. The only empirical study of state hospital forensic patients in North Carolina we found was a 2018 report to the state legislature describing the utilization of civil state beds by ITP defendants and proposing solutions to reduce or shorten state hospital admissions for this group.⁴ Given the absence of prior research involving insanity acquittees in North Carolina, our study focused on describing this population and assessing outcomes for acquittees following their release to the community.

Arguably, the most important function of state hospitalizations for insanity acquittees is to prevent

future dangerous or criminal behavior by these individuals by treating the underlying mental illness that resulted in the NGRI offense. Therefore, it is concerning that a recent critique of North Carolina's forensic services by the Treatment Advocacy Center suggested that the state may have higher rates of criminal recidivism for released insanity acquittees than other states because it lacks many components of model forensic programs.⁸

The specific critiques of state hospital forensic services in North Carolina were that the state has the "lowest number (of forensic beds) per population of any state" with designated forensic beds (Ref. 8, p 77), lacks a central oversight authority for the release of insanity acquittees, and is one of only seven states in the country that do not use conditional release programs to supervise acquittees following discharge from the state hospital.⁸

Conditional release programs are analogous to mental health parole and consist of postrelease monitoring and treatment requirements for forensic patients when they are discharged to the community. There is evidence that conditional release can lower the risk of criminal recidivism. For instance, studies of forensic patients discharged from California state hospitals found significantly higher rearrest rates (up to five times higher) for unconditionally released patients compared with those under the supervision of a conditional release program.^{9,10} As North Carolina has no equivalent mechanism for court-ordered mental health supervision and treatment of insanity acquittees after discharge from the state hospital, we suspect the rate of criminal reoffending is higher in North Carolina compared with states with conditional release programs.

Insanity acquittees in North Carolina may also have longer hospitalizations compared with acquittees in other states. A 2016 survey reporting the average length of stay (LOS) for hospitalized insanity acquittees in 14 states reported that acquittees in North Carolina had the second-longest average LOS in the country (8.1 years), at almost double the national average (4.4 years).² Therefore, we sought to identify patient-specific factors that affect the length of hospitalization for insanity acquittees in North Carolina.

In summary, our study describes the demographic, criminological, and psychiatric characteristics of insanity acquittees released from the North Carolina FTP between 1996 and 2020, and identifies associations

between these factors and the following outcomes: reconviction on new charges, state hospital readmission, and length of NGRI hospitalization (LOH). We hope our findings provide empirical data that can inform future policymaking regarding the commitment of insanity acquittees in the state, as well as the efficacious and economical utilization of state psychiatric hospital beds.

Insanity Commitment in North Carolina

Following a verdict of NGRI, in accordance with North Carolina General Statutes (G.S.) § 15A-1321, acquittees charged with offenses that "inflicted or attempted to inflict serious physical injury or death" are automatically civilly committed to a secure forensic unit in the state hospital.¹¹ As noted earlier, secure forensic units in North Carolina are located at Central Regional Hospital.

In contrast, acquittees charged with nonviolent offenses are not automatically committed to a state hospital. If involuntary acute psychiatric treatment is necessary for these acquittees or they are found to be dangerous to the public, they may be committed to any adult unit of any North Carolina state hospital.¹¹

Following commitment to the state hospital, acquittees are entitled to their first release hearing within 50 days.¹² To secure release, acquittees bear the burden to prove, by a preponderance of evidence, that they are no longer dangerous or no longer mentally ill. If acquittees are not released at the 50-day hearing, their commitment can be extended for a maximum of 90 days.¹² At the second release hearing, the maximum commitment period increases to 180 days, and from the third release hearing onwards, the maximum commitment period is one year.¹³

Forensic Treatment Program staff hold periodic discharge panel meetings for hospitalized acquittees to review their suitability for release. Discharge panels consist of treating clinicians, nursing staff, and hospital administration representatives. The discharge panel provides recommendations to the court regarding acquittees' readiness for release and treatment needs in the community in the form of a written report or testimony. The ultimate decision regarding release rests with the presiding court. Most often, the presiding court is the on-site court at Central Regional Hospital. District Attorney's offices from the original prosecuting counties sometimes exercise their right to retain jurisdiction and hold

release hearings in the county where the offense occurred.

North Carolina does not have statutory limits for the maximum length of insanity commitment. So long as acquittees are found to remain dangerous to the public because of mental illness, they can be hospitalized indefinitely through annual extensions of civil commitment.¹³ Once the court releases an acquittee from the NGRI commitment, the state has no enforceable mechanism for court-mandated psychiatric supervision of the acquittee in the community. North Carolina does have a statutory framework for outpatient civil commitment (synonymous with assisted outpatient treatment),¹⁴ but this type of commitment is not practically useful because, to our knowledge, treatment facilities and law enforcement agencies in most counties lack the personnel and procedures to enforce outpatient commitment orders.

Methods

Institutional Review

Approval was obtained from the University of North Carolina Institutional Review Board to study insanity acquittees released from the FTP between 1996 and 2020.

Sample Selection

Using the hospital admission and discharge database, we identified 68 insanity acquittees who were discharged from the FTP between December 31, 1995, and January 1, 2020. Seven acquittees were excluded from analysis as they never physically returned to the community. Three died of physical illness during hospitalization, one died of suicide during hospitalization, and three were administratively discharged from the forensic service but remained hospitalized on civil units at the state hospital. The final sample consists of 61 insanity acquittees released from the FTP to the community from 1996 to 2020.

Data Collection

The research team used a structured form for data collection, with standardized and coded multiple-choice entries to limit inter-observer differences. Data sources included state hospital utilization summaries, forensic evaluation reports, annual review progress notes, and discharge summaries.

Rehospitalization data for Central Regional Hospital were obtained from the hospital patient directory and utilization summaries. Criminal recidivism data were obtained from the public-access North Carolina Public Offender Database. If released acquittees had been rehospitalized for a new forensic admission or evaluation (for example, the rehospitalization was for competency restoration for a new charge), any relevant forensic evaluation reports were uploaded to their medical record. When applicable, these forensic reports were also reviewed for data related to criminal recidivism.

Data Analysis Plan, Variables, and Outcomes

The outcomes assessed were reconviction, rehospitalization, and LOH. LOH was defined as the period starting from the date of the NGRI verdict and ending at the date of discharge.

Independent variables studied were demographics (sex, race, age), criminological characteristics (severity of the offense, number of victims, relationship to victims), and hospitalization characteristics (LOH, primary discharge diagnosis, diagnosis with psychotic disorder, history of substance use problems, diagnosis with personality disorder, and discharge medications).

A novel measure named the Medication Stability Period (MSP) was analyzed as a marker of psychiatric stability. MSP is defined as the period between the discharge date and the most recent preceding psychotropic medication change. We considered even minor adjustments in the same drug to qualify as a medication change. For example, a patient switching from rapid disintegrating tablets to standard oral tablets of the same medication was considered a change, even if the dosing remained the same.

We compared the demographics, criminological factors, and LOS for still-hospitalized acquittees with our sample to assess the generalizability of our study. LOS was defined as the period starting from the date of the NGRI verdict and ending at the predetermined analysis endpoint of December 31, 2019.

Data analyses were conducted using IBM SPSS Version 27 and *P* values < .05 were considered significant. Fisher's Exact tests were used to analyze the relationship between independent variables and categorical outcomes (rehospitalization and reconviction). Fisher's Exact test was used because expected counts were < 5 for several variables. Odds ratios with 95 percent confidence intervals were reported when applicable. Independent sample *t* tests were used to analyze the

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Table 1 Population Characteristics for Hospitalized and Released Insanity Acquittes

Variable	Subgroup	Hospitalized Acquittes		Released Acquittes	
		<i>n</i>	%	<i>n</i>	%
Sex	Female	10	15.2	11	18.0
	Male	56	84.8	50	82.0
Race	White	34	51.5	32	52.5
	Black	27	40.9	27	44.3
	Other	5	7.6	2	3.2
Severity of offense	Homicide	37	56.1	17	27.9
	All others	29	43.9	44	72.1
Age at admission		Range (y)	Mean ± SD (y)	Range (y)	Mean ± SD (y)
Length of NGRI Hospitalization		19.3–62.5	36.6±11.2	19.6–76.5	36.3±12.1
Length of Stay (end of 2019)		0.2–24.0	8.1±6.8	0.2–17.3	4.9±4.1

relationship between independent variables with two groups and continuous outcomes (LOH). A one-way Analysis of Variance (ANOVA) test was used to analyze the association between the primary discharge diagnosis and LOH because this variable contained more than two diagnostic subgroups.

We acknowledge the potential effect of Type I error as multiple outcome measures were tested. In lieu of using *P* value adjustment strategies, we have reported reconviction as the primary outcome, and rehospitalization and LOH as secondary outcomes.

Results

Population Characteristics

The vast majority of insanity acquittes in North Carolina are male (Table 1). While most received an NGRI verdict as young adults, the age range at the time of acquittal spans from 19.6 to 76.5 years old. The largest racial and ethnic group is White, closely followed by Black. There is minimal representation of other racial and ethnic groups.

Hospitalized and released acquittes are similarly distributed for sex, race, and age. Compared with released acquittes, hospitalized acquittes have more than double the proportion of individuals charged with homicide(s). Additionally, the mean LOS for hospitalized acquittes at the end of 2019 was substantially longer than the mean LOH for acquittes released between 1996 to 2020.

Criminological Characteristics

Among released acquittes, 27.9 percent had been charged with homicide(s), 50.8 percent with other

major felonies, 19.8 percent with minor felonies, and one (1.6%) with only misdemeanors. Major felonies are statutorily defined as Class A–E felonies in North Carolina.¹⁵

We defined violent offense as any offense involving physical contact with a victim. By this definition, 90.2 percent of released acquittes had been charged with a violent offense. The most frequent victims of violent offenses were family members (41%). Spouses or significant others were the most frequent familial victim (13.2%), followed by parents (9.8%) and children (8.2%). The most frequent nonfamilial victims were strangers (16.4%) and law enforcement officials (14.8%). Notably, only female acquittes had charges of violent offenses against children.

Psychiatric Characteristics

Fifty-one released acquittes (83.6%) had a psychotic disorder as their primary discharge diagnosis. By sub-type of psychosis, 42 (68.9%) had schizophrenia-spectrum disorders, six (9.8%) had mood disorders with psychotic features, two (3.3%) had substance-induced psychotic disorders, and one (1.6%) had psychosis secondary to a medical condition. Eight acquittes (13.1%) were being treated with clozapine or long-acting injectable (LAI) antipsychotic medications at discharge.

Eight acquittes (13.1%) had nonpsychotic primary discharge diagnoses. Of these, six had mood disorders without psychotic features (9.8%), one had posttraumatic stress disorder (PTSD), and one had an adjustment disorder. Two acquittes (3.3%) had only a personality disorder as their discharge diagnosis.

The majority of acquittes had one or more co-occurring disorders. Almost two-thirds (62.3%) of the

Table 2 Factors Associated with Length of NGRI Hospitalization (in Years): Independent Samples *t* Test

Variable	Subgroups	Mean	
		LOH ± SD	<i>p</i> -Value
Sex	Female	6.8 ± 5.0	0.087
	Male	4.5 ± 3.9	
Race	White	4.9 ± 4.4	0.995
	Minority	4.9 ± 3.9	
Severity of offense	Homicide	8.1 ± 4.2	<0.001
	All others	3.7 ± 3.4	
Number of victims	Single	5.1 ± 3.8	0.511
	Multiple	4.3 ± 4.4	
Primary discharge diagnosis*			0.006
Diagnosis with psychotic disorder	Present	4.9 ± 3.8	0.719
	Absent	5.8 ± 6.3	
Personality disorder	Present	6.2 ± 6.0	0.500
	Absent	4.8 ± 3.7	
Substance use problem	Present	4.8 ± 3.8	0.693
	Absent	5.3 ± 4.7	
Discharged on clozapine or LAI	Yes	8.4 ± 4.6	0.010
	No	4.4 ± 3.8	

* One-way ANOVA used instead of *t* test for differences between several groups. Statistically significant findings bolded.

sample had at least one substance use problem, while 26 acquittees (42.6%) had a history of multiple substance use problems. Alcohol use was most frequent (49.2%), followed by cannabis (41.0%), meth or cocaine (24.6%), and opioids (3.3%). Approximately 10 percent of the sample had an intellectual disability or borderline intellectual function, while 16.4 percent were diagnosed with a personality disorder (3.3% anti-social, 13.1% unspecified).

The Medication Stability Period was analyzed for subjects for whom these data were available (*n* = 40). The MSP ranged from 0.1 to 6.0 years with a mean of 1.8 years (SD ± 1.5). In other words, acquittees did not have any psychiatric medication changes for an average of 1.8 years before they were discharged.

We analyzed the association between the MSP and demographic, criminological, and psychiatric factors. Race was the only variable associated with significant differences in the MSP. The mean MSP for minority race acquittees (M = 2.4 years, SD ± 1.7) was more than twice as long as the mean for White acquittees (M = 1.1 years, SD ± .8), *P* = .010.

Length of Insanity Hospitalization

The severity of the charged offense(s) was strongly associated with the length of hospitalization (Table 2). Acquittees charged with homicide(s) had significantly longer hospitalizations than those charged

with any other crime, including those charged with other major felonies (such as attempted murder or serious assault). On the other hand, the LOH did not differ significantly between acquittees charged with major felonies (other than homicide) and those charged with minor felonies or misdemeanors.

Acquittees’ primary discharge diagnosis was also associated with significant differences in LOH on a one-way ANOVA test (*F* [10, 48] = 3.0, *P* = .006). This result indicates that one or more discharge diagnoses are associated with longer hospitalizations, however, by design, the ANOVA test cannot identify which specific diagnoses are correlated with longer hospitalizations.

We conducted a *post hoc* analysis (independent samples *t* test) to compare the LOH for acquittees with psychotic disorders versus those with nonpsychotic disorders. The LOH did not differ significantly between these groups. Additional *post hoc* tests comparing other diagnoses were not performed because of the very small sample size for several diagnostic subgroups.

Discharge medications were another factor associated with significant differences in LOH. Acquittees discharged on clozapine or LAI antipsychotics had substantially longer hospitalizations than acquittees discharged on other medications.

For individuals acquitted of violent offenses, we analyzed the effect of the acquittee’s relationship to the victim on the LOH. The LOH did not differ based on whether the victim was an adult or a child; a family member or a stranger; or a law enforcement officer or any other adult.

Postrelease Outcomes

The follow-up period for postrelease outcomes ranged from 1.1 to 22.6 years. Seventeen acquittees (27.9%) were rehospitalized at Central Regional Hospital after community release. The median time to rehospitalization was 1.8 years. No significant associations were found between the study variables and rehospitalization.

Nine acquittees (14.8%) were reconvicted on new charges in North Carolina following release. Median time to reconviction was 2.0 years. Among reoffending acquittees, three (4.9%) were reconvicted for violent offenses and four (6.6%) for illicit drug or alcohol related charges. Acquittees with a history of multiple substance use problems had almost six times higher odds of reconviction (OR = 5.8, CI 1.1–31.2). A history of a single substance use problem approached

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Table 3 Factors Associated with Reconviction - Fisher's Exact Test, Odds Ratio with 95% CI

Variable	Subgroups	% of Group Reconvicted	Odds Ratio (95% CI)
Sex	Female	0.0	N/A
	Male	18.4	
Race	White	12.5	0.7 (0.2–2.7)
	Minority	17.9	
Severity of offense	Homicide	11.8	0.7 (0.1–3.7)
	All others	16.3	
Number of victims	Multiple	0.0	N/A
	Single	18.6	
Diagnosis with psychotic disorder	Present	16.0	N/A
	Absent	0.0	
Personality disorder	Present	20.0	1.8 (0.3–10.3)
	Absent	12.5	
Substance use problem ^a	Present	21.6	5.8 (0.7–49.9)
	Absent	4.5	
Multiple substance use problems ^b	Present	28.0	5.8 (1.1–31.2)
	Absent	6.3	
Discharged on clozapine or LAI	Yes	25.0	2.1 (0.4–12.8)
	No	13.5	
Sub-analysis for Violent Reconvictions			
Variable	Subgroups	% of group with violent reconviction	Odds Ratio (95% CI)
Personality disorder ^b	Present	100.0	N/A
	Absent	0.0	

^a $p = 0.077$.

^b $p < 0.05$.

Statistically significant findings bolded.

but did not reach the level of significance (Table 3). Acquittes with personality disorders did not have higher odds of reconviction overall, however, violent reoffenders were significantly more likely than nonviolent reoffenders to have a personality disorder.

Associations between the length of hospitalization and postrelease outcomes were evaluated by coding the LOH as a categorical variable and performing contingency analyses (Table 4). Longer hospitalizations were not associated with significantly lower rates of reconviction or rehospitalization. While none of the acquittes hospitalized for longer than ten years were reconvicted, this finding was not statistically significant.

Similarly, associations between MSP and reconviction or rehospitalization rates were analyzed by coding the MSP into a categorical variable and performing contingency analyses. The MSP was coded into three comparison pairs: “<6 months versus \geq 6 months;” “<1 year versus \geq 1 year;” and “<2 years versus \geq 2 years.” The reconviction and rehospitalization rate for acquittes with longer MSPs did not differ from acquittes with shorter MSPs.

Discussion

The study sample was predominantly male, White, and young, which is consistent with demographics

reported by other recent studies of insanity acquittes.^{10,16–18} Black acquittes (40.9%) were over-represented in our sample compared with the general population of North Carolina (approximately 22.2%).¹⁹ Other studies have not commented on over-representation of minority race in their samples compared with the state population, so it is unclear whether minority races are over-represented among insanity acquittes in general.^{10,16–18}

Acquittes in our sample were predominantly diagnosed with psychotic disorders (83.6%), which is also consistent with recent samples of insanity acquittes from California (57.3%), New York (83.0%), and Virginia (66.1%).^{10,17,18} The diagnostic similarity between these states and North Carolina is unsurprising, as the legal standard for insanity in all four states consists of variations on the M’Naughten test.²⁰ The comparatively low proportion of acquittes with psychotic disorders in California appears to be related to differences in study methodology. Namely, we reported the primary diagnosis for acquittes found insane secondary to a substance-induced psychotic disorder as a psychotic disorder in our study, whereas the primary diagnosis for similar individuals in the California study appears to have been reported as substance use disorder.¹⁰

Table 4 Association of Length of NGRI Hospitalization with Reconviction and Rehospitalization - Fisher's Exact Test, Odds Ratio with 95% CI

LOH Comparison Pairs	Subgroup	% of Group Rehospitalized	Readmission Odds Ratio	% of Group Reconvicted	Reconviction Odds Ratio
<1 year vs. ≥1 year	< 1 year	27.3	1.0 (0.2–4.2)	9.1	0.5 (0.1–4.6)
	≥ 1 year	28.0		16.3	
<2 years vs. ≥2 years	< 2 years	30.0	1.2 (0.4–3.8)	20.0	1.8 (0.4–7.4)
	≥ 2 years	26.8		12.5	
<5 years vs. ≥5 years	< 5 years	35.3	2.4 (0.7–8.0)	23.5	7.7 (0.9–66.0)
	≥ 5 years	18.5		3.8	
<10 years vs. ≥10 years	< 10 years	29.1	2.1 (0.2–19.0)	16.7	N/A
	≥ 10 years	16.7		0.0	

Our results regarding the relationship between acquittees' diagnoses and their length of hospitalization were mixed. While discharge diagnoses as an independent variable were associated with significant differences in LOH, we could not identify specific diagnoses associated with longer hospitalizations during *post hoc* analysis because of the small sample size for several diagnostic subgroups. Perhaps surprisingly, acquittees with psychotic disorders did not have longer hospitalizations than those with nonpsychotic disorders. But those discharged on clozapine or an LAI antipsychotic (indicating they had a treatment-refractory psychotic disorder) did have significantly longer hospitalizations (almost twice as long) than those discharged on other medications. Considered together, these findings indicate that acquittees' diagnoses are a less important consideration for their release than their treatment response. Slow treatment response is not just limited to treatment-resistant psychosis and is often seen in conditions such as personality disorders and severe PTSD, which may explain the ambiguity in our findings related to the effect of the discharge diagnosis on LOH.

A notable difference between the criminological characteristics of insanity acquittees in North Carolina and those in other states is that acquittees were found NGRI for charges of homicide much more frequently in North Carolina (27.9%) than their counterparts in California (16.0%) and Virginia (11.0%). The states did not differ for the proportion of insanity acquittees charged with any serious offense (78.7% in North Carolina, 79.0% in California, and 73.2% in Virginia).^{10,18}

The higher proportion of NGRI acquittals for homicide in North Carolina, considered in context of the fact that the state has the lowest rate of NGRI admissions in the country,⁷ indicates that defendants

in North Carolina are less likely to plead insanity (or succeed with the defense) for less serious crimes, resulting in a higher proportion of acquittals for serious offenses such as homicide. A likely reason for the relative unpopularity of the insanity defense among defendants in North Carolina is the potential for indefinite state hospitalization following acquittal. While states like California have statutory limits for the maximum term of insanity commitment and conditional release programs, North Carolina has neither.^{8,21} Thus, even defendants who are likely to succeed with an insanity defense may lack an incentive to plead NGRI unless they face a high probability of a guilty verdict leading to serious penalties such as life sentences or capital punishment.

For the primary outcome of recidivism, we found a low to moderate reconviction rate (14.8%). When compared with other states that have reported reconviction rates for insanity acquittees, North Carolina has substantially higher recidivism than Missouri (.9%) but appears similar to Connecticut (16.3% for acquittees after release from community supervision).^{16,22}

Examining the differences between these studies reveals that the lack of supervision under conditional release is the factor most likely responsible for higher recidivism in North Carolina. This is demonstrated by the fact that the lowest reconviction rate was found in the Missouri sample, which consisted exclusively of acquittees on conditional release. Additionally, even though the overall reconviction rate for the Connecticut sample was similar to North Carolina, the reconviction rate for acquittees in Connecticut while they were under the supervision of a conditional release program was dramatically lower (1.1%). Furthermore, several acquittees in North Carolina were convicted of new violent offenses (4.9%), whereas none of the acquittees on

conditional release in Connecticut and Missouri were arrested for a new violent offense.^{16,22}

We found, consistent with previous research with this population, that insanity acquittees with substance use problems had significantly higher rates of recidivism.^{16,18} We did not find male sex, acquittal of serious or violent NGRI offenses, diagnosis with a psychotic disorder, or diagnosis with a personality disorder to be associated with recidivism, even though these factors are generally considered by mental health professionals to increase the risk of future dangerous behavior.²³ Existing evidence on the link between these variables and insanity acquittee recidivism is mixed. Some research supports our findings that historical factors such as an acquittee's sex or NGRI acquittal for a violent offense do not elevate the risk of reoffending,¹⁸ while other studies report that male sex and diagnosis with a personality disorder are associated with increased recidivism.^{16,17}

We also found that longer hospitalizations and longer periods of psychiatric stability before discharge (as indicated by the Medication Stability Period) were not associated with reduced recidivism. Analysis of the MSP as a naturalistic marker of psychiatric stability was a novel approach used in our study to describe a dynamic risk factor for the danger an acquittee poses to society. Most prior research with the insanity acquittee population has focused on static risk factors such as demographics, psychiatric history, and criminological history.^{10,16-18,22}

Our finding that longer hospitalizations do not make acquittees less likely to reoffend after discharge, or in other words, safer to release, adds to a growing body of evidence that state hospitalizations for insanity acquittees may be longer than necessary. One study from New York found no difference in postrelease rearrest rates for acquittees who had been hospitalized three to nine years and those who had been hospitalized longer than nine years.¹⁷ A separate study from Virginia reported that the length of the preceding NGRI hospitalization did not predict whether acquittees on conditional release would have their release revoked or not.¹⁸

Despite the evidence presented above that neither the seriousness of the NGRI offense nor an acquittee's diagnosis are accurate predictors of future criminal behavior, these factors are strongly associated with longer hospitalizations for NGRI acquittees in North Carolina. Allowing these factors to prolong hospitalizations for acquittees is an ineffective use of state

hospital resources because lengthier state hospitalizations do not actually reduce future recidivism. Our finding that acquittees did not have any psychotropic medication changes for an average of 1.8 years prior to discharge lends further support to our conclusion that NGRI hospitalizations in North Carolina are longer than necessary to reduce acquittees' risk of criminal reoffending.

A striking finding of our study was that the MSP for minority race acquittees was over twice as long as that for White acquittees, indicating that minority acquittees must appear psychiatrically stable for almost a year longer than their White peers before they are released. The severity of the charged offenses, a potential confounding factor that could prolong hospitalization, did not differ between the groups. This finding, along with the over-representation of Black individuals in our sample compared with the state population, reflects the presence of structural biases in the insanity commitment and release process in North Carolina.

The risks of releasing minority race acquittees may be overestimated because both clinical and actuarial risk assessments often rely on risk factors such as prior criminal history to stratify an individual's risk, and minority race individuals are more likely to have prior criminal justice involvement in the United States.²³ The fact that acquittees found NGRI for homicide were hospitalized over twice as long as other acquittees (including those found NGRI for attempted murder) provides evidence that forensic practitioners and courts in North Carolina are over-reliant on historical criminological factors when assessing the risk of releasing insanity acquittees.

The use of structured professional judgements (SPJs) such as the Historical Clinical Risk Management instrument (HCR-20V3)²⁴ could help forensic evaluators reduce the weight assigned to potentially biased historical factors, and increase their consideration of recent clinical observations and protective factors.²³ It is important to recognize, however, that minoritized patients remain vulnerable to individual or systemic biases even when evaluators consider seemingly objective behavioral observations for risk assessment. For example, although the recent use of physical or chemical restraints for acquittees could be a useful indicator of their risk for future violence, there is evidence that Black patients are more likely to be restrained than White patients.²⁵ Combatting the structural biases described above requires ongoing efforts to educate law and health professionals with the goals of increasing

their awareness of biases, enhancing their cultural competence, and increasing their reliance on scientific evidence for decision-making.²⁶

Another factor contributing to relatively delayed discharge for non-White acquittees could be that the courts in North Carolina typically require detailed community treatment and housing plans to be established before an acquittee is released. Past research has shown that minority race patients face greater delays in discharge from general hospitals when placement to a nursing facility is necessary.²⁷ Though we did not find similar published evidence regarding discharge from state psychiatric hospitals, minority race acquittees in the FTP may be disproportionately affected by delays in obtaining postdischarge housing and treatment. Community mental health or housing organizations may be reluctant to accept referrals for insanity acquittees in general because of the perceived risk of dangerous behavior by this patient population. Their perception of the risks associated with minority race acquittees may be further exaggerated for the reasons delineated above.

In response to challenges securing housing and mental health services for released acquittees, one model employed by other states has been to provide subsidized or government-funded transitional housing and treatment to acquittees discharged on conditional release.²⁸ Though it may seem like an additional expense for the state to fund housing and supervision for acquittees after discharge, the cost of housing and treating acquittees in the community is substantially lower than the cost of longer hospitalizations.^{28,29}

Court supervision through conditional release is vital in such an approach because it provides a mechanism to facilitate acquittees' compliance with the discharge plan and minimize potential danger to the public. As our results and other recent studies demonstrate, postrelease supervision is the only factor consistently associated with lower recidivism for insanity acquittees. Further, community partners such as treatment and housing agencies may be more amenable to providing services for insanity acquittee consumers if acquittees can be rapidly hospitalized for violating the conditions of their release because of decompensating mental illness.

Limitations

A major limitation of the study is the small sample size. Because of the infrequency of insanity acquittals

in general, but especially in North Carolina, more than two decades of discharges from the state Forensic Treatment Program yielded only 61 study subjects.

Second, both criminal recidivism and rehospitalization were potentially underestimated in this study. For recidivism, we reported publicly accessible reconviction data rather than rearrests because we did not have access to the state's arrest monitoring system. Comparison with prior research was also limited by using reconviction as the measure for recidivism because most previous studies have reported rearrests. For rehospitalization, we were unable to obtain data for nonstate psychiatric hospitals or the two state hospitals besides Central Regional Hospital. This limitation could have contributed to the lack of any significant association between the study variables and rehospitalization.

Third, data related to the MSP were only available for 65.6 percent of our sample. Because MSP-related data were missing equally for all acquittees discharged prior to the digitization of state hospital records, however, we considered these data missing at random. Thus, the findings related to this measure retain a high degree of validity.

Another potential criticism of the MSP data could be that an absence of medication changes does not always reflect psychiatric stability. For example, factors such as patient tolerance and preference can limit medication adjustments even if a patient is severely symptomatic. These factors are unlikely to be the case for acquittees in our sample because a psychiatrically unstable insanity acquittee would not have been released by the courts.

Conclusions

The insanity acquittee population in North Carolina is demographically consistent with research samples of insanity acquittees from other states. Insanity verdicts are less frequent for nonhomicide felonies and misdemeanors in the state compared with other parts of the country. Postrelease reoffending is higher for insanity acquittees in North Carolina compared with acquittees under the supervision of conditional release programs in other states.

The implementation of court-mandated postrelease supervision for insanity acquittees in North Carolina could reduce criminal recidivism for this population. This mandated supervision could potentially also facilitate earlier release for acquittees, who remain hospitalized for an average of almost two years even after they

are psychiatrically stable. In time, this approach could alleviate some of the concerns regarding the monopolization of forensic-designated state hospital beds by insanity acquittees in North Carolina, and their disproportionate influence on the utilization of state hospital beds.

We also discovered several indicators of structural bias against minority race acquittees in the insanity commitment and release process in North Carolina. Efforts should be made to reduce the influence of these biases and combat racial inequities in forensic psychiatric services in the state.

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