

Reinstitutionalization Following Psychiatric Discharge among VA Patients with Serious Mental Illness: A National Longitudinal Study

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Abstract Patterns of reinstitutionalization following psychiatric hospitalization for individuals with serious mental illnesses (SMI) vary by medical and psychiatric health care settings. This report presents rates of reinstitutionalization across care settings for 35,527 patients following psychiatric discharge in the Department of Veterans Affairs (VA) health system, a national health care system. Over a 7-year follow-up period, 30,417 patients (86%) were reinstitutionalized. Among these patients, 73% were initially reinstitutionalized to inpatient psychiatric settings. Homelessness, medical morbidity, and substance use were associated with increased risks for reinstitutionalization. Despite the VA's increased emphasis on outpatient services delivery, the vast majority of patients experienced reinstitutionalization in the follow-up period. Study findings may inform efforts to refine psychiatric and medical assessment for service delivery for this vulnerable population.

Keywords Psychiatric rehospitalization · Reinstitutionalization · Serious mental illness · Health care systems · Co-morbid medical illnesses · Dual diagnosis

Introduction

Researchers have reported high rates of psychiatric rehospitalization for individuals with serious mental illness (SMI) [1–5]. However, patterns of reinstitutionalization across a range of care settings (medical inpatient, nursing home, residential psychiatric and substance use) remains poorly understood. Researchers have investigated psychiatric

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rehospitalization from specific institutional settings (residential treatment or community settings and nursing homes) [1–12]. The results are alarming. Up to 50% of psychiatric inpatients are rehospitalized to psychiatric care within one year of discharge [12–16], and psychiatric inpatient rehospitalization rates can be as high as 90% when researchers investigated psychiatric rehospitalization over a significant period of time [17–19]. Patterns of individuals with SMI requiring and/or seeking institutional care (i.e. nursing homes, substance abuse treatment facilities, residential facilities) as a treatment option for structured and professional support are not well known. With the changes in legislation and health care reimbursement, nursing homes estimate that approximately 2% of their population are admitted with co-occurring psychiatric illness from the community or other inpatient treatment sites [20]. However, the number of individuals admitted to medical inpatient and psychiatric or substance abuse residential treatment facilities from the community after a psychiatric hospitalization are less well known [21–23]. To evaluate the patterns of reinstitutionalization across various medical and psychiatric care settings within one national health care system, this study analyzed long-term reinstitutionalization rates among patients in the Veterans Affairs (VA) health system who received diagnoses of SMI and who were discharged from inpatient psychiatric care settings.

The VA operates the largest health system in the United States and provides physical and mental health care with inpatient (162 hospitals) and residential (137 nursing homes, 43 domiciliaries) facilities [24]. This national longitudinal study evaluated prevalence rates, timing, and risk factors for reinstitutionalization following psychiatric discharges among patients with SMI.

Methods

The sample was drawn from the VA's National Psychosis Registry and included patients with SMI (schizophrenia, schizoaffective, or bipolar disorder) who were discharged in Fiscal Year 1998 (FY98) from VA inpatient psychiatric settings ($N = 35,527$). We examined patients' characteristics and medical and psychiatric diagnoses related to their time to first reinstitutionalization, from the initial psychiatric discharge in FY98 through the end of FY05 (9/30/05). Vital status was identified using data from VA's Beneficiary Identification Records Locator System (BIRLS). Using multivariable Cox proportional hazards regressions [25], two separate analyses examined patient (age, gender, race, marital status, homelessness, service connection, substance abuse/dependence, SMI diagnosis, and Charlson score for medical comorbidity [26]) and index stay characteristics (length of stay) to determine: (1) time to reinstitutionalization of any type (inpatient medical or psychiatric care, residential treatment, domiciliary or nursing home) and, in separate analyses, (2) time to psychiatric rehospitalization. Because psychiatric rehospitalization rates were high, further analyses were completed to describe this population. Observation time was right-censored at the end of FY05 with death modeled as a competing risk. For the survival analyses, covariance sandwich estimators were used to adjust for the lack of independence among individuals discharged from the same facility.

Results

Over the 7-year study period, 30,417 patients (86%) were reinstitutionalized to any VA setting. Of the 5,110 patients (14%) who were not reinstitutionalized, 825 (2%) died during

the observation period and 4,285 (12%) were not reinstitutionalized within VA over the entire study period. For this cohort, first reinstitutionalization were as follows: 68% were reinstitutionalized to inpatient psychiatric units, 20% to inpatient non-psychiatric units, 1% to nursing homes, 6% to community residential or domiciliary/vocational care settings, 3% to psychiatric residential rehabilitation, and 2% to inpatient substance abuse/dependence units. Reinstitutionalization to inpatient psychiatric care occurred sooner (mean days 326, SD = 505) than for patients reinstitutionalized to other settings (mean days 522, SD = 679; $p < 0.001$). Those readmitted to inpatient psychiatric care (73%) were admitted on average within 1 year, and those reinstitutionalized to other settings (27%) were admitted on average within 1.5 years.

We did not observe significant demographic differences between individuals reinstitutionalized to psychiatric inpatient care (including substance abuse/dependence) and those reinstitutionalized to other settings (Table 1). The majority of patients were white, male, with a high percentage of service connectedness and a diagnosis of schizophrenia. Patients were at increased risk of reinstitutionalization if they had higher Charlson comorbidity index scores (HR = 1.103), were service connected (HR = 1.163), had substance use disorder (HR = 1.072), or were homeless (HR = 1.578). Patients who were married had lower risks of reinstitutionalization (HR = 0.886) (see Table 2).

In the second set of analyses, patients with psychiatric rehospitalizations had similar risk factors to all patients in the first analyses. In addition, individuals with psychiatric rehospitalizations were more likely to have a schizophrenia rather than bipolar disorder (HR = 1.116).

Table 1 Characteristics of patients who were reinstitutionalized by setting (N = 35,527)

Variables	Reinstitutionalization to psychiatric inpatient (N = 22,230; 73%)		Reinstitutionalization to Other VHA institutions (N = 8,187; 27%)	
	Mean	N/Std Dev*	Mean	N/Std Dev*
Time (in days) to reinstitutionalization	333	505*	538	679*
Age	47	10*	52	12*
White	62%	13,783	68%	5,567
Black	32%	7,114	26%	2,129
Hispanic	5%	1,112	5%	409
American Indian	0.37%	82	0.43%	35
Other	0.29%	64	0.32%	26
Asian	0.45%	100	0.29%	24
Married	20%	4,446	23%	19
Males	94%	20,896	94%	7,696
Charlson Comorbidity Index Score in FY98	0.92	1.55*	1.53	1.97
Service Connected %	67%	39%*	64%	39%*
Level of Service Connection /Service Connect Pt	36.19	43.99*	31.97	42.03*
SMI Diagnosis: schizophrenia	67%	14,894	58%	4,749
Substance Abuse/Dependence Diagnosis	19%	4,224	11%	901
Homeless in FY98	23%	5,113	24%	1,965
Initial Length of Stay FY98	29	183*	44	322*

Table 2 Survival analyses: time to reinstitutionalization and time to rehospitalization risk factors

Predictors	Time to Reinstitutionalization(N = 35,527)			Time to Psychiatric Rehospitalization(N = 26,259)		
	HR	95% CI		HR	95% CI	
		Low	High		Low	High
Age	1.000	0.999	1.001	0.99*	0.988	0.991
American Indian	1.134	0.907	1.417	1.042	0.816	1.33
Other	0.290*	0.227	0.371	0.303*	0.235	0.391
Black	1.020	0.987	1.054	1.032	0.995	1.07
Hispanic	0.920	0.838	1.01	0.94	0.827	1.068
Asian	0.762	0.649	0.896	0.869	0.712	1.06
Married	0.886*	0.861	0.912	0.874*	0.846	0.903
Males	1.008	0.965	1.053	1.003	0.955	1.053
Charlson Comorbidity Score in FY98	1.103*	1.094	1.112	1.033*	1.024	1.042
Service Connected %	1.163*	1.131	1.196	1.159*	1.126	1.193
Homeless in FY98	1.578*	1.504	1.656	1.399*	1.338	1.462
SMI Diagnosis: Schizophrenia	1.006	0.978	1.035	1.116*	1.081	1.152
Substance Abuse/Dependence Diagnosis	1.072*	1.036	1.109	1.179*	1.129	1.231

* Significant at $p < .001$

Discussion

This national longitudinal study highlights the characteristics and medical and psychiatric diagnoses related to the rate and pattern of reinstitutionalization/psychiatric rehospitalization within an integrated national health care system. The results reflect the types of patients who may benefit from increased services. Study findings are consistent with prior research that indicate the highest rates for psychiatric rehospitalization among patients with SMI within particular service settings [12–17, 27–33]. Of individuals reinstitutionalized, 73% were rehospitalized for psychiatric care and 20% were rehospitalized for non-psychiatric or medical care. The rate of psychiatric rehospitalization observed in this longitudinal study fall in line with those reported by Benda and other VA studies [23, 27]. Benda [23] investigated attachment to family as viable predictor targets for homeless veterans within one VA residential program. From the sample, 72% of the patients were rehospitalized for psychiatric care within a two-year period and most of the variables examined were significantly associated with rehospitalization.

Mortality information for individuals with SMI is important and when identified can capture a group of individuals in need of the most effective and efficient professional medical and/or psychiatric care. Researchers try to account for mortality rates of individuals with SMI from various service delivery settings. While the death index data from this present study reflect a high-risk population with lower rates of mortality, ultimately, these rates must be considered as an indicator of the worst-case scenario for individuals with SMI that is often not captured. Other researchers, such as, Lambert [34] and colleagues accounted for a 16% mortality rate among patients diagnosed with SMI admitted to the VA emergency rooms for a one-year cohort followed over 5 years. These individuals are not returning to institutions for increased care, yet part of a very high-risk population.

Further research is needed to determine the service needs to sustain an individual's life for those with SMI who may not be accounted for in other areas of service delivery.

Other demographics for individuals who are more likely to be rehospitalized/reinstitutionalized are in line with earlier research. Researchers identified that non-marital status [35], co-occurring substance use disorders [36] homeless [37, 38] and co-morbid medical issues [38–40] among individuals with SMI are high risk indicators for “revolving” through institutions for care.

Individuals with SMI have been known to have more significant chronic medical illnesses that often are not cared for [27, 39]. This study's rate of rehospitalization to medical inpatient care on a national level highlights the prevalence of inpatient hospitalization and the importance of preventive health screening and treatment. However, other researchers have reported the prevalence of the self-neglect and care, as well as, disparities among health care providers. For example, Sullivan [38] identified the disparities in physical health treatment for persons with co-occurring mental disorders. From four and a half years of administrative data, persons with diabetes and co-occurring mental illness were less likely to be admitted to inpatient treatment. Further research on a national level is needed to best understand individuals' motives and systems' issues that contribute to access to medical and psychiatric inpatient care.

For individuals with SMI who are homeless and those with co-occurring substance use disorders, this study's results bring notice to the need for further research and best practices for this most vulnerable population. Previous research indicates that individuals with the characteristics and diagnoses (mental illness and co-occurring substance use disorders) significantly predicted in this study have high rates of chronic health problems, suicide, violence, and homelessness compared to individuals with mental illnesses alone [41, 42]. In addition, researchers have identified that individuals with co-occurring illnesses are rehospitalized near a one-year time frame from discharge [17, 43]. Thus, attention to this high-risk co-occurring psychiatric and substance use disorder population who are homeless is important to consider to determine if psychiatric rehospitalization could be prevented. For example, community programs can increase the number of best practice treatment options at various time points (9 months through one-year) within community care programs to prevent rehospitalization which would prevent rehospitalization while reducing health care costs.

A limitation of the study is the lack of information for the patients who seek treatment outside of the VA. However, patients in the VA diagnosed with SMI receive a majority of mental and physical health care within this national system [27]. By understanding the utilization of the higher levels of care within a diverse health care system, other health systems can recognize the ultimate need to monitor reinstitution and rehospitalization rates for the most vulnerable population to improve clinical and systems for medical and psychiatric health care.

Despite the VA's increased emphasis on outpatient services, patients with SMI experienced high rates of reinstitutionalization following psychiatric discharge with the majority returning to inpatient psychiatric care and the next highest to inpatient medical care. This national study's findings support the highest rates of rehospitalization for the most serious mental illnesses and may guide efforts within the VA and other health care systems to refine psychiatric assessment, service delivery, and continuum-of-care initiatives to provide cost effective best practice care to a vulnerable and growing population.

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