Patient Characteristics Associated With Admission to Low-Safety Inpatient Psychiatric Facilities: Evidence for Racial Inequities

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Objective: The author examined patient demographic, clinical, payment, and geographic factors associated with admission to low-safety inpatient psychiatric facilities.

Methods: Massachusetts all-payer 2017 discharge data (N=39,128 psychiatric patients) were linked to facility-level indicators of safety (N=38 facilities). A composite of safety was created by averaging standardized measures of restraint and seclusion as well as 5-year averages of overall, substantiated, and abuse-related (i.e., verbal, physical, or sexual) complaints per 1,000 discharges (α=0.73). This composite informed quintile groups of safety performance. A series of multinomial regression models were fit, with payment and geography added separately.

Results: Notable factors independently associated with admission to low-safety facilities were belonging to a racial or ethnic minority group compared with being a White patient (for non-Hispanic Black, relative risk ratio [RRR]=1.71, $p<0.01$; for non-Hispanic Asian, RRR=5.60, $p<0.01$; for non-Hispanic "other" race, RRR=2.17, $p<0.01$; and for Hispanic-Latinx, RRR=1.29, $p<0.01$) and not having private insurance (for self-pay or uninsured, RRR=2.40, $p<0.01$; for Medicaid, RRR=1.80, $p<0.01$; and for Medicare, RRR=1.31, $p<0.01$).

Conclusions: To the best of the author's knowledge, this is the first study to examine differences in admission to low-safety inpatient psychiatric facilities. Even after accounting for potential clinical, geographic, and insurance mediators of structural racism, stark racial and ethnic inequities were found in admission to low-safety inpatient psychiatric facilities. In addition to addressing safety performance, policy makers should invest in gaining a better understanding of how differences in community-based referrals, mode of transport (e.g., police or self), and deliberate or unintentional steering and selection affect admissions and outcomes.

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Over the past several decades, robust research has described the correlates of variation in the quality of health care. One line of questioning has centered on the extent to which differences in quality arise from differences in how certain patient groups are treated within organizations versus differences in the likelihood of certain patient groups being treated by low-quality providers. Literature on general hospital care has found that disparities in the quality of clinical processes and outcomes of care among racial-ethnic minority groups, in particular, are largely explained by differences in where patients receive their care, although evidence exists for some within-provider variation (1–4).

Despite this evidence base for general health care, and hospital care in particular, only limited research has described variation in the quality of inpatient psychiatric care (5, 6); moreover, virtually no research has been conducted to describe and understand determinants of where patients are admitted in terms of provider quality. However, related research has been conducted on patient-level predictors of emergency department (ED) boarding and barriers to finding receiving beds for the most clinically acute or socially

HIGHLIGHTS

- This is the first study to examine differences in patient characteristics associated with admission to low-safety inpatient psychiatric facilities.
- Inequities in admission to low-safety inpatient psychiatric facilities existed across racial-ethnic minority groups, payment source, emergency department transfer status, substance use disorders, illness severity, previous 30-day admission, homelessness, younger age, and urbanicity.
- Policies are needed to better measure and address the mechanisms underpinning these inequities and to improve quality of inpatient psychiatric care.

disadvantaged patients experiencing psychiatric emergencies (7, 8). Some of these characteristics include being from a racial-ethnic minority group, having a diagnosis of schizophrenia, having a substance use disorder, having Medicaid coverage or being uninsured, or being homeless. The same characteristics associated with ED boarding might extend to risk for admission to low-safety inpatient facilities if high-performing hospitals have discretion over whom to accept for admission. High-performing hospitals might select patients on the basis of clinical acuity, perceived difficulty in placing the patient postdischarge (e.g., housing status), or perceived risk for violence. It is also likely that differences in where a patient is placed could be at least partially explained by structural barriers (e.g., location and payment) rather than by (justified or unjustified) factors related to a patient's presentation at the clinical encounter (7).

In this study, I took a first step in understanding patient demographic, clinical, and geographical factors associated with admission to a low- versus high-safety inpatient psychiatric facility. I hypothesized that the patient characteristics associated with ED length of stay and boarding would also be associated with risk for admission to a low-safety inpatient psychiatric facility (7–11). I expected that structural factors, such as payer, rurality, and proximity to low-safety facilities, would explain some of the variation observed among diagnostic and demographic groups.

METHODS

Data and Sample

Data for this study came from three sources. Information on patients came from the 2017 Hospital Inpatient Discharge Database compiled by the Massachusetts Center for Health Information and Analysis (CHIA). These data include patient-level information on all discharges from general hospitals in the state, regardless of payer. The second source was the 2017 Inpatient Psychiatric Facility Quality Reporting (IPFQR) program data set from the Centers for Medicare and Medicaid Services (CMS), which includes facility-level quality performance on hours of restraint and seclusion. The third data set included complaints (filed by facility staff, patients, or family) and episodes of restraint and seclusion from 2014 to 2018, which was received by the Massachusetts Department of Mental Health through public records requests (for a list of the different types of complaints and their distribution, see an online supplement to this article). Data were analyzed from April to September 2020 and were exempt from the institutional review board of Brandeis University. The analytic sample of discharges was identified through the *ICD-10* primary codes (F01–F99) for a behavioral health condition (12).

Measures

Measure of facility-level safety. A facility-level composite measure of safety was constructed by averaging reverse-scored standardized CMS measures of hours of restraint and seclusion as well as 5-year (2014–2018) averages of overall rates of complaints, substantiated complaints, abuse-related (i.e., verbal, physical, or sexual abuse) complaints, episodes of restraint, and episodes of seclusion. Five-year averages were used for complaints and episodes of restraint and seclusion given the infrequent and noisy nature of these data. Complaints and regulatory violations have been used consistently in research examining quality and safety differences among nursing homes (13, 14). Use of restraint and seclusion is a widely accepted safety indicator for the inpatient psychiatry setting. Before averaging across years, rates for each measure were created by dividing each year's count by overall discharges in a given year. The Cronbach's alpha indicated acceptable agreement ($\alpha = 0.73$). Following previous approaches to comparing high- and low-quality hospitals (15, 16), I then ranked hospitals on the basis of their performance on the composite measure and divided discharges into quintile groups. The bottom 20% of discharges represented the low-safety group, the top 20% composed the high-safety group, and the middle 60% constituted the middle performers.

To provide some reassurance that the composite measure was capturing meaningful information related to a facility's safety, I examined differences in probability of receiving a hospital-acquired injury code between high- and low-safety groups. Low-safety facilities had a 1.6-fold increased rate of hospital-acquired injuries compared with high-safety facilities (for the distribution of hospital-acquired injury rates between low- and high-safety facilities, as well as the distribution of each component across high- and low-safety groups, see the online supplement).

Patient-level characteristics. I operationalized measures of race and ethnicity by following the Institute of Medicine's method for aggregating racial-ethnic groups (17). These groups included non-Hispanic White, non-Hispanic Black, non-Hispanic Asian, non-Hispanic "other" race, and Hispanic-Latinx (regardless of race). The "other" racial-ethnic category primarily included observations marked as "other" by the hospital but also included those with more than one race reported, as well as Native Americans and Native Hawaiian-Pacific Islanders given very low prevalence of these groups in the data. I tested the sensitivity of reclassifying biracial observations with a fully deterministic method, in which I grouped biracial observations into the reported race on the first-order variable; the results were qualitatively unchanged (18).

Using diagnostic codes from the *ICD-10*, I created several indicators for presence of any primary or secondary diagnoses. These diagnostic groups were not mutually exclusive and included opioid use disorder, alcohol use disorder, and any substance use disorder other than alcohol or opioid use disorder (excluding marijuana use disorder), bipolar disorder, and schizophrenia or psychosis. I excluded personality disorders because of a very low prevalence of these

diagnoses in the data. Housing status was identified with the Z590 code as reported by hospitals.

The CHIA database included a measure of a patient's illness severity at admission using the 3M severity-of-illness classification method, which is a proprietary grouping approach that uses patients' primary and secondary diagnoses to classify their condition into four severity levels (minor, moderate, major, or extreme). This measure is often used in research (19–21), including research on inpatient psychiatric care (22, 23), as well as for payment purposes. I collapsed the last two groups (major and extreme) given the small number of patients with these conditions in these categories. I tested the sensitivity of using the discharge- versus admission-based version of this grouping method and found that the results were qualitatively unchanged.

The CHIA database also included a preconstructed measure of the number of days since previous all-cause admission, which was used to create groups of no previous admission within the past 100 days, 7-day previous admission, 30-day previous admission, and <100-day previous admission. I classified patients' primary payer as uninsured or self-pay, Medicaid, Medicare, or private insurance. I defined living in a rural area as living in a zip code that is considered >50% rural. Finally, I measured proximity to the admitting facility and the nearest low- and high-safety facilities on the basis of the distance from the centroids of the patient's and the hospital's 5-digit zip codes.

Analyses

Using a cross-sectional design, I first conducted univariate descriptive statistics of the sample. I followed this step with bivariate chi-square statistics on the differences in patient characteristics between low- and high-safety facilities. I then described differences in proximity and bypass patterns across racial-ethnic groups.

Following similar approaches used in the comparison of high- and low-quality hospitals (24), I fit three multinomial logistic regression models with high-safety facilities, low-safety facilities, and the middle 60% of facilities as three separate categories. The first model comprised patient demographic and clinical characteristics; payment and geography were added to the second and third models, respectively. I included an interaction between use of an ED before admission and having been transferred, because people transferred from an ED may differ in unmeasured ways from people transferred from other facilities. I also included an interaction between living in a rural area and proximity to account for differences in travel times between urban and rural areas. Given that the unit of analysis is the discharge record and that the same patient can have multiple discharges, I also tested a final model among a restricted sample consisting of just one randomly sampled discharge per patient. I report predicted probabilities for significant predictors with covariates held at their observed values.

TABLE 1. Clinical, demographic, and geographical characteristics of 39,128 adult patients with a primary behavioral health diagnosis and who were discharged from Massachusetts general hospitals in 2017[a]

Characteristic	N	%
Admission to low-safety facility	7,612	19.5
Admission to high-safety facility	6,953	17.8
Previous ED visit	27,591	70.5
Illness severity score[b]		
Least severe	12,443	31.8
Moderately severe	21,642	55.3
Most severe	5,043	12.9
Transferred from other ED or facility	8,626	22.0
Previous 30-day admission[c]	6,264	16.0
<100-day previous admission[c]	10,744	27.5
Had any substance use disorder	19,576	50.0
Opioid use disorder	6,022	15.4
Alcohol use disorder	14,616	37.4
Other substance use disorder	4,722	12.1
Bipolar disorder diagnosis	7,889	20.2
Schizophrenia diagnosis	8,115	20.7
Homelessness	4,878	12.5
Race[d]		
Non-Hispanic White	30,574	78.5
Non-Hispanic Black	3,099	8.0
Non-Hispanic Asian	572	1.5
Non-Hispanic "other" race	1,408	3.6
Hispanic-Latinx	3,279	8.4
Age in years[e]		
18–24	3,932	10.2
25–34	7,498	19.4
35–45	7,176	18.6
46–64	13,637	35.3
≥65	5,848	15.2
Female	17,691	45.2
Payment		
Private insurance	11,364	29.0
Self-pay or uninsured	387	1.0
Medicaid	11,755	30.0
Medicare	14,508	37.1
Geography		
Rural[f]	1,286	3.4
Closest hospital was low safety[g]	9,217	24.8
Closest hospital was high safety[g]	7,898	21.2
Was admitted to closest hospital[g]	4,949	13.3
Miles to admitting hospital (M±SD)	10.7±13.6	
Miles to closest hospital (M±SD)	4.0±4.5	

[a] Rates are reported excluding missing data from the denominator. ED, emergency department.
[b] Illness severity at admission was assessed with the 3M severity-of-illness classification method.
[c] Previous admission rates were built such that those with a previous 30-day admission are also reflected among those with a <100-day previous admission.
[d] 196 (0.5% of adult discharges) were missing data for the race variable.
[e] 529 had missing age information (1.4% of total sample, including children).
[f] 1,069 (2.7% of adult discharges) had missing rurality information.
[g] 1,896 (4.8% of adult discharges) had missing data for proximity variables.

RESULTS

In 2017, a total of 39,128 adults were discharged with a primary behavioral health diagnosis from 38 Massachusetts general hospitals. Of these discharges, 7,612 were from eight facilities in the low-safety group, and 6,953 discharges were

TABLE 2. Differences in characteristics across safety groups composed of adult patients with a primary behavioral health diagnosis and who were discharged from Massachusetts general hospitals in 2017[a]

	Low safety (bottom 20%, N=7,612)		High safety (top 20%, N=6,953)			
Characteristic	N	%	N	%	χ^{2b}	p
Previous ED visit	5,200	68.3	4,945	71.1	22.1	<.01
Severity score[c]					38.0	<.01
Least severe	2,221	29.2	2,297	33.0	31.5	<.01
Moderately severe	4,428	58.2	3,733	53.7	34.4	<.01
Most severe	963	12.7	923	13.3	1.33	.51
Transferred	2,032	26.7	1,093	15.7	259.4	<.01
Previous 30-day admission[d]	1,259	14.5	895	12.9	82.9	<.01
<100-day previous admission[d]	2,055	27.0	1,609	23.1	88.9	<.01
Had any substance use disorder	3,565	46.8	3,125	44.9	161.1	<.01
Opioid use disorder	1,047	13.8	675	9.7	272.5	<.01
Alcohol use disorder	2,654	34.9	2,527	36.3	34.9	<.01
Other substance use disorder	954	12.5	560	8.1	129.9	<.01
Bipolar disorder diagnosis	1,524	20.0	1,453	20.9	2.84	.24
Schizophrenia diagnosis	1,975	25.9	1,209	17.4	179.6	<.01
Homelessness	1,030	13.5	591	8.5	122.3	<.01
Race-ethnicity[e]						
Non-Hispanic White	5,493	72.2	5,959	85.7	393.3	<.01
Non-Hispanic Black	856	11.2	315	4.5	255.2	<.01
Non-Hispanic Asian	208	2.7	29	.4	139.7	<.01
Non-Hispanic "other" race	406	5.3	169	2.4	48.2	<.01
Hispanic-Latinx	643	8.4	346	5.0	131.1	<.01
Age in years[f]						
18–24	735	9.7	640	9.4	9.44	.01
25–34	1,470	19.6	1,081	15.9	69.9	<.01
35–45	1,362	18.1	1,053	15.5	62.8	<.01
46–64	2,760	36.7	2,455	36.0	11.6	<.01
≥65	1,090	14.5	1,514	22.2	326.5	<.01
Female	3,403	44.7	3,340	48.0	27.3	<.01
Payment						
Private insurance	1,675	22.0	2,219	31.9	233.1	<.01
Self-pay or uninsured	133	1.8	59	.9	55.6	<.01
Medicaid	2,756	36.2	1,578	22.7	316.5	<.01
Medicare	2,824	37.1	2,912	41.9	88.4	<.01
Other	224	2.9	185	2.7	1.32	.52
Geography						
Rural	52	.7	278	4.2	205.3	<.01
Closest hospital was low safety	4,019	54.7	1,006	15.2	4,400.0	<.01
Closest hospital was high safety	962	13.1	4,130	62.2	8,100.0	<.01
Was admitted to closest hospital	521	7.1	1,120	16.9	336.5	<.01

[a] Rates are reported excluding missing data from the denominator. ED, emergency department.
[b] df=1.
[c] Illness severity at admission was assessed with the 3M severity-of-illness classification method.
[d] Previous admission rates were built such that those with a previous 30-day admission are also reflected among those with a <100-day previous admission.
[e] In total, 141 (0.5% of adult discharges) had missing data on the race variable (6 [0.9%] in the low-safety group, and 135 [1.9%] in the high-safety group).
[f] In total, 405 had missing age information (195 [2.6%] in the low-safety group and 210 [3.0%] in the high-safety group).

from seven facilities in the high-safety group. About 27.5% of patients had a previous admission within the past 100 days, 50.0% had a substance use disorder, and 20.2% and 20.7% had received a diagnosis of bipolar disorder or schizophrenia, respectively. Private pay accounted for 29.0%, and public pay (Medicare and Medicaid) accounted for 67.1%. About 24.8% and 21.2% lived closest to a low- or high-safety facility, respectively. However, only 13.3% were admitted to their closest facility. Although the average miles to the admitting facility was 11, patients lived on average only 4 miles from the closest facility. Table 1 shows the full sample characteristics.

Table 2 reports bivariate statistics for differences in patient characteristics between low- and high-safety groups. Notable differences were found across many characteristics, especially in regard to race-ethnicity. For example, non-Hispanic Black patients composed 11.3% of admissions to low-safety facilities and 4.6% of admissions to high-safety facilities. In contrast, White patients composed 72.2% of admissions to low-safety facilities and 87.4% of admissions to high-safety facilities. Among those admitted to a low-safety facility, 54.7% lived closest to a low-safety facility, but only 7.1% were admitted to their closest facility (meaning most bypassed the closest low-safety facility for another low-safety facility). Among those admitted to a high-safety facility, 62.2% lived closest to a high-safety facility, but only 16.9% went to their closest facility (for characteristics among the middle-safety group, see online supplement).

Table 3 reports proximity and bypass patterns across racial-ethnic groups. White patients were least likely to live closest to a low-safety facility (22.3%) compared with non-Hispanic Black (37.3%), non-Hispanic Asian (39.1%), non-Hispanic "other" race (32.3%), and Hispanic-Latinx (30.8%) patients; White patients were also more likely to bypass a low-safety facility if it was the closest facility. Furthermore, White patients were more likely to bypass a low-safety facility for a high-safety facility than were all other racial-ethnic minority groups. White patients were also most likely to live closest

TABLE 3. Geographic proximity and bypass patterns among adult patients with a primary behavioral health diagnosis and who were discharged from Massachusetts general hospitals in 2017, by race-ethnicity

	Non-Hispanic White (N=29,220)[a]		Non-Hispanic Black (N=2,993)[a]		Non-Hispanic Asian (N=512)[a]		Non-Hispanic "other" race (N=1,269)[a]		Hispanic-Latinx (N=3,069)[a]		
Variable	N	%	N	%	N	%	N	%	N	%	χ^{2b}
Closest hospital is low safety	6,513	22.3	1,115	37.3	200	39.1	410	32.3	945	30.8	501.2
Bypassed	6,218	95.5	999	89.6	184	92.0	382	93.2	879	93.0	68.6
Bypassed for low safety	2,508	38.5	421	37.8	111	55.5	157	38.3	301	31.9	41.8
Bypassed for high safety	882	13.5	24	2.2	4	2.0	53	5.6	28	6.8	186.7
Closest hospital is high safety	6,736	23.1	401	13.4	67	13.1	256	20.2	406	13.2	306.5
Bypassed	5,875	87.2	334	83.3	64	95.5	230	89.8	243	59.9	245.6
Bypassed for high safety	2,768	41.1	86	21.4	14	20.9	65	25.4	53	13.1	206.9
Bypassed for low safety	748	11.1	63	15.7	28	41.8	62	24.2	59	14.5	103.5

[a] The total N displayed for each racial-ethnic group omits those with missing data on the geographic variables.
[b] All chi-square tests were statistically significant at $p<0.01$; for all tests, df=4.

to a high-safety facility (23.1%) compared with non-Hispanic Black (13.4%), non-Hispanic Asian (13.1%), non-Hispanic "other" race (20.2%), and Hispanic-Latinx (13.2%) patients. Hispanic-Latinx patients were the least likely to bypass a high-safety facility (59.9%) than were all other racial-ethnic groups, including White (87.2%) patients. However, among those who did bypass the closest high-safety facility, White patients were most likely to bypass a high-safety facility for another high-safety facility, and they were least likely to bypass a high-safety facility for a low-safety facility, compared with all other racial-ethnic minority groups.

Table 4 reports results from the three multinomial multivariable logistic regression models. Table 5 reports the predicted probabilities from the fully adjusted model, with covariates held at their observed values. Significant predictors of low-safety facility admission included illness severity, transfer status, opioid use disorder, substance use disorders other than alcohol or opioid use disorder, schizophrenia, and homelessness. The characteristics that had the largest effects on such admissions were belonging to a racial-ethnic minority group compared with being a White patient, having been transferred (which was even greater among those who were transferred from EDs), and having public insurance or being uninsured.

Controlling for payment did little to attenuate the effects of race-ethnicity; however, geography did explain part of these effects, although not the majority. For example, when geography was controlled for, the effect of non-Hispanic Black decreased from a relative risk ratio (RRR) of 2.51 to 1.71, non-Hispanic Asian decreased from an RRR of 8.25 to 5.60, non-Hispanic "other" race decreased from an RRR of 2.50 to 2.17, and Hispanic-Latinx decreased from an RRR of 1.75 to 1.29. Independently, the geographical variables helped explain an additional 16% of the risk for admission to a low- versus high-safety facility. Rurality moderated the effect of living closest to a low-safety facility (for the multinomial logistic regression results for the middle category, see online supplement). Results of the final model were robust to a sensitivity analysis restricting the sample to randomly selected discharges within each patient (see online supplement).

DISCUSSION

In Massachusetts, patients admitted to psychiatric units of general hospitals scoring in the bottom quintile on a composite measure of safety differed markedly from patients who were admitted to units scoring in the top quintile. Belonging to a racial or ethnic minority group was a notable and robust predictor of admission to a low-safety facility, as were transfer status and having public insurance or being a self-pay or uninsured patient. Other key predictors included a previous 30-day admission, having an opioid use disorder or a substance use disorder other than alcohol or opioid use disorder, schizophrenia or psychosis, illness severity, homelessness, being ages 18–24 years compared with ages >64, and living in an urban area. To my knowledge, this study is the first to describe patient-level predictors of admission to low- and high-safety psychiatric facilities, providing a foundation for future hypothesis testing and policy development.

The causal mechanisms behind these findings are likely complex. Given that low-safety facilities included in this study appeared to have more patients with clinically complex disorders while also having more patients with public insurance and those experiencing homelessness, safety events could be influenced by a facility's resource constraints (e.g., maintaining appropriate staffing levels, attracting qualified staff). However, racial-ethnic disparities persisted and remained large even after accounting for clinical factors. Although facilities might specialize in certain clinical disorder subtypes, no clinical rationale exists to justify steering or selecting patients on the basis of race-ethnicity, all else being equal, regardless of where they are tracked to. Furthermore, although observable characteristics might not capture all relevant information, research has found that

TABLE 4. Predictors of risk for admission to a low-safety versus high-safety (reference) facility in a sample of adult patients with a primary behavioral health diagnosis[a]

	Model 1 (N=38,404)		Model 2 (N=38,393)		Model 3 (N=36,441)	
Characteristic	RRR	p	RRR	p	RRR	p
Illness severity (reference=least severe)						
Moderately severe	1.24	<.01	1.22	<.01	1.23	<.01
Most severe	1.23	<.01	1.19	<.01	1.17	.02
Transferred	1.65	<.01	1.69	<.01	2.90	<.01
Previous 30-day admission	1.13	.08	1.12	.10	1.17	.04
<100-day previous admission	1.13	.03	1.10	.09	1.06	.34
Opioid use disorder	1.42	<.01	1.35	<.01	1.37	<.01
Alcohol use disorder	1.01	.73	.99	.83	.92	.09
Other substance use disorder	1.32	<.01	1.29	<.01	1.33	<.01
Bipolar disorder diagnosis	.93	.08	.93	.12	.99	.86
Schizophrenia diagnosis	1.47	<.01	1.43	<.01	1.32	<.01
Homelessness	1.36	<.01	1.28	<.01	1.24	<.01
Race-ethnicity (reference=White)						
Non-Hispanic Black	2.66	<.01	2.51	<.01	1.71	<.01
Non-Hispanic Asian	8.08	<.01	8.25	<.01	5.60	<.01
Non-Hispanic "other" race	2.54	<.01	2.50	<.01	2.17	<.01
Hispanic-Latinx	1.91	<.01	1.75	<.01	1.29	<.01
Age (reference=18–24 years)						
25–34	1.13	.07	1.02	.74	1.03	.66
35–45	1.10	.16	.99	.91	1.00	.96
46–64	1.04	.53	.97	.62	.97	.72
≥65	.71	<.01	.69	<.01	.62	<.01
Female	.95	.12	.96	.20	.99	.76
ED	.94	.24	.95	.27	.85	.01
ED × transferred	4.08	<.01	3.99	<.01	2.75	<.01
Payment (reference=private insurance)						
Self-pay or uninsured			2.38	<.01	2.40	<.01
Medicaid			1.92	<.01	1.80	<.01
Medicare			1.36	<.01	1.31	<.01
Geography						
Rural					.35	<.01
Closest hospital is low safety					2.32	<.01
Closest hospital is high safety					.12	<.01
Rural × closest hospital is low safety					.14	<.01
Constant	.60	<.01	.49	<.01	.89	.19
R^2 (%)	3.05		3.49		19.39	

[a] The sample size for each model differed because of missing information on predictors, notably geographical characteristics. The rates of missing data were 1.9% for models 1 and 2 and 6.9% for model 3. When multiple imputations to address missing data were used, the results remained qualitatively unchanged. ED, emergency department; RRR, relative risk ratio.

Black psychiatric patients actually have lower treatment costs than do White patients (23); in addition, they are more likely to be psychiatrically hospitalized than are White patients, even when clinical differences are held constant (25).

A notable finding was that proximity to a low- or high-safety facility did not explain the racial-ethnic disparities in admission to low-safety hospitals. This finding is unsurprising in light of the literature on Black-White disparities in admission to low-quality facilities. Studies that have measured geography similarly to how it was captured in this study have found that geography's role is complex. In some cases (depending on how quality is operationalized), people from a racial-ethnic minority group lived closer to high-quality facilities than did White patients, yet they bypassed these facilities for low-quality hospitals (15, 26–28). Although living closest to a low-safety facility was associated with actual admission to a low-safety facility, only about 13% of the sample were even admitted to their closest facility; this outcome was especially likely if the closest facility was low safety. Indeed, living closest to a low-safety facility was associated with bypassing that facility for another low-safety facility, especially among people from a racial-ethnic minority group; White patients were much more likely to bypass a low-safety facility for a high-safety facility.

In the context of inpatient psychiatry, there is likely much to learn about the role of community-based referrals. Given that inpatient psychiatric care is almost always needed during a moment of crisis and that patients often must navigate provider networks, a patient's ability to shop for appropriate care is limited. Furthermore, unique to inpatient psychiatry, many patients are transported to an ED or inpatient facility as a result of policies and regulations that require community-based providers to make such referrals; sometimes these policies require use of law enforcement during transport. The racial-ethnic and insurance disparities observed in this study could result from differences related to who is referring the patient from the community and what the mode of transport (e.g., self, family, or police) is.

For example, it could be the case that White patients are more likely to self-refer or to be referred by a physician with admitting privileges, which could provide greater ability to make an active or patient-centered choice, allow greater access to higher-quality facilities, or affect the willingness of an admitting facility to accept a patient. Hospitals might have explicit policies regarding admission of patients who arrive by police, or they might use heuristics that bias against such patients. High-safety facilities might have greater leverage to select their patients and assert these preferences. To my knowledge, a

previous study has not described variation in referral source, the relationship between the referrer and hospitals, mode of transport, and selection across racial-ethnic groups.

Similarly, I found that transfer status was a strong predictor of being admitted to a low-safety facility, especially if the patient was transferred from an ED. Patients transferred from an ED might be the "harder to place" patients. Therefore, it will be important for future work to more deeply understand how ED staff (i.e., physicians, nurses, and social workers) negotiate for inpatient beds, to what extent they can steer patients, and how they apply informal or formal knowledge of a facility's reputation during the steering process. Furthermore, it is important to understand how implicit or explicit bias might influence such steering behavior. Perceived risk for violence was not observed in the data, which would influence the "attractiveness" of a patient. Both formal risk assessment instruments and informal interpersonal perception could be susceptible to racial and other forms of bias, as has been documented in other contexts (29–31). Moreover, regardless of risk perception, ED staff might unknowingly advocate for certain types of patients more than others.

Limitations and Strengths

Although this study provides important insights into the differences in patient characteristics associated with admission to low- versus high-safety inpatient psychiatric facilities, some notable limitations of this analysis exist. First, I used a cross-sectional design, which means that causality or the mechanisms underlying the observed associations could not be inferred. Second, I relied on hospital-reported administrative data, which lacked clinical detail and omitted measures of relevant constructs such as violence risk, voluntary status, and referral source. Third, information on safety was at the facility level. I therefore could not tease out the relative contribution of within- versus between-facility variation in experiencing a safety event or episodes of restraint and seclusion. Relatedly, the patient safety measure relied on reports made to the state regulatory entity, which may have captured only a portion of the full spectrum of facility performance in this domain. Nevertheless, these safety indicators were associated with differences in probability of a hospital-acquired injury code, suggesting that the indicators were signaling something meaningful about safety.

Fourth, the generalizability of these findings is limited given that the results came from Massachusetts, a state whose organization of psychiatric care might differ markedly from that of other locations; moreover, the population was restricted to units of general hospitals. Freestanding facilities are likely to differ in both safety and client mix from units of general hospitals. However, most inpatient psychiatric admissions in the United States occur within general hospitals, which bolsters the relevance of these findings (32). Despite these limitations, this study takes advantage of

TABLE 5. Probabilities for significant predictors of admission to low- or high-safety hospitals in a sample of adult patients with a primary behavioral health diagnosis[a]

Predictor	Probability of low safety (bottom 20%)	Probability of high safety (top 20%)	Percentage-point difference
Rural × closest hospital is low safety			
Urban, closest hospital is not low safety	.12	.17	−.04
Urban, closest hospital is low safety	.41	.20	.20
Rural, closest hospital is not low safety	.04	.16	−.12
Rural, closest hospital is low safety	.08	.51	−.43
ED × transferred			
Did not come through ED, was not transferred	.18	.18	.00
Did not come through ED, was transferred	.24	.10	.14
Came through ED, was not transferred	.19	.21	−.02
Came through ED, was transferred	.21	.04	.17
Illness severity			
Least severe	.19	.19	.00
Moderately severe	.21	.17	.03
Most severe	.19	.17	.02
Transfer status			
Not transferred	.19	.20	−.01
Transferred	.22	.06	.15
Previous admission			
None	.20	.18	.02
30-day admission	.20	.16	.04
Substance use disorder			
No substance use disorder	.21	.19	.02
Opioid use disorder	.19	.14	.05
Other substance use disorder	.21	.15	.06
Diagnosis			
No schizophrenia diagnosis	.19	.18	.01
Schizophrenia diagnosis	.22	.17	.06
Housing status			
Housed	.20	.18	.02
Not housed	.21	.16	.05
Race-ethnicity			
Non-Hispanic White	.18	.19	−.01
Non-Hispanic Black	.28	.10	.18
Non-Hispanic Asian	.38	.05	.33
Non-Hispanic "other" race	.30	.12	.17
Hispanic-Latinx	.21	.11	.09
Age			
18–24	.19	.16	.03
≥65	.19	.22	−.03
Payment			
Private insurance	.15	.19	−.04
Self-pay or uninsured	.36	.15	.21
Medicaid	.25	.16	.09
Medicare	.22	.17	.05

[a] ED, emergency department.

an all-payer discharge database in Massachusetts and linkage to important indicators of safety.

Future Directions

I have shown here that safety inequities exist in where patients are receiving inpatient psychiatric care. To better understand why patients are sorted along lines of hospital safety rankings as observed here, increased efforts are needed to measure and report information related to the source for admission (e.g., self-referral, community health care provider, school, or law enforcement), referral networks and patterns, and mode of transportation to the facility (e.g., police, paramedics, or family). Research capacity could also be strengthened with national efforts to measure and report information on safety and other meaningful measures of quality (e.g., patient experience) among psychiatric facilities in both general and freestanding hospitals.

Importantly, this information needs to be available at the patient level so that the mechanisms of quality differences can be better understood and ultimately addressed. Understanding these mechanisms will help inform the best approaches to improve current accountability programs, such as the CMS IPFQR program (33). As the IPFQR program considers including richer measures of safety, the appropriateness of risk adjustment will need to be carefully considered and informed by rigorous evidence on the extent to which safety differences are driven by increased patient-level risk, resource constraints, or other organizational factors.

After it is understood what is driving differences in risk for admission to low-safety facilities, policies can then address these factors. For example, if Medicaid is perceived as having low reimbursement rates compared with private pay, perhaps Medicaid reimbursement needs to increase. If certain facilities have hard rules about not accepting patients arriving to the hospital by police, perhaps either regulatory action or conditions attached to Medicare participation are needed that prohibit the selection of patients on the basis of mode of transport or other dispositional factors. Of course, policies could also address the larger issue of using law enforcement to respond to mental health crises. Both public and private payers should consider ways of steering their beneficiaries to higher-quality facilities and should study ways of incentivizing facilities to provide trauma-informed and patient-centered care (6, 34).

CONCLUSIONS

Patients admitted to low- versus high-safety inpatient psychiatric facilities of acute care hospitals in Massachusetts differed in many ways. Additional research is needed to understand the mechanisms underlying this variation, including referral, steering, and selection patterns. Policies should consider ways to strengthen data on safety and quality of inpatient psychiatry and interventions to support facilities in improving the quality of their care.

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