

BRIEF COMMUNICATION

Real world evidence in involuntary psychiatric hospitalizations: 64,685 cases

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Objective: We explored hospitalization patterns and the clinical and individual characteristics of a large cohort of patients who underwent involuntary psychiatric hospitalization in Brazil (n=64,685).

Methods: Data were collected from the District Attorney's Office of the State of São Paulo (Ministério Público do Estado de São Paulo) on all involuntary psychiatric hospitalizations in the city of São Paulo between January 2003 and February 2020. The annual involuntary psychiatric hospitalization rate was calculated and descriptive statistics of the characteristics were produced.

Results: Involuntary psychiatric hospitalizations increased from 5.8 to 25.5 per 100,000 population, with an eight-fold increase in the first 10-year period (2003-2013). The majority of admissions were to public institutions (86.6%), involved a psychotic disorder in the primary diagnosis (26.1%), involved more than one diagnosis (83.7%), and lasted less than 7 days (52.4%). The majority of the patients were aged 18 to 39 years and were single, and readmission was relatively common (13%). Although the reason for admission was missing in many reports (44%), the risk of harm to self or others was the most common (68.5%).

Conclusion: This is one of the largest cohorts of involuntary psychiatric hospitalization records ever explored. These findings build upon existing international evidence about involuntary psychiatric hospitalizations and show recent trends in admission rates in the largest city in Brazil.

Keywords: Involuntary hospitalization; electronic health records; admission; characteristics

Introduction

Involuntary psychiatric hospitalizations (IPH) are regarded as both an inevitable and a highly controversial issue in mental health care. Annual IPH rates vary widely across countries.^{1,2} Although legislation differences and variations in service provision indicators might explain these international variations,³ emerging evidence suggests that these factors do not fully do so, nor do they explain the different rates of severe mental illness in different countries.² To determine what triggers IPH, the basis of these variations must be understood.² This includes expanding research on IPHs to low- and middle-income countries.

In Brazil, one in five psychiatric hospitalizations is involuntary.⁴ Research into the characteristics and hospitalization patterns of patients admitted involuntarily in Brazil has thus far been hindered due to a lack of real world data. Although national efforts have been made to identify the characteristics of this population,^{4,5,6} previous studies have lacked access to large datasets, which is due in part to fragmented digital health systems and a lack of legislation about electronic health records.

For the first time in Brazil, we were able to access the electronic health records of a large cohort of patients

admitted involuntarily to psychiatric hospitals, which helped determine the profile of this patient group. Such data provided a distinct opportunity to identify the individual and clinical characteristics of this patient group, which would have been difficult to achieve using other methodological approaches, especially regarding scale (sample size) and generalizability. We aimed to investigate this large dataset to characterize hospitalization patterns within this cohort, describe the main reasons for admission and discharge, and define the individual characteristics of this patient group.

Methods

Using District Attorney's Office of the State of Sao Paulo (Ministério Público do Estado de São Paulo [MPSP]) database, we analyzed the records of all IPH admissions in the city of São Paulo between January 1, 2003 and February 28, 2020. We included patients of any age at admission and excluded admissions by judicial decision. The MPSP data were extracted from Brazilian Ministry of Health hospitalization forms, which are usually filled out in paper upon admission and discharge by the clinician and then entered into the MPSP's electronic database by a

health unit technician (http://www.mpsp.mp.br/portal/page/portal/Saude_Publica/sp_comun_int_invol). The city of São Paulo is one of the few places in Brazil that has an online platform specifically designed for sharing information about hospitalizations directly with the District Attorney's Office. In Brazil, IPH admissions and discharges must be reported to the MPSP by law.

We extracted the following data: date of admission and discharge; hospital name; ICD-10 diagnosis, reason for admission and discharge (presented in a structured format), and patient age and relationship status. The only mandatory information in the online platform is date of admission/discharge and diagnosis type. For the purpose of this analysis, the reasons for admission were classified into three categories: physical threat to self or others, public disorder/treatment refusal/inability to perform self-care, and drug abuse.

We calculated the annual IPH rates per 100,000 population in the city of São Paulo for each year between January 1, 2003 to December 31, 2019 and summarized them as the mean percentage increase between years and 5-year periods (2003-2007, 2008-2012, and 2013-2018). We produced descriptive statistics of the clinical and individual characteristics.

Ethics statement

The data were de-identified and approved for use in this study by the MPSP and the Universidade Federal de São Paulo (UNIFESP) research ethics board.

Results

Table 1 describes the characteristics of the 64,685 IPH cases. The prevalence of IPHs increased from 5.8 per 100,000 population in 2003 to 26.3 in 2019 (mean annual increase of 2.1; see Figure 1 for annual data). Over the first 10-year period (2003-2013), the admission rate increased from 5.8 to 45.9 per 100,000 population. The 5-year rate rose an average of 4.5% over the past 15 years.

A total of 52.4% of the hospitalizations did not exceed 7 days, and 31.7% did not exceed 30 days. Only 3.6% of the hospitalizations lasted 2 months or more.

Slightly more than half the patients (53.1%) were between 18 and 39 years old and the majority (71.7%) were single. The majority of hospitalizations (86.6%) were in public institutions. The readmission rate was 13% for the overall study period, and the majority of the patients (81.4%) were not readmitted more than three times.

Psychotic disorders (26.1%) and schizophrenia (24.9%) were the most prevalent diagnoses. More than one diagnostic group was reported in 83.7% of the admissions.

There were high levels of missing data regarding the reasons for hospitalization (44%). In 68.5% of the cases were due to risk of harm to self or others. The reason for discharge was reported as "other" in 45% of the cases, and total/partial remission of symptoms in 38.3%.

Discussion

In this study, the first large-scale examination of IPH in Brazil, we found that between 2003 and 2019, IPH admissions in the city of São Paulo increased from 5.8 to 25.5 per 100,000 population, including a dramatic eight-fold increase between 2003 and 2013. This rate has also increased in some European countries (1.3-5.2 per 100,000 population).⁴ Despite the increasing IPH rates, admissions were not likely to last more than 1 week, and 13% of the patients were readmitted. The most common reasons for admission were psychotic disorders and schizophrenia, reflecting similar international trends.⁷ The majority of the patients were single and between 18 and 39 years of age. This might be related to the prominence of psychosis among younger people.² Missing and/or incomplete admission and discharge data were found in approximately half of the records. The lack of consistent reporting to the MPSP about the motives for IPH is concerning. Further research is required to understand the drivers of these low compliance rates.

Similar to reports from other countries,^{4,7} the progressive reduction of psychiatric beds in Brazil over the past 20 years might have contributed to the increasing rates of IPH observed in our study.⁸ Since a new legal framework for treating mental health disorders was introduced in 2001, there have been major changes in outpatient mental health services in Brazil. While there are signs that voluntary psychiatric hospitalizations have decreased over the past decade in Brazil, evidence is lacking on the association between changes in outpatient services and decreased psychiatric hospitalizations.⁹ However, evidence that the policy to decrease the number of psychiatric beds in Brazil is contrary to national demographic indicators is less debatable. Between 2005 and 2017, the Brazilian population grew by 11%.¹⁰ Similar growth patterns were also found in the number of Brazilians at risk of psychiatric admission due to a severe mental health disorder: from 16.5 million in 2005 to 18.6 million in 2016, an increase of 12%.¹¹ During this same 11-year period, there was a 39% reduction in the number of psychiatric beds available in general hospitals.⁸ In the case of IPH, a reduction in the number of psychiatric beds means that priority for the remaining beds is given to patients with more severe mental health issues.^{1,2} This trend suggests that many patients admitted to hospitals might be unable to make decisions about their treatment due to their mental health condition at the time of admission. The dramatic reduction in the number of psychiatric beds in Brazil (including the city of São Paulo) may also result in a lack of hospital treatment for many patients who need it. Thus, the number of IPHs found in this study might actually underestimate their true demand in the city of São Paulo.

Our findings build upon existing international evidence about the characteristics of IHP and show recent trends in admission rates in Brazil's largest city. However, key limitations are that the findings may not be generalizable nationally, as well as the limited number of variables available in the MPSP database. Nevertheless, this is one of the largest cohorts of IPH patient records ever explored

Table 1 Clinical and individual characteristics of involuntary psychiatric hospitalizations in the city of Sao Paulo between 2003 and 2020 (n=64,685)

Admissions per 100,000 population		
2003		5.8
2008		11.8
2013		45.9
2018		24.9
Mean 5 year-period change in percentage		4.8
Mean change in annual percentage		2.1
Length of time in hospital (days)		
≤ 7	33,355	51.7
8 to 14	11,397	17.6
15 to 30	8,786	13.6
31 to 45	4,742	7.3
46 to 60	2,053	3.2
≥ 61	3,339	5.2
Re-admissions	8,426	13
Number of hospitalizations		
Two	5,298	62.9
Three	1,560	18.5
Four	663	7.9
Five	354	4.2
≥ Six	651	7.7
Hospital type		
Public	56,032	86.6
Private	8,653	13.4
Patient age (years)		
< 18	2,782	4.3
18-29	17,918	27.7
30-39	16,430	25.4
40-49	13,260	20.5
50-59	8,862	13.7
≥ 60	5,368	8.3
Patient relationship status [†]		
Single	38,164	71.7
Married	10,867	20.4
Divorced/separated/widowed	4,075	7.6
Diagnoses		
Schizophrenia	16,107	24.9
Other psychotic disorders	16,883	26.1
Bipolar affective disorder	9,444	14.6
Depressive episode	2,717	4.2
Dementia (Alzheimer and other) and organic mental disorders	2,393	3.7
Disorders due to the use of alcohol	8,344	12.9
Disorders due to use of one/more psychoactive substances other than alcohol	4,140	6.4
Other	4,657	7.2
More than one diagnosis	54,157	83.7
Reason for admission [‡]		
Physical threat to self or others	17,367	68.5
Public disorder/treatment refusal/inability to perform self-care	6,715	26.4
Drug use problems	1,177	4.5
More than one of the above	6,275	24.8
Reasons for discharge		
Total/partial remission of symptoms	24,286	38.3
Referral to another hospital	9,330	14.3
Requested by the patient's caregiver	1,490	2.2
Caregiver did not return patient to hospital	745	1.1
Death	98	0.1
More than one reason	1,354	1.9
Other reasons	26,200	45.0

Data presented as n (%).

[†] Number of missing data = 11,449.[‡] Number of missing data = 28,914.

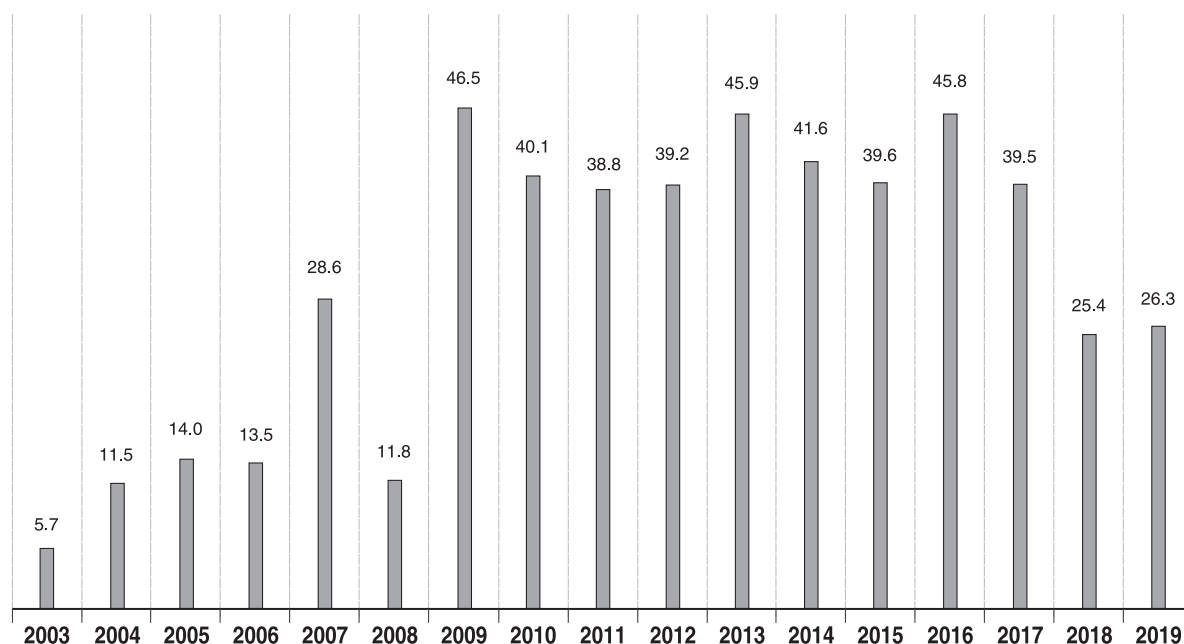


Figure 1 Annual rates of involuntary psychiatric hospitalizations in the city of São Paulo per 100,000 population.

and provides a unique opportunity to link data between Brazilian databases (i.e., the national health database) to further investigate the wider structural factors involved in IPH rates and patient trajectories after hospitalization.

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Disclosure

The authors report no conflicts of interest.

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