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Challenges and Insights From Treating Psychotic Disorders During COVID-19 Pandemic in Brazil

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The COVID-19 pandemic mainly affected the most vulnerable individuals. Among those, patients with schizophrenia especially suffered from unexpected changes in their routines, barriers to treatment, and distress-related events. We conducted a narrative review using all available sources of information to describe the challenges faced by schizophrenia patients and their families in Brazil, including the strategies that have been adopted to tackle them. In addition, we analyzed public data on antipsychotic prescriptions and hospitalizations. It was found that digital prescriptions with extended expiration dates implemented during the pandemic in Brazil allowed patients to maintain their access to antipsychotics. Hospitalizations among patients with schizophrenia, schizotypal, and schizoaffective disorders decreased at the beginning of the pandemic. Nevertheless, in the following months, the admissions returned to a trend similar to the prepandemic period. The systematization of online resources will be one of the main legacies to mental health care, including schizophrenia. We believe one of the main limitations of the policies adopted was the decision to not prioritize COVID-19 vaccination in patients with severe psychiatric disorders, despite preliminary evidence of a higher risk of complications in this group. The coronavirus pandemic is still ongoing and a longer time will be required to have a better perspective of its effects, but we expect this record of challenges and insights about the lessons learned during the pandemic can help healthcare professionals to face similar situations in the future.

Key words: schizophrenia, service use, antipsychotics, healthcare delivery, coronavirus outbreak

Introduction

The COVID-19 pandemic is an unprecedented event. Some individuals are more vulnerable to contamination, while others are more vulnerable to severe outcomes once contaminated. People with severe mental disorders are clear candidates for both cases, and schizophrenia patients are at an even higher risk considering data from worse pneumonia outcomes and a higher risk of viral infections.[1–3] A comprehensive review was conducted to arrange how schizophrenia patients were affected by the pandemic in Brazil. For such, we surveyed official documents, published studies, and public data. We also assessed patients, family members, and healthcare professionals regarding the main difficulties faced since the beginning of the COVID-19 pandemic, in relation to the continuity of health care and access to treatment. In addition, we also consider the experience at our own department, which provides public service to the population. First, we will provide context about the Brazilian mental health system.

Overview of the Brazilian Mental Health System

Brazil is an upper-middle-income country[4] with an estimated population surpassing 213 million inhabitants.[5] The country is divided into five major regions: North, Northeast, Southeast, South, and Center-West, comprising 26 states, one Federal District, and 5570 municipalities.[5]

Access to the Brazilian public health system is universal and free at the point of the user.[6] Patients with schizophrenia-related disorders and other mental illnesses are protected by law to receive timely care, preferably in

community-based mental health services, in line with a deinstitutionalization policy.[7] The public mental health system is organized in a network of services referred to as the Psychosocial Care Network.[8] This network includes primary care services; street clinics (created to provide primary care to the homeless population); community outpatient services (Centers of Psychosocial Care, *Centros de Atenção Psicossocial*); outpatient care; emergency care; psychiatric hospitals; psychiatric beds in general hospitals; and therapeutic residential services.[9] The provision of antipsychotics is funded by the federal government.

Patients with severe and persistent psychiatric disorders are mainly treated at CAPS.[9] These services receive referrals both from primary care and other services, as well as spontaneous demands, and must be available in municipalities or regions surpassing 20,000 inhabitants.[9] The total number of CAPS is 2742, with an average distribution of 1.29 per 100,000 inhabitants, showing a higher coverage in the Northeast and South regions of the country.[10]

The system allowed advances as compared to previous models, which were centered in hospitals. However, patients with schizophrenia and their families have been facing several challenges even before the COVID-19 pandemic. CAPS coverage is insufficient considering the population assisted, and rehabilitation, which means promoting an independent life and employment, is not clearly structured. Quality and outcome indicators are scarce, preventing a comprehensive assessment of the care provided.

Policies Implemented in Brazil during the Pandemic

Brazil was one of the most affected countries during the pandemic regarding the total number of cases and deaths by COVID-19, reaching so far more than 650 thousand deaths due to COVID-19 and around 22 million of cases[11] – and these numbers might be underestimated, considering the continental dimension of the country and its heterogeneity in availability of care, testing, and appropriate reporting.

In March 2020, the Ministry of Health published the first Official Notice directed to State Pharmaceutical Assistance Coordinators to provide continued access to care during the pandemic.[12,13] Prescriptions were automatically renewed for some months (depending on the medication and complexity level). Moreover, digital prescriptions were introduced and there was a suspension of the need for monitoring exams and consultations with specialists to renew prescriptions.

Preventive measures were issued with the purpose to reduce the spread of the virus in the context of healthcare environments.[14,15] On March 20, 2020, the Ministry of Health published a new Ordinance (No. 467/2020)[16] regarding telemedicine actions promoting the operationalization of new actions during the pandemic and, later Law No. 13989/2020[17] was approved, authorizing the use of telemedicine during the pandemic for any healthcare-related activity in Brazil. Therefore, the use of technology was allowed to prevent the spread of COVID-19 and to provide medical care assistance, monitoring, diagnosis, and treatment. In addition, the usual normative and ethical standards of face-to-face care were reinforced.

Oswaldo Cruz Foundation (Fiocruz), under the Ministry of Health, published a document in October 2020 with recommendations and guidelines on mental health during the COVID-19 pandemic, based on international and national literature review.[18] Although there was not much on pharmacotherapy, it had a direction regarding the use of clozapine. Based on the work by Siskind et al (2020),[19] it was suggested that patients taking clozapine should maintain its use and blood count should be collected quarterly instead of monthly, for patients on such treatment for more than 1 year and who never had neutrophils under 2000. In case of fever or respiratory symptoms, or toxicity signs associated with clozapine, a patient should be evaluated at an emergency department and the full dose should be decreased to half.

On December 8, 2020, an Ordinance[20] was published instituting federal financial support for the CAPS, as to ensure activities aimed to minimize the impact of the pandemic, maintain the link between the health service and users, and increase mental healthcare actions. Government regulations were proposed to carry on mental healthcare activities, focusing on pharmacotherapy maintenance.

Main publications (ordinances, technical notes, and circular letters) issued by the Ministry of Health during the pandemic are shown in Table 1.

There was a substantial delay in starting mass testing for COVID-19 in Brazil. In the early months of the pandemic, testing was offered only in the presence of severe symptoms considered suggestive of the infection. With the deployment of new testing methods, such as rapid tests, and greater availability of material resources, population checking has expanded, with no special focus or strategies aimed at patients with severe mental disorders.

Vaccination was also largely delayed and faced resistance from part of the population, following the indiscriminate dissemination of fake news associated with COVID-19 vaccines and anti-vaccine movement actions. As with testing, there was no national project considering severe mental illness patients as more vulnerable. The National Plan for the Operationalization of COVID-19 Vaccination (*Plano Nacional de Operacionalização da Vacinação Contra a COVID-19*),[21] currently in its 11th edition (published on November 7, 2021), includes "institutionalized people with disabilities" and people with permanent disabilities registered with the Continuous Cash Benefit Program *(Benefício de Prestação*

Table 1. Policies implemented to facilitate mental health treatment during the pandemic in Brazil

Publication date	Number	Highlights
March 18, 2020 (Updated in new circular letter on July 22, 2020)	Circular letter, No. 9/2020[12] (Circular letter No 37/2020)[13]	First flexibility of the rules of the Specialized Component of Pharmaceutical Assistance in the context of the COVID-19 pandemic. Prescriptions of high-cost medicines may be renewed automatically; it was possible to send the documents and medical prescription electronically by prescribers and patients; suspension of the need for monitoring exams and consultations with medical specialties for renewal of continuity of treatment, and early dispensing of medication was stimulated.
March 20, 2020	Ordinance No. 467/2020[16]	Regulates and operationalizes the measures to face the COVID-19 pandemics. Telemedicine actions of distance interaction can include preclinical care, assistance support, consultation, monitoring, and diagnosis, through information and communication technology in public and private healthcare systems. Law No. 13,989 (April 15, 2020) authorizes the use of telemedicine while the crisis caused by the coronavirus lasts.
December 8, 2020	Ordinance No. 3,350[20]	Federal financial incentive for funding CAPS to minimizing the impacts related to the COVID-19 pandemics and strengthen its actions within the RAPS.
April 22, 2021	(Mental health and psychosocial support in Specialized Care)[15]	Guidelines for managers and health professionals. Includes guidelines for managers and health workers in hospital services and emergency care units on care and self-care in mental health and psychosocial support.

Continuada—BCP) as priority groups. These two priority criteria apply to some, but not all, patients with severe mental disorders.

Outcomes

A nationwide study analyzed mental health visits recorded by the Ministry of Health database from January 2016 to August 2020.[22] A significant decrease in psychiatric hospitalizations (33%) and overall outpatient mental health visits (28%), remarkedly among group interventions (68%), including group therapy, and intensive follow-up care (44%), was observed during the pandemic. On the other hand, short-stay admissions (<14 days), crisis appointments, and home visits increased by 21%, 36%, and 52%, respectively. A study[23] conducted in the only public service for psychiatric emergencies in the city of Fortaleza, capital of the State of Ceará, showed a 32.5% reduction in psychiatric hospitalizations comparing the 72-day period before and after the beginning of the lockdown in the city. Psychiatric emergency visits of mild and moderate cases also decreased, but no difference among severe cases was observed, reflecting a higher selectivity in emergency service use after the lockdown.

Using official data from the Department of Informatics of the Brazilian Public Health System (DATASUS),[24] an interrupted time-series analysis was performed in which we compared trends of hospitalizations among patients with diagnosis of schizophrenia, schizotypal, and delusional disorders during a period before (January 2016 to February 2020) and after the COVID-19 outbreak (March 2020 to March 2021) (methodological details of these analyses not published elsewhere can be seen in the Supplementary Material). Figure 1 presents the observed and predicted numbers of hospitalizations among patients with diagnosis of schizophrenia, schizotypal, and delusional disorders according to the interrupted time-series analysis. The starting level of the hospitalizations was estimated at 5754.43 in January 2016, and the trends significantly increased every month prior to March 2020 by an average of 6.39 hospitalizations per month (95% CI = 2.26, 10.52, p = .003). The number of hospitalizations was estimated at 6067.64 in February of 2020 (the last month of the prepandemic period). In the first month of the pandemic, March 2020, there was a significant decrease in hospitalizations by 1229.95 (95% CI = −1729.02, −730.89, p < .001) which interrupted the trend observed during the prepandemic period. However, between April 2020 and March 2021, the trend

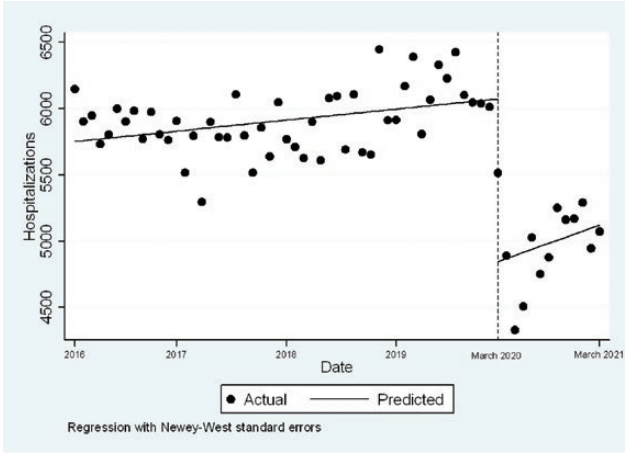

Figure 1. Interrupted time series: Number of monthly hospitalizations among patients with diagnosis of schizophrenia, schizotypal, and delusional disorders in Brazil before (January 2016 to February 2020) and during the COVID-19 pandemic (March 2020 to March 2021).

of hospitalizations approached its prepandemic levels (i.e., no significant difference was observed between January 2016 and February 2020 trends and April 2020 and March 2021 trends: 17.00; 95% CI = −39.58, 73.58, p = .550), reaching an estimated number of 5124.84 hospitalizations in March of 2021.

Then, an interrupted time-series analysis was carried out to evaluate temporary trends in antipsychotics prescriptions funded by the public health system[24] during the period before (January 2016 to February 2020) and after the pandemic outbreak (March 2020 to December 2020) among patients diagnosed with schizophrenia (methodological details are shown in the Supplementary Material). As seen in Figure 2, since 2016, antipsychotics prescriptions have presented an increase (by 746.55 per month; 95% CI = 618.68, 874.42, p < .001) that was not interrupted in March 2020 (>595.99; 95%CI=–9911.90, 11,103.87, p = .910), neither during the subsequent months after the beginning of the pandemic (<2337.39; 95%CI=–5471.32, –796.55, p = .141). The same pattern was seen specifically in clozapine prescriptions (Supplementary Material), suggesting that access to medication among patients with schizophrenia remained during the pandemic.

The pandemic required fast rearrangements on how to provide care. An example of mental health delivery for severe mental health conditions during the pandemic has been shared by a group from a CAPS in the South Region of the country.[25] Mental health professionals have been delivering intensive case management via telemedicine for severe mental illness patients (54% of them with psychosis) during the pandemic. They have scheduled weekly or biweekly telehealth contacts with patients to evaluate signs of psychiatric instability and respiratory symptoms. Unstable patients have been referred to face-to-face consultations and elderly patients with chronic conditions who are on depot medications have received home visits. This experience has been classified by the team as an example of a feasible manner to provide care for severe psychiatric patients during the pandemic.[25]

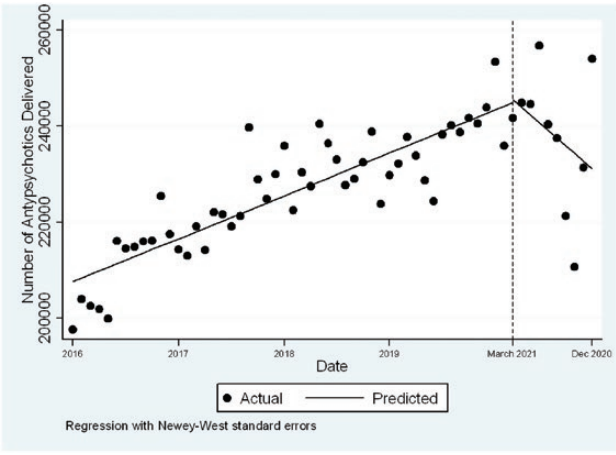

Figure 2. Interrupted time series: Number of monthly antipsychotic prescriptions supported by the public health system before (January 2016 to February 2020) and during the COVID-19 pandemic (March 2020 to December 2020) among patients with diagnosis of schizophrenia in Brazil.

Community leaders report that in areas of greater vulnerability in relation to mental health, especially in areas further away from the large centers, the access to consultations in specialized care and access to psychotropic medications was more challenging than usual. There are reports of drug exchanges between families to help those patients with insufficient medication.

The reports were gathered with families of patients through the two largest Brazilian Non-governmental Organizations (NGOs) dedicated to schizophrenia—NGOs *Associações de Mães de Pessoas com Esquizofrenia* (Association of Mothers of Schizophrenia Patients) and *Associação Brasileira de Familiares, Amigos e Portadores de Esquizofrenia* (Brazilian Association of Schizophrenia Patients, Relatives, and, Friends) – indicate that telehealth assistance was not widely available and, overall, patients' access to the services was more demanding than usual. Considering the vulnerability of patients with schizophrenia and their families, even a small barrier can disproportionately increase the difficulties in keeping the treatment. In fact, some patients with acute psychotic episodes after stopping the medication were treated by us at the Emergency Unit, at the Center for Integrated Attention to Mental Health (*Centro de Atenção Integrada à Saúde Mental*) at our Department of Psychiatry. The reasons for medication discontinuation cannot be generalized from this small sampling, but it involves difficulties in adapting to new scenarios, combined with more restrictive access to health services by patients and their families. How patients perceive and deal with such barriers should be further investigated to improve the provision of care and the use of telehealth assistance in the future.

Discussion

Access to Healthcare and Treatment

The introduction of digital prescriptions and their extended expiration dates implemented during the pandemic in Brazil allowed schizophrenia patients to maintain access to antipsychotic drugs and remain compliant. The number of hospitalizations among patients with schizophrenia, schizotypal, and schizoaffective disorders had decreased at the beginning of the pandemic, but in the following months, the admissions presented a similar trend to the period before the pandemic. The main limitation of the policies was not to treat severe psychiatric cases as a priority for COVID-19 vaccination and testing, despite preliminary evidence of a higher risk of complications. On the other hand, not all services provided telemedicine and digital prescriptions, most of

them were entirely or partially closed, thus limiting access to medical appointments and psychosocial interventions.

Overall, there was a decrease in mental health regular appointments.[22] This is in line with families' reports that most units restricted appointments during the pandemic. Many services have already adopted telematic solutions, but most informally—using their own mobile phones and personal social media accounts. The systematization of online resources will be one of this period's main legacies to mental health care, including schizophrenia.

As more patients were not under regular follow-up, we should initially expect more psychotic crises and hospitalizations. However, hospitalization trends among patients with psychotic disorders remained stable during the pandemic. The initial reduction can be explained by the impact of the pandemic outbreak both on families and the health system and may reflect the prioritization of families and health staff to admit only severe cases, as seen in the psychiatric emergency unit of Fortaleza.[23] After the first month of the pandemic, the trends of admissions reached similar levels as those observed during the prepandemic period. On one hand, this can reflect the resilience of the health system to provide access to psychotic patients during this crisis, but also may evidence a treatment gap, because of the expected increase in the demand for care due to the impacts of the pandemic on mental health was not supported by the offer of services that remained under the appropriate level.[26] Another possibility is that the increase in short-stay admissions and home visits[22] may have buffered the need for hospitalizations. Interestingly, if this is true and the quality of care was adequate, it can indicate a way to improve mental health care, with more funding and training to overcome it, as well as crisis programs. A deeper investigation is needed to identify which scenario can better explain the stability in hospitalizations and the possible lessons.

Unmet Needs

The current data suggest that people with severe mental disorders are at a higher risk of contamination and severe cases.[2,27] The nature of this vulnerability is debatable, and two pathways were suggested, a possible immunodepression in this group or habit/physical comorbidity-related problems. Immunodepression data are conflicting,[27,28] but the second option supports a strong rationale regarding the COVID-19 pandemic. Patients would have more difficulties following lockdown and respiratory etiquette measures.[29] Extending this rationale, schizophrenia patients depict reduced healthy behaviors and higher exposure to known risk factors for COVID-19. For instance, 70% of schizophrenia patients have at least one clinical comorbidity.[30] Moreover, most patients do not receive appropriate care for their clinical conditions due to stigma or difficulties to access the health system.[31–33] Although both pathways lead to a conclusion of increased vulnerability, they may convey different consequences regarding vaccine priorities. The first group, immunodepression, is the standard COVID-19 priority. The second usually requires an individualized severity assessment (ie, severe versus mild hypertension). We advocate for the inclusion of schizophrenia and other severe mental disorders patients as priorities to vaccination; since they usually present more difficulties to organize themselves. Fewer barriers would represent a game-changer for these patients and their families.

Future Perspectives

The coronavirus pandemic is still ongoing and a longer time will be required to have a better perspective of its effects. Two years have elapsed while we lived the expectancy of an end that has not come yet. So, continued parallel efforts to understand the COVID-19 impacts and implement appropriate measures are needed. We intended to portray the consequences of the pandemic to schizophrenia patients in Brazil, by reviewing all available sources of information by the time of this publication, from official documents to interviews with patients and NGOs. We expect the experiences shown here, regarding the treatment of schizophrenia during the COVID-19 pandemic, can provide insights to improve the treatment of people who live with schizophrenia and their families.

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Ethical Statement

In accordance with the Brazilian National Research Ethics Commission (CONEP, https://conselho.saude.gov.br/) ethics approval was not required for this study involving anonymized data made available on a public access platform, DATASUS (http://datasus.saude.gov.br/). In relation to the testimonies of patients and family members, their informed consent was obtained.

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Conflict of Interest

The authors have declared that there are no conflicts of interest in relation to the subject of this study.

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