Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Adoption of measures by psychiatric hospitals to prevent SARS-CoV-2

Valberto Alencar Miranda Filho\textsuperscript{a}, Agostinho Antônio Cruz Araújo\textsuperscript{b,\ast}, Márcia Astrês Fernandes\textsuperscript{c}, Sandra Cristina Pillon\textsuperscript{d}

\textsuperscript{a} Department of Community Medicine, Universidade Federal do Piauí, Teresina, PI, Brazil
\textsuperscript{b} Postgraduate Program in Fundamental Nursing, Universidade de São Paulo, Ribeirão Preto, SP, Brazil
\textsuperscript{c} Nursing Postgraduate Program, Universidade Federal do Piauí, Teresina, PI, Brazil
\textsuperscript{d} Postgraduate Program in Psychiatric Nursing, Universidade de São Paulo, Ribeirão Preto, SP, Brazil

\section*{ARTICLE INFO}

Article history:
Received 19 January 2021
Accepted 19 October 2021
Available online 25 October 2021

Keywords:
Admission
Contamination
Covid-19
Detection
Psychiatric hospital
Prevention

\section*{ABSTRACT}

This article analyzes the scientific evidence on the measures adopted by psychiatric hospitals to prevent COVID-19 contamination among hospitalized people. It refers to a literature review in the MEDLINE/PUBMED, Web of Science, and EMBASE databases. There was the incorporation of studies describing measures used to prevent the spread of COVID-19 among patients admitted to psychiatric institutions. The research articles that evaluated patients in partial follow-up at health facilities were excluded. Between 13 selected studies, two thematic categories were established: Measures adopted to reduce the transmission of COVID-19 in the admission of psychiatric patients; Measures adopted to reduce the transmission of COVID-19 during hospitalization of psychiatric patients. There are similarities and differences in the measures adopted by psychiatric hospitals. It was noted that admission and isolation policy for 14 days was a consensus. However, the testing method for screening Sars-CoV-2 differs between the realities. Concerning hospitalization, there is a similarity in the use of technologies in the care of psychiatric patients. In contrast, there is no standardization in the measures taken since, due to their structure; psychiatric hospitals have restrictions on the adoption of distance rules.

\section*{RÉSUMÉ}

Cet article analyse les preuves scientifiques sur les mesures adoptées par les hôpitaux psychiatriques pour prévenir la contamination au COVID-19 chez les personnes hospitalisées. Il fait référence à une revue de la littérature dans les bases de données MEDLINE/PUBMED, Web of Science et EMBASE. Il y a eu l’incorporation d’études décrivant les mesures utilisées pour empêcher la propagation du COVID-19 parmi les patients admis dans des établissements psychiatriques. Les articles de recherche évaluant les patients lors d’un suivi partiel dans les établissements de santé ont été exclus. Entre 13 études sélectionnées, deux catégories thématiques ont été établies : les mesures adoptées pour réduire la transmission du COVID-19 lors de l’admission de patients psychiatriques ; mesures adoptées pour réduire la transmission du COVID-19 lors de l’hospitalisation des patients psychiatriques. Il existe des similitudes et des différences dans les mesures adoptées par les hôpitaux psychiatriques. Il a été noté que la politique d’admission et d’isolement pendant 14 jours faisait l’objet d’un consensus. Cependant, la méthode de test pour le dépistage du Sars-CoV-2 diffère selon les réalités. Concernant l’hospitalisation, il existe une similitude dans l’utilisation des technologies dans la prise en charge des patients psychiatriques. En revanche, il n’y a pas de standardisation dans les mesures prises car, en raison de leur structure, les hôpitaux psychiatriques ont des restrictions sur l’adoption de règles de distance.

\ast Corresponding author at: Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto, Vila Monte Alegre, 14040902 Ribeirão Preto, SP, Brazil. E-mail address: agostinhocruz@outlook.com.br (A.A.C. Araújo).
1. Introduction

Coronaviruses consist of a vast family of viruses that cause respiratory diseases, from a common cold to severe acute respiratory syndrome (Sars-CoV). First identified in Wuhan, China, in December 2019, it is theorized that the disease comes from bats, as well as most other coronaviruses [13]. In March 2020, the World Health Organization (WHO) declared a state of pandemic and guided the implementation of social isolation [19].

In certain individuals, the pandemic scenario and the consequent social isolation have the potential to trigger psychological states, such as anxiety and hyper-vigilance [6]. In fact, a review study associates isolation with a high prevalence of symptoms of mental disorder and suffering [3]. Besides, it was noticed that, given a higher exposure to data on COVID-19, such as the number of cases and deaths, there is a greater possibility for the development of mental disorders. Thus, there is noticeable damage to the mental health of these individuals due to the quarantine situation [10].

On the other hand, in regards to people diagnosed with a mental disorder, the state of isolation can further aggravate the condition. Such a situation tends to affect people’s emotional, physical, and social roles, therefore functioning as a facilitator concerning the aggravation or relapse of mental disorders. Consequently, an increase in the demand for psychosocial support services is expected [11].

During the COVID-19 pandemic, mental health services were restricted due to the high risk of transmission [17,24]. This situation occurs due to organizational characteristics, such as wards not designed with isolation standards for respiratory diseases; a high number of patients who, in most cases, may not be cooperative in terms of universal precautionary measures; and professionals from the medical team with knowledge-focused only on psychiatry [25].

Despite the risk of transmitting the coronavirus, psychosocial care services had to maintain their activities during the pandemic. Psychiatric institutions should develop measures that minimize the risk of transmission among patients. Therefore, the development of protocols, guidelines, and standards are essential, since they are guidelines that conduct the professionals of the multidisciplinary health team during care, reducing the patient’s exposure [22].

Considering the increase in the number of cases, the lack of effective treatment, since it is a new coronavirus, and due to the structural difficulties and limitations of the psychiatric hospitalization system, the purpose of the present study was to analyze the scientific evidence on the measures adopted by psychiatric hospitals to prevent COVID-19 contamination among hospitalized people.

2. Methods

This is a literature review carried out in September and October 2020, based on six steps:

- establishment of the hypothesis or research question;
- sampling or searching the literature;
- categorization of studies;
- evaluation of the studies included in the review;
- interpretation of results;
- synthesis of knowledge or presentation of the review [18].

Initially, the guiding question was assigned: “What is the published scientific evidence on the measures adopted by psychiatric hospitals to prevent contagion by COVID-19 among inpatients?” Elaborated through the PCC strategy (Population/ Concept/Context) [20] and, therefore, corresponded respectively to inpatients, COVID-19, Psychiatric hospitals.

The eligibility criteria were studies regardless of the methodology used, describing the use of protocols and guidelines in the fight against coronavirus contagion among patients hospitalized in psychiatric institutions. Researches in which the patient had partial monitoring at health units were excluded.

The search was performed independently by two researchers in three databases: MEDLINE/PUBMED, Web of Science, and Embase. The time frame from the year 2019 was applied as a result of the first notified case of COVID-19 in Wuhan, China [19]. The search strategy was developed using descriptors registered in the Medical Subject Headings Section (MeSH) and Embrée, using the Boolean operators “OR” in terms of each acronym of the PCC strategy and “AND” among them. The employees are shown in Table 1.

At first, 43 researches were found by searching the following databases: MEDLINE/PubMed, Web of Science, and Embase. After eliminating duplicate studies, 28 articles remained to be analyzed by reading the titles and abstracts. At this point, 18 studies were eligible according to the proposed criteria and then they were analyzed by reading in full. Of these, five were excluded due to their approach, being focused on the prison system and for not addressing inpatients, as well as the lack of details of protocols or guidelines to be implemented. Thereby, a final sample consisting of 13 studies was obtained. The search strategy is described in flowchart PRISMA (Fig. 1) [12].

The data were exported to the EndNote® software to facilitate the organization of the studies, based on authorship, year of publication, country of the corresponding author, title of the study, journal in which the study was published, and approach (admission and/or hospitalization).

Table 1

| Controlled descriptors and keywords used to create the search strategy. |
|---------------------------|---------------------------|---------------------------|---------------------------|
| **Strategy** | **MeSH descriptors** | **Keywords** | **Embrée descriptors** | **Keywords** |
| **P** | Inpatients | Inpatient | Hospital patient | Hospitalised patient, hospitalised patients, hospitalized patient, hospitalized patients, in-hospital patient, in-hospital patients, in-patient, in-patients, inpatient, patients, hospital |
| **C** | Coronavirus Infections | Coronavirus Infections | Mental hospital |
| **C** | Hospitals, Psychiatric | Psychiatric Hospitals Hospital, Psychiatric Psychiatric Hospital Mental Institutions Mental Institution Mental Hospital Mental Hospitals | Coronavirus Infections Hospital, mental hospital, psychiatric hospitals, psychiatric mental institution, psychiatric clinic, psychiatric hospital |
3. Results

From 13 articles selected for categorization, all of them were concerned to the year 2020, six (46.1%) of them occurred in the United States of America (USA), five (38.5%) in China, at the same time as in Germany and the United Kingdom, only one study was obtained (7.7%). After categorizing the thematic axes on admission and hospitalization, only nine studies dealt with admission while the totality addressed hospitalization (Table 2).

4. Discussion

Based on the analysis of the articles, two thematic axes were created for the discussion of the results:

- Measures adopted to reduce the transmission of COVID-19 in the admission of psychiatric patients;
- Measures adopted to reduce the transmission of COVID-19 during hospitalization of psychiatric patients.

4.1. Measures adopted to reduce the transmission of COVID-19 in the admission of psychiatric patients

As a policy to prevent the propagation of Sars-CoV-2, the Governments introduced social distancing. This situation triggered crises related to mental health, which increased the demand from psychiatric institutions. Hence, measures became necessary to preclude the entry and dissemination of the coronavirus in these institutions through new admissions.

In a hospital in southern Germany, all of the newly admitted patients were treated as potentially infected with the coronavirus. The procedure was divided into pre-screening, in which the interested person filled out an online form; screening, with symptom tracking and testing; isolation, in which patients with suspected infection were admitted to an isolated unit. It is noteworthy that, when the person presented a picture of the mental state without gravity, they were not accepted [15].

Chinese studies highlighted three important points to be addressed: the reduction in admission rates; testing new patients; the temporary isolation of these users [7,9,21]. Except for the Chinese East Coast [25], there is a consensus that all studies are consonant in terms of reducing the admission rate, as they consider this as a way to mitigate the rampant contagion and the increase of the pandemic’s cases.

As concerns to the tracking of symptoms and testing, Chinese studies have shown to be widely divergent. In South [21] and Southwest [7] China, the blood test or computed tomography was performed on all new patients. However, in the North [9], the main test for COVID-19 in the screening was the measurement of temperature. While on the East Coast [25], there is no information on this category.

In addition, in the Chinese reality, all studies that addressed the subject matter admission [7,9,21,25] corroborate the adoption of the temporary isolation criterion, with the installation of an observation wing, separate from the other wards, to remain in that place for a period of 14 days, to later be sent to the general wards. It is clear then that despite certain differences, the same topics and measures are addressed, and might be the result of a more organized management.
In the USA, there is a consensus in the studies as to how measures should be adopted. In the experience of a hospital in New York [2] and another in Wyoming [5], both adopted measures to separate the new patients. This division was conducted with wards for people with positive and negative COVID-19, and the exams were performed before hospitalization. If the person had not had the test before admission, the examination would be carried out at the present moment, isolation was necessary, in a retention area during the required time for the exam. Only after the test result, the patient was redirected to the wards.

As for a Pennsylvania hospital, the study was limited to accepting only asymptomatic individuals who were not exposed, without mentioning whether or not they were tested. Said that the method mentioned in the study might have limitations and bias, considered ineffective, given the admission possibility of patients during the incubation period of the Sars-CoV-2 [14].

In an approach to the American reality, some considerations on the measures to be adopted by psychiatric hospitals were discussed. These institutions must track people’s symptoms and exposure to the virus. If the individual tests positive and the unit is not prepared to receive patients with COVID-19, admission must be refused. The authors also emphasize that if an individual refuses to take the test, they should treat it as a potentially infected person on a floor separate from the others [1].

The management in such cases is important because these measures in certain areas may serve as a model for other institutions. Thus, it is noted that the measures adopted by Germany, the USA, and China are similar to each other to try to mitigate the risks through similar containment measures, such as isolation of newly admitted. However, in four of the selected studies, there was no mention of the measures to be adopted, either because they did not institute such guidelines institutionally or because they did not consider this information relevant in the research.

Furthermore, it is also noticed, in these studies, the reduction in the number of patient admissions. However, some patients still needed to be hospitalized. In this scenario, the institutions should take the necessary measures to minimize the risk of infection by the coronavirus.

4.2. Measures adopted to reduce the transmission of COVID-19 during hospitalization of psychiatric patients

Currently, it is noted the adoption of measures to minimize the risk of contagion by the coronavirus in psychiatric patients in several countries. Such strategies are essential as they maintain the therapy aimed at the client’s re-socialization and, even so, they minimize possible risks that COVID-19 may cause in their health status.

At first, an approach that has been adopted consists of hospital discharge. Southern Germany [15], United Kingdom [4], and East Coast [25] and South [21] regions of China and the USA [1], in which they manage the patient in good clinical condition, insofar as they can return to a home environment to minimize the risk of coronavirus transmission. Moreover, this action will reduce the flow of services that the institution provides, aiming its activities only at hospitalized patients [4].

In this environment, the client must be accompanied in the follow-up of the adopted therapy, being necessary the continuity of the care by means that are configured as safe for the patient and the professional, regarding the transmission by the coronavirus. Therefore, there is a recommendation for the adoption of
services performed by remote service through videoconferencing [1,4,8,9,14,15,21,23,25].

A study carried out in North China with the child audience highlighted the importance of managing routine activities, such as eating and sleeping, as well as understanding the anxiety caused by social isolation and, further aggravated by the individual's psychological condition. This problem is accentuated due to the lack of guidelines to guide public health crises with children in this country. Thus this reality is a challenge for the Chinese health system since the measures adopted are general, not directed at the target audience [9].

In another perspective, psychiatric institutions have incorporated measures in their care as a way to reduce the risk of transmission to patients with a suspected or confirmed case by Sars-CoV-2. Even if there is no standard followed by the institutions, hospitals tend to transfer patients to wards for investigated and monitored cases of COVID-19 [2,4,7,9,14,16], as well as isolating patients in their rooms, using all the necessary adaptations according to your profile [1,4].

In this sense, in the south of Germany, there was an implementation of a strategy called the “traffic light” zone in which by the division of colors, green, yellow, and red, the classification of patients would happen according to their clinical conditions. The green zone corresponds to patients with conditions that, if infected, are more likely to develop more severe forms of the disease; the yellow zone covers individuals in a regular state; the red zone is for those diagnosed with COVID-19 [15].

However, there is a difficulty in isolating psychiatric patients due to the system implemented in these institutions. These are free to move by some units of the hospital, also sharing environments in which they fulfill their physiological needs, such as refectory and bathrooms. In addition to this, the multi-professional health team must be attentive to the patient’s behavior, requiring a visual check carried out continuously, which further hinders the distance between professionals and clients in the sector [1,16].

Regarding people who visit hospitalized patients, measures were adopted differently. In all studies [1,7,9,14,16,21,25], it was described that visits were prohibited, being possible only by video call, in essential cases. In South Germany, visits could be paid, but with restrictions, so they happened in open environments [15]. In this perspective, an American study mentioned the importance of restricting visits as a way to reduce the risk of contagion by the coronavirus, however, it considered that contact with known people worked as a positive factor for the patient being treated [16].

The difference in the measures adopted in psychiatric institutions in many countries is noticeable and, even in the same country, there was a different measure taken in each region. The incorporation of norms that guide isolation and care, as well as the incentive for hospital discharge, helps psychiatric institutions in controlling the transmission of coronavirus, however, the peculiarities in structural characteristics still are the main difficulty in the management of these services.

5. Conclusion

The current study has synthesized the scientific evidence from the literature on the measures adopted to reduce the transmission of COVID-19 in the admission and hospitalization of psychiatric patients. As for admission, there are similarities between the norms adopted by psychiatric institutions, such as the isolation for 14 days of new patients suspected or infected by coronavirus, which reflects a possible knowledge in the way of managing the care of people with contagious respiratory infections. Despite that, even though there are similarities, it presents divergences as well, for instance the testing method for screening Sars-CoV-2, plus the reduction in the number of admissions.

Regarding hospitalization, there is no consensus in studies of the measures adopted by the countries. The measures adopted do not address the particularities of psychiatric institutions, as these, structurally make it difficult to implement distancing rules. Even so, research corroborates the incentive for hospital discharge, isolation of infected patients, the use of technologies to perform other forms of care, and visits.

Although relevant, this study has as its main limitation, the lack of protocols and guidelines executed in the Brazilian scenario. Hence, the present review is configured as a compilation of information available in several countries, which can be useful to guide the development of guidelines to be followed in Brazil.

Disclosure of interest

The authors declare that they have no competing interest.

Contribution

Valberto Alencar Miranda Filho – The conception and design or analysis and interpretation of data, drafting the article or revising it critically, and approval of the version to be published.

Agostinho Antônio Cruz Araújo – The conception and design or analysis and interpretation of data, drafting the article or revising it critically, and approval of the version to be published.

Márcia Astrès Fernandes – The conception and design, drafting the article or revising it critically, and approval of the version to be published.

Sandra Cristina Pillon – The conception and design, drafting the article or revising it critically, and approval of the version to be published.

References

[1] Barnett B, Esper F, Foster CB. Keeping the wolf at bay: Infection prevention and control measures for inpatient psychiatric facilities in the time of COVID-19. Gen Hosp Psychiatry 2020;60:51–3.

[2] Brody BD, Parish SJ, Kanellopoulos D, Russ MJ. A COVID-19 testing and triage algorithm for psychiatric units: One hospital’s response to the New York region’s pandemic. Psychiatry Rep 2020;2911:113244.

[3] Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet 2020;395(10227):839–920.

[4] Brown C, Ruck Keene A, Hooper CR, O’Brien A. Isolation of patients in psychiatric hospitals in the context of the COVID-19 pandemic: An ethical, legal, and practical challenge. Int J Law Psychiatry 2020;71:101572.

[5] Callaghan AW, Chard AN, Arnold P, Loveland C, Hull N, Saraiya M, et al. Screening for SARS-CoV-2 infection Within a Psychiatric Hospital and Considerations for Limiting Transmission Within Residential Psychiatric Facilities - Wyoming, 2020. MMWR Morb Mortal Wkly Rep 2020;69:825–9.

[6] Castro-de-Araújo LFS, Machado DB. Impact of COVID-19 on mental health in a Low and Middle-Income Country. Cien Saude Colet 2020;25:2457–60.

[7] Chen J, Xiong M, He Z, Shi W, Yue Y, He M. The enclosed ward management strategies in psychiatric hospitals during COVID-19 outbreak. Global Health 2020;16(1):53.

[8] Conrad RC, Baum ML, Shah SB, Levy-Carrick NC, Biswas J, Schmelzer NA, et al. Duties toward Patients with Psychiatric Illness. Hastings Cent Rep 2020;50:67–9.

[9] Cui Y, Li Y, Zheng Y. Mental health services for children in China during the COVID-19 pandemic: results of an expert-based national survey among child and adolescent psychiatric hospitals. Eur Child Adolesc Psychiatry 2020;29:743–8.

[10] Duarte MDQ, Santo MADS, Lima CP, Giordani JP, Trentini CM. COVID-19 e os impactos na saúde mental: uma amostra do Rio Grande do Sul. Brasil Cien Saude Colet 2020;25:3401–11.

[11] Faro A, Bahiana MDA, Nakano TDC, Reis C, Silva BBPD, Vitti LS. COVID-19 e saúde mental: a emergência do cuidado. Estud Psicol 2020;37:e200074.

[12] Galvão TF, Pansani TSDA, Harrad D. Principais itens para relatar Revisões sistemáticas e Meta-análises: A recomendação PRISMA. Epidemiol Serv Saude 2008;24:335–42.

[13] Instituto Oswaldo Cruz [Homepage na internet]. Updated 24 Jun 2020. Qual a origem desse novo coronavírus? [Access in 10 nov 2020]. Available from: https://portal.fiocruz.br/pergunta/qual-origem-desse-novo-coronavirus.
COVID-19 Outbreak Among Adolescents at an Inpatient Behavioral Health Hospital. J Adolesc Health 2020;67:612–4.

Kreuzer PM, Baghai TC, Rupprecht R, Wittmann M, Steffling D, Ziereis M, et al. SARS-CoV-2 Risk Management in Clinical Psychiatry: A Few Considerations on How to Deal With an Unrivaled Threat. Front Psychiatry 2020;11:550.

Li L. Challenges and Priorities in Responding to COVID-19 in Inpatient Psychiatry. Psychiatr Serv 2020;71:624–6.

Liu S, Yang L, Zhang C, Xiang Y-T, Liu Z, Shuai. et al. Online mental health services in China during the COVID-19 outbreak. Lancet Psychiatry 2020;7:e17–8.

Mendes KDS, Silveira RCCP, Galvão CM. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. Texto & contexto enferm 2008;17:758–64.

Organização Pan-Americana da Saúde [Homepage na internet]. Updated 10 nov 2020. Folha informativa COVID-19 - Escritório da OPAS e da OMS no Brasil [Access in 06 nov 2020]. Available from: https://www.paho.org/pt/covid19.

Zhu Y, Chen L, Ji H, Xi M, Fang Y, Li Y. The risk and prevention of novel coronavirus pneumonia infections among inpatients in psychiatric hospitals. Neurosci Bull 2020;36(3):299–302.