ESTIMATES OF INFECTION AND MORTALITY FROM COVID-19 IN CARE HOMES FOR OLDER PEOPLE IN BRAZIL

Estimativas de infecção e mortalidade por COVID-19 em lares de idosos no Brasil

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ABSTRACT

OBJECTIVE: To describe infection and mortality rates associated with COVID-19 in older people living in Brazilian care homes. **METHODS:** A descriptive cross-sectional study was conducted using primary and secondary data sources. Nationwide care home administrators were invited to report, via an online questionnaire, the occurrence of infection and mortality associated with COVID-19 from April to August 2020. State Public Prosecutor Offices, State Health Departments, and the Unified Social Security System were also contacted for information. Data were analyzed using descriptive statistics. **RESULTS:** Data were collected from 2154 care homes located in 14 states, covering 59878 older residents. The incidence rate of COVID-19 was 6.57%, and 883 deaths were recorded in the period, with a case-fatality rate of 22.44%. **CONCLUSIONS:** The incidence and mortality rates observed in this study were lower than those observed in other (high-income) countries. Data sources related to COVID-19 outbreaks in Brazilian care homes are currently limited to self-report. Structuring and systematizing data recording and reporting in these settings is essential to better understand the spread of the virus and to protect care home residents in Brazil. **KEYWORDS:** aged; coronavirus; homes for the aged.

RESUMO

OBJETIVO: Descrever as taxas de infecção e mortalidade associadas a COVID-19 em idosos residentes em lares geriátricos brasileiros. **MÉTODOS:** Foi realizado um estudo transversal descritivo, utilizando fontes primárias e secundárias de dados. Os administradores de lares geriátricos em todo o país foram convidados a relatar, por meio de um questionário online, a ocorrência de infecção e mortalidade associadas a COVID-19 de abril a agosto de 2020. Os gabinetes dos Procuradores Regionais da República, as Secretarias Estaduais de Saúde e o Sistema Único de Assistência Social também foram contatados para informações. Os dados foram analisados por meio de estatística descritiva. **RESULTADOS:** Foram coletados os dados de 2154 lares de idosos localizados em 14 estados, cobrindo 59878 idosos residentes. A taxa de incidência de COVID-19 foi de 6,57%, e foram registrados 883 óbitos no período, com uma taxa de letalidade dos casos de 22,44%. **CONCLUSÕES:** As taxas de incidência e mortalidade observadas neste estudo foram inferiores às observadas em outros países (de alta renda). As fontes de dados relacionadas a surtos de COVID-19 em lares geriátricos brasileiros são atualmente limitadas a autorrelato. Estruturar e sistematizar o registro e a notificação de dados nesses locais é essencial para um melhor entendimento da disseminação do vírus e para a proteção dos residentes de lares geriátricos no Brasil. **PALAVRAS-CHAVE:** idoso; coronavírus; instituição de longa permanência para idosos.

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INTRODUCTION

In countries such as Canada, Ireland, and France, care home residents accounted for more than 50% of the COVID-19 mortality rate up to June 2020.¹ In the United Kingdom, approximately 72% of all COVID-19-related deaths among care home residents have occurred in these facilities rather than in hospitals.¹ In the United States, more than 10 000 deaths were reported in care homes up to August 2020.² However, similar data related to care homes in Brazil and other low- and middle-income countries are scarce.

The exact number of existing care homes in Brazil is unknown, and so is the profile of older people living in such settings. A national census conducted from 2007 to 2010 identified more than 3500 care homes in Brazil.³ However, many facilities were not accounted for because they were not legally registered at the time. Members of the São Paulo State Prosecutor's Office (PO) suggest that the number of older people living in care homes in the region was over 35 000 people in 2020 (self-reported and non-official information collected by the researchers in July 2020).

There are several other reasons why collecting reliable and systematic data on the spread and impact of infectious diseases, such as COVID-19, in care home residents and staff members in Brazil is a challenge and can jeopardize the planning and implementation of effective public health policies. First, care homes in Brazil are considered to be social rather than health care providers, and as such, they are not required by law to have health professionals as part of their staff. Second, flagging outbreaks in care homes and reporting them to local health authorities usually depend on the willingness of homeowners and initiative of the PO. Finally, the system used by the federal government to monitor the COVID-19 pandemic in Brazil does not stratify data by place of residence, so the number of infected care home residents and workers is not officially accounted for. As a result, to date, the number of care home residents affected by the COVID-19 pandemic in Brazil is mostly unknown.

This study aimed to describe infection and mortality rates associated with COVID-19 in older people living in care homes in Brazil. This paper updates and complements the preliminary report publicly available online as a preprint.⁴

METHODS

A cross-sectional study was conducted using primary and secondary data sources. The study was approved by the National Research Ethics Committee (CONEP) (CAAE

No. 30577520.0.0000.0008). Data were collected between April 17 and August 20, 2020.

Using an online questionnaire, we invited 105 Brazilian care home administrators to report infection and mortality rates associated with COVID-19 in their care home residents. Contact details were obtained through publicly available online sources. The POs of all 26 Brazilian states were contacted by email. We also consulted health departments, surveillance agencies, and the Unified Social Security System (SUAS) by email and/or telephone. The online questionnaire included the following variables: number of care homes and total number of older residents in each facility; number of residents with suspected or laboratory-confirmed COVID-19; and number of confirmed deaths from COVID-19. Where data for the same care home had been collected by more than one source (eg, by the PO and care home administrators in the same region), only the most recent data were included in the analysis. In addition to the online questionnaire, we consulted the epidemiological bulletins of all 26 Brazilian states and the Federal District published on their websites to gather further relevant information. Data were analyzed using descriptive statistics.

RESULTS

We received anonymized data from 12 of the 26 POs contacted (response rate of 46.15%) and from 78 Brazilian care home administrators (response rate of 74.28%). A total of 2154 care homes located in 14 states (Ceará, Espírito Santo, Goiás, Minas Gerais, Mato Grosso, Paraná, Pernambuco, Piauí, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Roraima, Santa Catarina, and São Paulo), covering 59 878 older residents, returned a completed questionnaire. Official data published online, specifically involving care home residents, were found for only one state (Rio Grande do Sul). Overall, there were 3934 laboratory-confirmed cases of COVID-19 among the 59 878 residents, and a total of 883 COVID-19-related deaths (infection rate of 6.57%; case-fatality rate of 22.44%). Table 1 shows infection rates and deaths related to COVID-19 in a sample of long-term care homes for older people in Brazil during the study period.

DISCUSSION

This study is one of the few voluntary academic task forces aimed at gathering information about COVID-19 outbreaks in care homes in Brazil. With the exception

Table 1. Infection rates and deaths related to COVID-19 in a sample of long-term care homes for older people in Brazil (June/2020).

State	Number of care homes	Number of residents	Confirmed COVID-19 cases	Confirmed COVID-19 deaths	Data source and date
Ceará	60	1691	129	64	Ceará PO, 07/Aug/2020
Espírito Santo	94	1601	455	71	Espírito Santo PO, 14/Aug/2020
Goiás	3	153	0	0	Care home administrators, July 2020
Minas Gerais	94	1900	NA	22	Personal communication Karla Giacomini, 18/Aug/2020
Mato Grosso	5	188	9	02	Mato Grosso PO, 28/Jul/2020
Paraná	105	2257	149	20	Paraná PO, 08/Aug/2020
Pernambuco	26	732	108	60	Pernambuco PO, 17/Jul/2020
Piauí	9	358	26	5	Piauí PO, 29/Jul/2020
Rio de Janeiro	6	191	83	17	Care home administrators, July 2020
Rio Grande do Norte	47	1141	78	14	Rio Grande do Norte PO, 13/Jul/2020
Rio Grande do Sul	NA	2807	678	84	Rio Grande do Sul Health Department, 12/Aug/2020
Roraima	1	30	0	0	Roraima PO, 14/Jul/2020
Santa Catarina	242	6074	132	18	Santa Catarina PO, 20/Jul/2020
São Paulo	1462	40 755	2087	506	São Paulo PO, 22/Jul/2020
Total	2154	59878	3934	883	

NA: not available; PO: prosecutor's office.

of one state, infection and mortality rates associated with COVID-19 among older people living in Brazilian care homes have not been officially stratified or reported in government epidemiological bulletins. Our data were therefore collected mostly from self-reported and non-official sources, resulting in an infection rate of 6.57% and a case-fatality rate of 22.44%.

The odds of transmitting the virus appear to be higher in care home populations than in the general population.^{5,6} This might be explained both by the high level of need for assistance in daily activities resulting from functional and cognitive impairment among most older adults living in such settings, and by the high prevalence of comorbidities, frailty, and immunosenescence.⁷ Despite the high vulnerability to infection detected in older care home residents in other countries, only one study has been conducted so far to estimate the impact of the COVID-19 pandemic in Brazilian care homes.⁸ Based on other countries' estimates, the authors found an infection rate of 44.7% and a total of 107 538 deaths, which are much higher rates than the ones found in the present study. We believe that such differences are due to the many existing limitations in data gathering in such settings nationwide. Also, the information received

early on about the virus outbreak in European countries and the United States might have helped alert our authorities and homeowners to the need to restrict visits and social activities,^{9,10} which might have contributed to the much lower case and mortality rates we detected in care homes in Brazil. This association, however, remains unclear and to be confirmed.

Despite having received information from a large number of care homes, our study has several limitations. The cross-sectional design used to analyze an ongoing pandemic does not necessarily provide an accurate picture of the long-term impact of the virus outbreak in Brazilian care homes. In addition, we have a high concentration of data coming predominantly from two states, with low representation of the North and Northeast regions. Other confounding variables, such as bias introduced by collecting data from secondary sources, need to be considered when interpreting our results. Future research should concentrate efforts to seek official sources of epidemiological data, to assess the impact and morbidity and mortality profiles of the pandemic on the health and wellbeing of care home residents, and to monitor changes in infection and mortality rates as care homes begin to reopen for visitors.

CONCLUSION

The estimated rates of COVID-19 observed in this study were lower than those observed in other (high-income) countries, with an incidence rate of 6.57% and a case-fatality rate of 22.44%. Structuring and systematizing data recording and reporting in these settings is essential to better understand the spread of the virus and to protect care home residents in Brazil.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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AUTHORS' CONTRIBUTION

PAW: conception or design of the work, data collection, data analysis and interpretation, drafting the article, critical revision of the article, final approval of the version to be published. VGM: data collection, data analysis and interpretation, drafting the article, critical revision of the article, final approval of the version to be published. DO: conception or design of the work, data analysis and interpretation, drafting the article, critical revision of the article, final approval of the version to be published. HAWW: data collection, data analysis and interpretation, drafting the article, critical revision of the article, final approval of the version to be published. PJFVB: data collection, data analysis and interpretation, drafting the article, critical revision of the article, final approval of the version to be published.

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