Profile of death by coronavirus (COVID-19) in Mato Grosso: Reflexes of flexibilization in the state

Perfil de muertes por coronavirus (COVID-19) en Mato Grosso: Reflejos de flexibilización en el estado

Perfil dos óbitos por coronavírus (COVID-19) em Mato Grosso: Reflexos da flexibilização no estado

ABSTRACT

Objective: Analyze the epidemiological profile of deaths due to COVID-19 in Mato Grosso, from April to June 2020, according to demographic variables and decrees to open commercial activities in the state. Methods: This is a descriptive, cross-sectional and ecological study with data from the Information Bulletins of the Secretary of State for Health of Mato Grosso. The variables considered were deaths, sex, age group. for the construction of thematic maps the municipalities of residence of the deaths were used. Results: Of the confirmed cases, 3.8% died (661 deaths), of these, 61.0% were men, of the total 46.8% were between 61 and 80 years old. The highest mortality rate occurred in the municipality of Ponte Branca (63.5 / 100 thousand inhab.), And in Nova Xavantina (57.1%). Conclusion: With a growth in deaths due to COVID-19 after the flexibility decrees with an increase of (500%) in the period, these being more frequent in men, the elderly, in the Center-South and Southwest regions of the state.
DESCRIPTORS: COVID-19; Demographic data; Spatial Analysis.

RESUMEN

Objetivo: Analizar el perfil epidemiológico de las defunciones por COVID-19 en Mato Grosso, de abril a junio de 2020, según variables demográficas y decretos para abrir actividades comerciales en el estado. Métodos Se trata de un estudio descriptivo, transversal y ecológico con datos de los Boletines Informativos de la Secretaría de Estado de Salud de Mato Grosso. Las variables consideradas fueron defunciones, sexo, grupo de edad. para la construcción de mapas temáticos se utilizaron los municipios de residencia de los fallecidos. Resultados: De los casos confirmados fallecieron el 3,8% (661 defunciones), el 61,0% de estos fueron hombres, el 46,8% tenían entre 61 y 80 años. La mayor tasa de mortalidad se presentó en el municipio de Ponte Branca (63,5 / 100 mil hab.), Y en Nova Xavantina (57,1%). Conclusión: Presentando un aumento en las muertes por COVID-19 luego de los decretos de flexibilidad con un aumento del (500%) en el período, siendo estas más frecuentes en hombres, ancianos, en las regiones Centro-Sur y Suroeste del estado.
DESCRIPTORES: COVID-19; Datos demográficos; Análisis espacial.

RESUMO

Objetivo: Analisar o perfil epidemiológico os óbitos por COVID-19 em Mato Grosso MT, de abril a junho de 2020, segundo variáveis demográficas e decretos de abertura as atividades comerciais no estado. Métodos: Trata-se de um estudo descritivo, transversal e ecológico com dados dos Boletins Informativos da Secretária do Estado de Saúde de Mato Grosso. Consideraram--se as variáveis os óbitos, sexo, faixa etária. para a construção de mapas temáticos utilizou-se os municípios de residência dos óbitos. Resultados: Dos casos confirmados, 3,8% foram a óbitos (661 óbitos), destes, 61,0% homens, do total 46,8% tinha entre 61 a 80 anos. A maior taxa de mortalidade (TM) ocorreu no município de Ponte Branca (63,5/100 mil hab.), e em Nova Xavantina (57,1%). Conclusão: Apresentando um crescimento dos óbitos por COVID-19 após os decretos de flexibilização com aumento de (500%) no período, sendo estes com maior frequência em nos homens, idosos, nas regiões Centro-Sul e Sudoeste do estado.
DESCRITORES: COVID-19; Dados Demográficos; Análise Espacial.

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artigo

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INTRODUCTION

On December 31st, 2019, an outbreak of pneumonia occurred in the city of Wuhan, Hubei province, China. Soon after, the etiologic agent was identified: a new coronavirus (SARS-COV-2), whose disease has been officially called by the World Health Organization (WHO), COVID-19 (COrona VIrus Disease), which causes acute respiratory syndrome serious.[1] The outbreak was declared a public health emergency of international concern by WHO on January 30th, 2020. [2]

On January 30th, 2020, WHO established the outbreak for COVID-19 as a Public Health Emergency of International Importance, being characterized as a pandemic on March 11th, 2020.[3] The data made available by the Ministry of Health in Brazil, on July 29th, recorded 2.483.191 confirmed cases of COVID-19 and 88.539 deaths.[4]

In the state of Mato Grosso, 46.545 cases confirmed by COVID-19 and 1.669 deaths from the disease were identified in its surveillance system.[4] Mato Grosso had its first case confirmed in Epidemiological Week (EW) 12, and its

> **On January 30th, 2020, WHO established the outbreak for COVID-19 as a Public Health Emergency of International Importance...**

first death in EW 14, in EW 28 the state already totaled 629 deaths.[5]

Mato Grosso signs State Decree 407, on March 16th, 2020 that "Provides for measures to deal with the public health emergency of international importance resulting from the coronavirus (2019-nCoV) to be adopted by the Executive Branch of the State of Mato Grosso, and make other arrangements." In its Art. 09, this Decree defines that non-essential activities are suspended.

In the period from April 3rd to June 30th, 2020, Mato Grosso underwent some flexibility decrees, such as State Decree No. 462, from April 22nd, 2020 and Decree No. 522, from June 12th, 2020. In its capital Cuiabá, for example, the flexibilities were the reopening of retail trade that began on April 27th on May 4th, service providers returned, on May 11th the industries resumed their activities and on June 3rd retail trade within malls.6 Because it is the most populous city in the state, due to its flexibility, the city could become a pole for the spread of the disease to the rest of the state.

In view of the epidemiological situation that has been established in Brazil, with an increasing number of cases

and deaths from the disease 3, studies that characterize these deaths by CO-VID-19 in different national spaces are pertinent, in order to contribute to the planning of strategies, actions and regionalized policies aimed at coping with the disease.

Thus, the objective of this study is to analyze the epidemiological profile of confirmed deaths from COVID-19 that occurred in the state of Mato Grosso, from April to June 2020, according to the demographic variables of the cases.

METHODS

This is a descriptive, ecological and cross-sectional epidemiological study. The study population is composed of deaths confirmed by COVID-19, from April 3rd to June 30th, 2020, of the municipalities of residence belonging to the state of Mato Grosso.

The data referring to the deaths come from the Information Bulletins released by the Mato Grosso State Department of Health (SES-MT). The documents are produced daily by the State Public Health Emergency Operations Center.

The exclusion criterion was deaths living outside the state of MT.

The following variables were considered: sex (male and female), age group (≤ 5, 06 to 10, 11 to 20, 21 to 30, 31 to 40, 41 to 50, 51 to 60, 61 to 70, 71 to 80 and> 80 years old), municipality of residence, and two state decrees of flexibility to open trade in the state.

For data treatment, an Excel-Microsoft-Office Professional Plus 2016 program was used and a Kernel Density map of deaths was prepared for the geographic analysis of the behavior of patterns. The map was plotted, using interpolation methods, the point intensity of a given phenomenon, here the deaths by COVID-19, using the Quantum Geographic Information System (QGIS) program, version 2.14.8, and using the cartographic bases obtained from Brazilian Institute of Geography and Statistics (available at: https://mapas.ibge.gov.br/bases-e-referenciais/bases-cartograficas/malhas-digitais).

As this is a study with secondary data, available for public consultation and without the possibility of identifying individuals, there was no need for approval by the Research Ethics Committee.

RESULTS

Between April 3rd and June 30th, 2020, 621 deaths were recorded in the state of Mato Grosso, which represent about 3,8% of confirmed cases. Of these, 3 deaths occurred in EW 14 and 18 deaths in EW 27, with an increase of approximately 500% in the number of deaths (figure 1).

Seventy-five municipalities registered deaths from the disease, which is equivalent to 53,2% of the municipalities in the state (Figure 2). A concentration of deaths is observed in the maps in the Geographic Intermediate Regions, Center-South and Southwest of Mato Grosso, which corroborates the process of internalization of the disease (Figure 2).

Figure 1. Numbers of deaths confirmed by COVID-19 in the state of Mato Grosso, by epidemiological week (EW), month and trade easing, from April 3rd to June 30th, 2020.
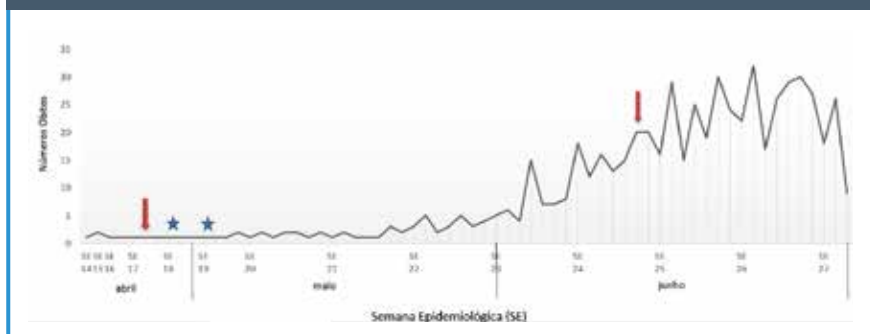
❗ State flexibility decrees: Decree n° 462, of April 22, 2020 and Decree n° 522, of June 12, 2020;
★ Reopening of retail trade and service providers in the capital Cuiabá-MT.

Figure 2 - Distribution of deaths by COVID-19 in the state of Mato Grosso, from April 3rd to June 30th, 2020.
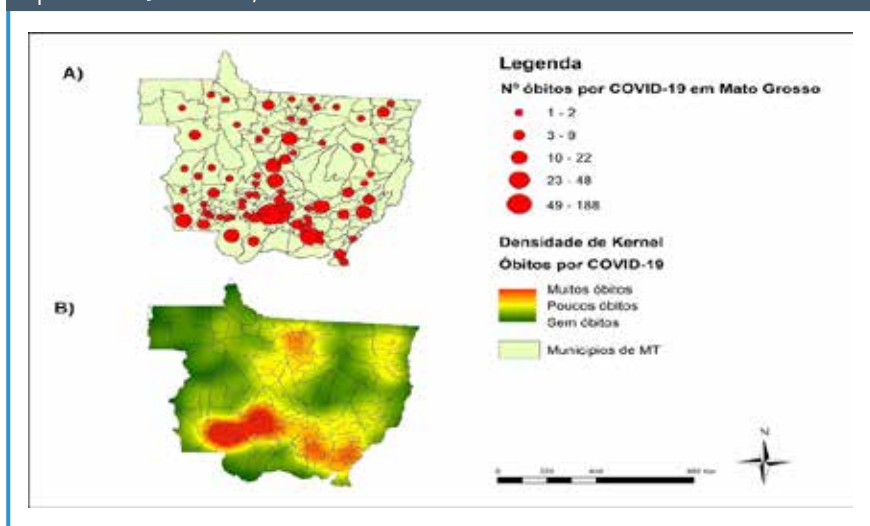
Source: Information bulletins released by the Mato Grosso State Department of Health (SES-MT). Available in: http://www.saude.mt.gov.br/informe/584

artigo

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Of the total deaths, 61% were male and 39% female (Table 1). The general mean age was 63,9 years (SD = 16,3 years), with 62,7 years for men (SD = 16,6 years) and 65,6 years for women (SD = 15,7 years) years), a difference of 2,9 years more for women.

Regarding the age group, deaths were more frequent in individuals over 40 years of age, representing 92,2% of total deaths. When age groups are broken down, there are the following frequencies, 24,6% (61 to 70 years old) and 22% (71 to 80 years old), but there were 15 deaths among those under 30 years old (Table 1).

DISCUSSION

n the months of the beginning of the pandemic in Brazil (February and March 2020), 201 deaths from the coronavirus had been recorded in the country and no deaths in the state. However, up to the month of June, Mato Grosso recorded 665 deaths from the disease. The increasing increase in deaths due to COVID-19 in the state followed the national trend.

It is important to mention that until May 25, 2020, among the states belonging to the central-west region, Mato Grosso do Sul (MS) (17 deaths) and Mato Grosso (40 deaths) had not reached 50 deaths. [5] However, on May 31, while MS (20 deaths) did not yet reach 50 deaths, MT totaled 61 deaths, which may reflect the constant loosening by the municipalities in relation to social isolation, especially in Cuiabá[6], most populous municipality in the state (5). It was registered that the state Mortality Rate (MR) (17,8/100 thousand inhab.) was higher than the MR in the Midwest region (15.6/100 thousand inhab.), but both were lower than the Brazilian rate (32.3/100 thousand inhab.) for the same period. [7]

In the Kernel map, the strongest colors were observed in the southwest and central-south regions of Mato Grosso. Due to Cuiabá and Várzea Grande, the center-south region is larger in population (110.513.2 inhab.), which allows for a higher frequency of cases and consequently more deaths.[8]

The Ministry of Health highlights that while the metropolitan region of Mato Grosso comprises 24% of confirmed cases of COVID-19, the interior represents 76% of the total infected 8, which may justify the Kernel map highlighting the southwest region. It is noteworthy that this region is one of the smallest, geographically, however it is not one of the smallest in number of cities belonging to its territory. In other words, a small territorial space with many cities allows the proximity of these places, favoring easier displacement of its inhabitants and, consequently, the circulation of the virus.

Men had a higher proportion of deaths due to COVID-19, about 56,4% more than women, even though they had an average age higher than men. Other studies have also pointed out a higher occurrence of the event in this group, which also follow Brazilian trends for the same period. [9,10]

However, the reasons why men die more than women due to COVID-19, is still unclear, raising hypotheses related to biological differences, differences in behavioral habits and differences in rates of comorbidities. [10]

A study that investigated the beliefs and behaviors of the population of Ceará in the face of the COVID-19 pandemic in a sample of 2.259 participants, showed that women considered themselves at greater risk of contamination, and that voluntary non-performance of quarantine was more prevalent among among the population residing in the interior of the State, in comparison to the metropolitan region of Fortaleza. [11]

Most deaths occurred in individuals older than 60 years, corroborating the data for Brazil, which suggest that 69,4% of deaths by COVID-19 occur in individuals over 60 years.[12] With the arrival of old age and the decline in immune function, the elderly have an increased susceptibility to infections 15, which may justify deaths by COVID-19 in this group.

In the period from April 3rd to May

Table 1 - Characterization of deaths by Covid–19, according to demographic variables in Mato Grosso, April to June 2020.		
Variáveis:	**N**	**%**
Sexo		
Masculino	379	61,0
Feminino	242	39,0
Faixa Etária		
≤ 5	3	0,5
06 a 10	0	0,0
11 a 20	3	0,5
21 a 30	9	1,6
31 a 40	30	5,2
41 a 50	68	11,9
51 a 60	98	17,0
61 a 70	142	24,7
71 a 80	127	22,1
> 80	95	16,5

Source: Information bulletins released by the Mato Grosso State Department of Health (SES-MT). Available in: http://www.saude.mt.gov.br/informe/584

31st, 2020, two days before the operation of Decree No. 7.929 of May 28th, 2020, which allowed the reopening of other sectors of commerce in Cuiabá - among them the malls, bars and restaurants, favorable spaces for agglomeration and dissemination of the virus, 61 deaths were recorded, with MR of 1,8/100 thousand inhabitants for the entire state. On June 30th, deaths totaled 621, with MR of 17,8/100 thousand inhabitants.

With the displacement and agglomeration of the population, the virus has affected many of Mato Grosso, causing the collapse of health services in the state.[13] Causing Mato Grosso to quickly leave the position of one of the states that had one of the lowest frequencies of deaths by COVID-19, for the most deaths (921 deaths) in the Midwest region in the epidemiological week 29. [14]

Among the limitations of this study, it is possible to indicate the absence of other information in the Bulletins, which could favor a better understanding of the profile of deaths, such as race / skin color, education and health care. Caution is also suggested in the interpretation of the MR results due to the great variability in the population of the municipalities and the low frequency of the studied event.

CONCLUSION

This study analyzed deaths due to COVID-19 in the state of Mato Grosso, by sex, age, in addition to describing the spatial distribution of the cases of the disease and presented an increase in the number of deaths after the state easing decrees. The findings point to the importance of knowing the most vulnerable groups and regions, which have the highest proportion of deaths due to COVID-19 in the State, identified in this study as the Center-South and Southwest regions, older men and individuals.

Governmental spheres should use research data to help guide the application of public policies for social protection and population awareness, especially to the most vulnerable groups and regions. ∎

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