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Epidemiological analysis of the reported cases of covid-19 in the municipality of Gloria de Goitá, in the state of Pernambuco, in the period of 2020

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Abstract: In December 2019, pneumonia associated with the new coronavirus appeared in Wuhan, in the first 30 days China recorded 11,821 cases and 259 deaths. This research aims to analyze the reported cases of Covid-19 in the municipality of Glória do Goitá, in the state of Pernambuco, in 2020. This is a descriptive study of documentary research and analysis of secondary data of epidemiological surveillance of the Epidemiological Bulletin of December 28, 2020, conducted in the period of May 2020, in the municipality of Glória do Goitá, in the State of Pernambuco. We confirmed 454 cases of the disease, 237 (52%) males have a higher percentage when compared to females, 217 (48%) recovered, 19 (63%) deaths. According to data published in Bulletin No. 32 COVID-19 Municipal Health Department 2020, the month of June presented a total of 85 recovered, followed by the month of December, to which it presented a total of 78 recovered. And in relation to deaths recorded during the year 2020, the month of May has the highest mortality rate, 10 deaths, while the months of September and October do not present records of death by Covid-19. Confirming a pattern of infection experienced throughout the national territory.

Keywords: Coronavirus. Pathophysiology. Sars-Cov-2.

1. Introduction

In December 2019, pneumonia associated with the new coronavirus evidenced in the period 2019 (Sars-Cov-2) appeared in Wuhan, China, which caused an inflammatory response in the body with mostly respiratory signs and symptoms (CHEN *et al.*, 2020).

In the first 30 days, China recorded 11,821 cases and 259 deaths. During The Month of January, the disease was evidenced in other countries of the Asian, European and American continents of Asia, Europe and North America. Also this month, precisely on January 30, 2020, the World Health Organization (WHO) declared an Emergency situation in Public Health of International Importance (ESPII). In a scenario with more than 110,000 cases distributed in 114 countries, who deliberated the pandemic communiqué on March 11, 2020 (WANG; TANG; WEI, 2020).

In Brazil, the first cases were confirmed in February, and several actions were implemented in order to contain and mitigate the progress of the disease. On February 3, 2020, the country declared a Public Health Emergency of National Importance (ESPII) (BRASIL, 2020).

The pathophysiology of the disease is related to the entry into the alveolar epithelium of Sars-Cov-2 and the consequent immune reaction of the host to this virus. In the most severe forms of the disease, it is possible to observe a systemic inflammatory response that results in increased release of cytokines. Such inflammation is capable of generating prothrombotic endothelial changes (ZHOU *et al.*, 2020).

The increase in fibrinogen and D-dimmer levels is one of the causes of hypercoagulation, in addition to prolongation in the prothrombin period (TAP) and in the period of activated partial thromboplastin (TMP), mild thrombocytopenia, associated with altered levels of factor VII and Von Willebrand factor (ORSI *et al.*, 2020).

In addition, patients infected with the new coronavirus may present disorders correlated with the coagulation process, thus increasing the risk of thrombosis. Being this process resulting from a clinical condition I that occurs the appearance of one or more blood clots in a deep vein of the patient's body. Usually thrombosis may arise in the lower leg, thigh, or pelvis. This clot may run through the blood vessels of the patient's body, reaching the lungs, causing the death of the patient (CHEN *et al.*, 2020).

It is of paramount importance to point out that elderly or individuals with comorbidities, such as: diabetes, cardiovascular, maternal and respiratory diseases tend to progress to the most aggressive form (GUO *et al.*, 2020). Epidemiological records in the municipality of Glória do Goitá, Pernambuco, indicate the 30 individuals who died, these had confirmed comorbidities, such as: hypertension, diabetes, chronic cardiovascular disease, smoking, chronic kidney disease, asthma, obesity, alcohol consumption, chronic liver disease, chronic lung diseases and chronic neurological disease, the same patients had more than one comorbidity. (BULLETIN No. 32, 2020)

Therefore, this research aims to analyze the cases

reported by Covid-19 in the municipality of Glória do Goitá, in the state of Pernambuco, in 2020.

2. Methodology

This is an epidemiological study of the descriptive type of documentary research and analysis of secondary data from epidemiological surveillance of the Epidemiological Bulletin of December 28, 2020, conducted in the period of May 2020, in the municipality of Glória do Goitá, in the State of Pernambuco, about the reported cases of Covid-19.

Study site

The municipality of Glória do Goitá is located in the State of Pernambuco, in the territory of the Zona da Mata Norte, with approximately 30,847 inhabitants with a territorial area of 234,214 km². The municipal office has a temperature ranging from 21°C to 32°C, with remnants of Atlantic Forest. Its Human Development Index was 0.640 in 2010 (IBGE, 2017). The average concentration of income distribution has a Gini index of 0.5287 (UNDP, 2010) with 16.55% of the population on the poverty line, denoting marked social inequality (IBGE, 2010). Figure 01.



Figure 01. Municipality of Glória do Goitá/PE. Source: <https://cualbondi.org/br/a/r303732/loria-do-goita/>

Study population

The study population consisted of reported cases of Covid-19 in the municipality of Glória do Goitá, in the state of Pernambuco, in 2020.

Data source

In this study, the analysis of consolidated secondary data by epidemiological surveillance in the Epidemiological Bulletin of December 28, 2020 was applied.

Data analysis

Being useful in the process of organizing, tabulations and data analysis the computer tool, respectively: Microsoft® Excel 2016® version 14.0.7183.5000 (MICROSOFT, 2016).

3. Results and Discussion

According to the data consolidated in Epidemiological Bulletin No. 32, published on December 28, 2020, the municipality of Glória do Goitá, located in the state of Pernambuco accumulated until epidemiological week 52, a total of 454 reported cases of COVID-19 and 30 deaths. The distribution of these cases and deaths per epidemiological week is shown in Figure 2.

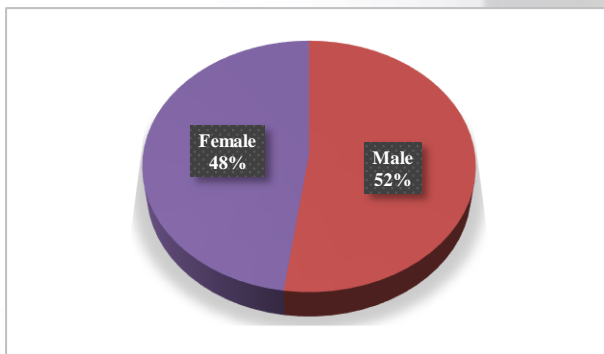


Figure 2. Evolution of Covid-19 cases per Epidemiological Week.

Source: Bulletin No. 32 COVID-19 Municipal Health Department, 2020

It was observed that an exponential growth from the 27 weeks without a decrease for the next few weeks, followed by a peak of cases in the epidemiological week of number 52. The exponential growth in the number of confirmed cases for Covid-19 is presented from epidemiological week 25, justifying the increase in confirmed cases after lockdown relaxation.

Regarding the number and percentage of confirmed cases of Covid-19, in the municipality of Glória do Goitá, males have a total of 52% of confirmed cases, while the number and percentage of confirmed cases of Covid-19 in females is 48%. This information corroborates the study conducted by Chen *et al.*, (2020), which can prove that male individuals are in a greater situation of exposure to Covid-19 infection, still being considered socially and culturally responsible for the sustainability of homes. Opportunistic greater episodes of exposure to the virus.



Graph 1. Number and percentage of confirmed cases of Covid-19, in the municipality of Glória do Goitá, Pernambuco, by sex in the period of 2020. Source: Bulletin No. 32 COVID-19 Municipal Health Department, 2020.

In relation to the analysis of the historical series of the accumulated number of cases per day, it is possible to identify four periods with distinct growths. The representation of the series with the projection until epidemiological week 52 is presented in Figures 3.

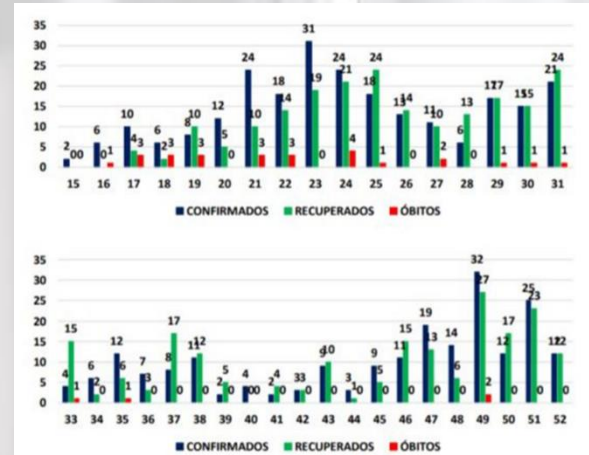


Figure 3. Projection of the accumulated number of reported cases of Covid-19 in the municipality of Glória do Goitá, Pernambuco, per epidemiological week, with projection until epidemiological week 52. Source: Bulletin No. 32 COVID-19 Municipal Health Department, 2020.

In relation to the initial days of the pandemic, the columns of confirmed cases do not present a growth pattern. In the column representing week 21, the number of confirmed cases totals 24 cases. However, epidemiological week 23 exceeds the level, growing from 24 cases to 31 confirmed cases. The confirmation of deaths due to Covid-19 continues to follow the epidemic pattern in the first months of pandemic. Deaths were recorded in the respective epidemiological weeks - 16, 17, 18, 19, 21, 24, 25, 27, 29. As of July 30th, we had a cumulative 250 cases. From the evolution of the cases, one can follow the spatial distribution of confirmed, recovered cases and deaths occurred. Study conducted by Souza *et al.* 2020, points out that after the intraurban propagation of SARS-CoV-2 was strengthened by the accelerated “periferization” of viral transmission in a period considered short.

According to data published in Bulletin No. 32 COVID-19 Municipal Health Department 2020, the month of June presented a total of 85 recovered, followed by the month of December, to which presented a total of 78 recovered. Figure 4. And in relation to deaths recorded during the year 2020, the month of May has the highest mortality rate, 10 deaths, while the months of September and October do not present records of death by Covid-19. Figure 5.

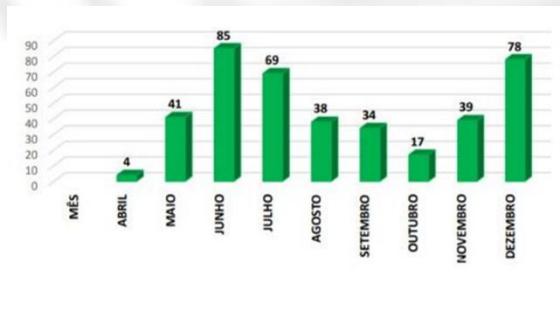


Figure 4. Projection of the number of cases recovered from Covid-19 in the municipality of Glória do Goitá, Pernambuco, per month, in 2020. Source: Bulletin No. 32 COVID-19 Municipal Health Department, 2020.

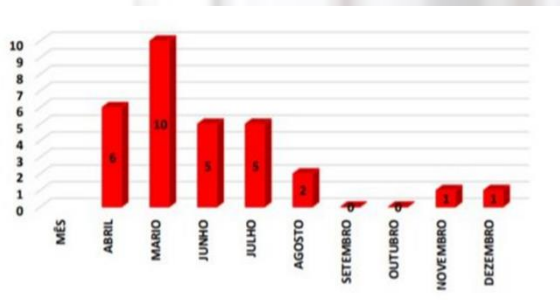
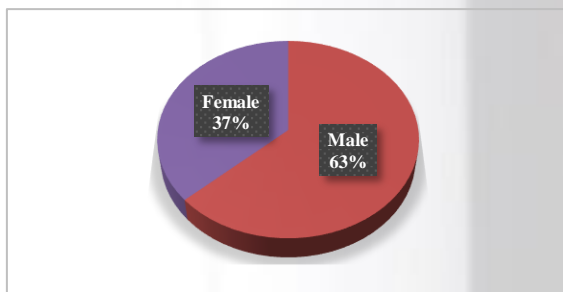


Figure 5. Projection of the number of deaths recorded by Covid-19 in the municipality of Glória do Goitá, Pernambuco, per month, in 2020. Source: Bulletin No. 32 COVID-19 Municipal Health Department, 2020.



Graph 2. Number and percentage of confirmed deaths of Covid-19, in the municipality of Glória do Goitá, Pernambuco, in the period of 2020.

Table 1. Projection of the number of cases reported by Covid-19 in the municipality of Glória do Goitá, Pernambuco, rural area and urban area, in 2020.

Rural Area	Built-up area
55	399

Source: Bulletin No. 32 COVID-19 Municipal Health Department, 2020.

4. Conclusions

From this analysis about the reported cases of Covid-19 in the municipality of Glória do Goitá, in the state of Pernambuco, in the period of 2020, it was found that up to epidemiological week 52, a total of 454 reported cases of COVID-19 and 30 deaths had been reported in the

municipality. According to data published in Bulletin No. 32 COVID-19 Municipal Health Department 2020, the month of June presented a total of 85 recovered, followed by the month of December, to which presented a total of 78 recovered. And in relation to deaths recorded during the year 2020, the month of May has the highest mortality rate, 10 deaths, while the months of September and October do not present records of death by Covid-19. Confirming a pattern of infection experienced throughout the national territory.

In addition to publications, this research, in fulfilling its objective, is in line with national policies on epidemiological surveys with the purpose of implementing new prophylactic measures to combat and control this pandemic.

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