

# Epidemiological profile of elderly affected by covid-19

Perfil epidemiológico de idosos acometidos pela covid-19

Perfil epidemiológico de los ancianos afectados por covid-19

## RESUMO

Objetivo: traçar o perfil epidemiológico de idosos da região Sudoeste da Bahia, acometidos pela COVID-19. Método: estudo descritivo, do tipo documental e de abordagem quantitativa com pessoas idosas a partir de 60 anos acometidas pela COVID-19 durante o primeiro ano da pandemia, de março a dezembro de 2020, residentes dos municípios que integram a microrregião de saúde do sudoeste da Bahia. Resultado: os idosos entre 60 a 70 são os mais contaminados pela COVID-19, com predominância em pessoas idosas do sexo feminino e com comorbidades comuns à velhice, como hipertensão, diabetes e doenças articulares. A taxa de letalidade é maior em pessoas idosas do sexo masculino. Conclusão: os resultados mostram que é necessário ações conjuntas a fim de promover o envelhecimento saudável dessa população, identificando previamente possíveis causas que são consideradas fatores de risco para complicações e letalidade e assim adotar estratégias eficazes e positivas para diminuição dos casos e tratamentos de sequelas pós-COVID em idosos.

**DESCRIPTORIOS:** Idoso; Perfil Epidemiológico; Vigilância em Saúde; COVID-19.

## ABSTRACT

Objective: to trace the epidemiological profile of elderly people from the Southwest region of Bahia, affected by COVID-19. Method: descriptive study, documentary type and quantitative approach with elderly people aged 60 years affected by COVID-19 during the first year of the pandemic, from March to December 2020, residents of the municipalities that integrate the health microregion of southwestern Bahia. Result: the elderly between 60 and 70 are the most infected by COVID-19, with predominance in elderly women and with comorbidities common to old age, such as hypertension, diabetes and joint diseases. The lethality rate is higher in older males. Conclusion: the results show that joint actions are needed to promote the healthy aging of this population, identifying previously possible causes that are considered risk factors for complications and lethality and thus adopting effective and positive strategies to reduce cases and treatments of post-COVID sequelae in the elderly.

**DESCRIPTORS:** Elderly; Epidemiological Profile; Health Surveillance; COVID-19.

## RESUMEN

Objetivo: rastrear el perfil epidemiológico de ancianos de la región suroeste de Bahía, afectados por COVID-19. Método: estudio descriptivo, tipo documental y abordaje cuantitativo con ancianos de 60 años afectados por COVID-19 durante el primer año de la pandemia, de marzo a diciembre de 2020, residentes de los municipios que integran la microrregión de salud del suroeste de Bahía. El resultado: los ancianos entre 60 y 70 años son los más infectados por COVID-19, con predominio en mujeres ancianas y con comorbilidades comunes a la vejez, como hipertensión, diabetes y enfermedades articulares. La tasa de letalidad es mayor en hombres mayores. Conclusión: los resultados muestran que se necesitan acciones conjuntas para promover el envejecimiento saludable de esta población, identificando causas previamente posibles que se consideran factores de riesgo para complicaciones y letalidad y así adoptar estrategias efectivas y positivas para reducir los casos y tratamientos de secuelas post-COVID en las personas mayores.

**DESCRIPTORIOS:** Ancianos; Perfil Epidemiológico; Vigilancia de la Salud; COVID-19.

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## INTRODUCTION

In December 2019, the first case of COVID-19 was identified in Whuan, China. During the same period, the World Health Organization (WHO) was alerted to the occurrence of several cases of pneumonia in the same city where the first case of COVID-19 was identified; an infectious disease caused by the coronavirus (SARS-CoV-2) with fever, tiredness and dry cough being the main symptoms of the disease. This new strain (type) of coronavirus has not been identified in humans before.<sup>(1)</sup>

It was found that among the groups with the highest risk of contamination by COVID-19, are mainly the elderly, as they are people with some chronic pathology and who may be immunocompromised. (2) Some studies indicate that problems such as hypertension, diabetes mellitus, cardiovascular and respiratory diseases are among the main comorbidities that are part of the clinical picture of most elderly people. (3)

The first case of COVID-19 confirmed in Brazil was an elderly person, a 61-year-old man, on February 26, 2020, and, 20 days later, on March 17, the first death was recorded, also being an elderly person. (4) Studies have also pointed out that the age group with the highest number of people who develop sequelae after recovering from COVID-19 are also elderly, as identified by a survey carried out in Israel. The consequences left by the disease can be neurological, respiratory and pulmonary,

cardiovascular, among others. There is also the occurrence of psychological sequelae, such as post-traumatic stress, anxiety and depression. (5)

In addition, according to the World Health Organization - WHO (2022), COVID-19 caused at least 14.9 million direct or indirect deaths from the beginning of the pandemic until 2021. (6) Of these numbers, most were male and elderly people.

In Brazil, the number of elderly people between 60 and 100 years old who have died since the beginning of the pandemic was 482,043 people, up to October 28th, 2022. (7) In this sense, studies that clarify the relationship between COVID 19 and the elderly become of great importance for public health, considering what measures and strategies can be adopted, serving as a basis for public health policies and improvements in assistance to this public.

Understanding that the elderly are among the main risk groups in relation to contamination and the age group that most evolves to deaths when affected by COVID-19, it is pertinent to understand the profile of this population affected by this communicable disease, thus seeking forms of protection and care that aim to guarantee the health and well-being of these individuals. The research will contribute for the competent bodies to adopt public health policies that contemplate the elderly, considering their specificities in relation to their health history and clinical condition, and as soon as prevention, care and

assistance measures are adopted by health professionals for the elderly, especially in populations similar to those in the southwest region of Bahia.

Thus, the present study aimed to: Trace the epidemiological profile of the elderly affected by COVID-19 in the southwest region of Bahia.

## METHOD

Descriptive study, documentary type and quantitative approach. Carried out with all the municipalities that are part of the southwestern Bahia health micro-region, consisting of 24 municipalities, namely: Anagé (25,516 inhabitants), Aracatu (13,743 inhabitants), Barra do Choça (34,788 inhabitants), Belo Campo (16,021 inhabitants), Bom Jesus da Serra (10,113 inhabitants), Caetanos (13,639 inhabitants), Cândido Sales (27,918 inhabitants), Caraíbas (10,222 inhabitants), Condeúba (16,898 inhabitants), Cordeiros (8,168 inhabitants), Encruzilhada (23,766 inhabitants), Guajeru (10,412 inhabitants), Jacaraci (13,651), Licínio de Almeida (12,311 inhabitants), Maetinga (7,038 inhabitants), Mirante (10,507 inhabitants), Mortugaba (12,477 inhabitants), Piripá (12,783 inhabitants), Planalto (24,481 inhabitants), Poções (44,701 inhabitants), Presidente Jânio Quadros (13,652 inhabitants), Ribeirão do Largo (8,602 inhabitants), Tremedal (17,029 inhabitants) and Vitória da Conquista (306,866

inhabitants).

The participants selected for the study were elderly people aged 60 years or older who were affected by COVID-19 during the first year of the pandemic, considering the period from March to December 2020.

After applying the criteria, elderly people were considered both female and male, with or without comorbidities and who died. Data from people under 60 years of age were not considered.

The study was carried out through a registration form, elaborated by the researchers where the data recorded in documents available on the State Transparency Portal were collected with information on the elderly affected by COVID-19 in the year 2020, during the period analyzed, which is between the months of March to December.

Data such as age, sex, municipality, types of comorbidities, symptoms, among other pertinent data recorded in the documents, were collected and recorded in the forms.

The research is supported by Resolution No. 510, of April 7, 2016, which deals with ethical issues regarding the protection of research participants. As the data are public and were collected on the State Transparency Portal, the research was not submitted to the Research Ethics Committee. After collection, a thorough filtering was performed applying the inclusion and exclusion criteria, and these data were described in numbers and percentages and discussed based on research carried out by other researchers who discuss the same subject of the study.

Data were organized and selected using charts for descriptive analysis and organized in Excel spreadsheets.

## RESULTS

It was found that of the 4,210 elderly people identified in the 24 municipalities, 1,497, which corresponds to 36%, are between 60 and 65 years old; 906 (22%) are between 66 and 70 years old; 629 (15%) are aged between 71 and 75 years; 520 seniors (12%) are

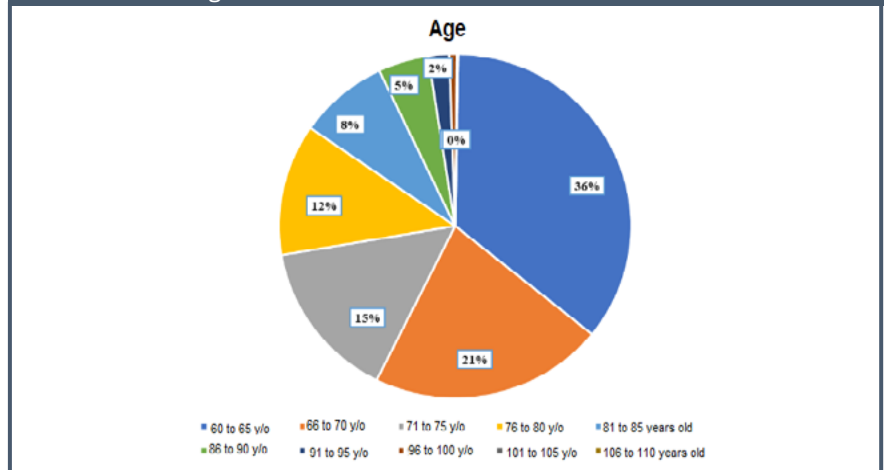
aged between 76 and 80 years; 348 (8%) aged between 81 and 85 years; 195 is the number of elderly aged between 86 and 90 years old, which corresponds to 5% of the total; between 91 and 95 years old, 81 people were identified (2%); 30 seniors aged between 96 and 100 years (1%), aged between 101 and 105 years old, 3 people were identified (0.07%) and with only 1 person aged between 106 and 110 years old, which corresponds to 0.02% of the total, as shown in Graph 1 below:

As for gender, 2,305 (55%) were female

and 1,904 (45%) were male.

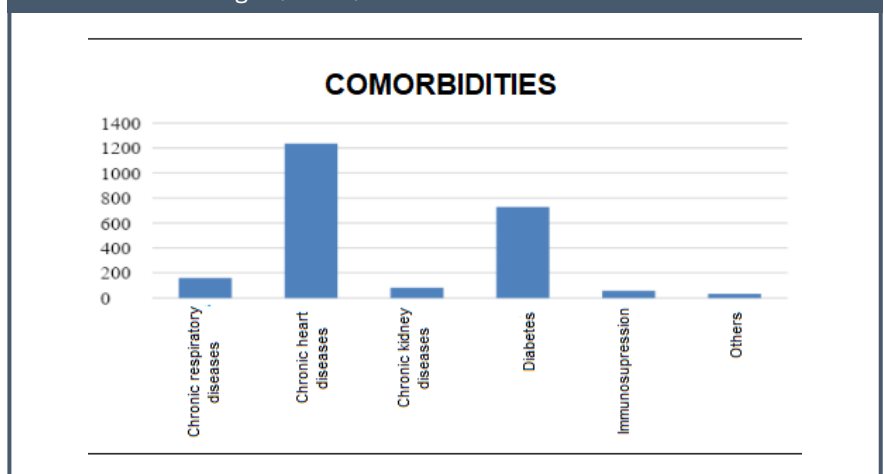
Regarding the comorbidities presented by these seniors, it appears that 160 (7%) had chronic respiratory diseases such as asthma, bronchitis, rhinitis, lung problems, considered a major risk factor; among others, 1237 (54%) had chronic heart diseases such as hypertension, heart failure, heart attack, arrhythmia, heart disease, etc. 81 (4%) with chronic kidney diseases like kidney stones, kidney failure, kidney cysts, kidney infection etc., 727 (32%) had diabetes, 57 (2%) were

Graph 1 – Distribution of elderly people by age group affected by COVID-19 in the southwest region, Bahia, 2022



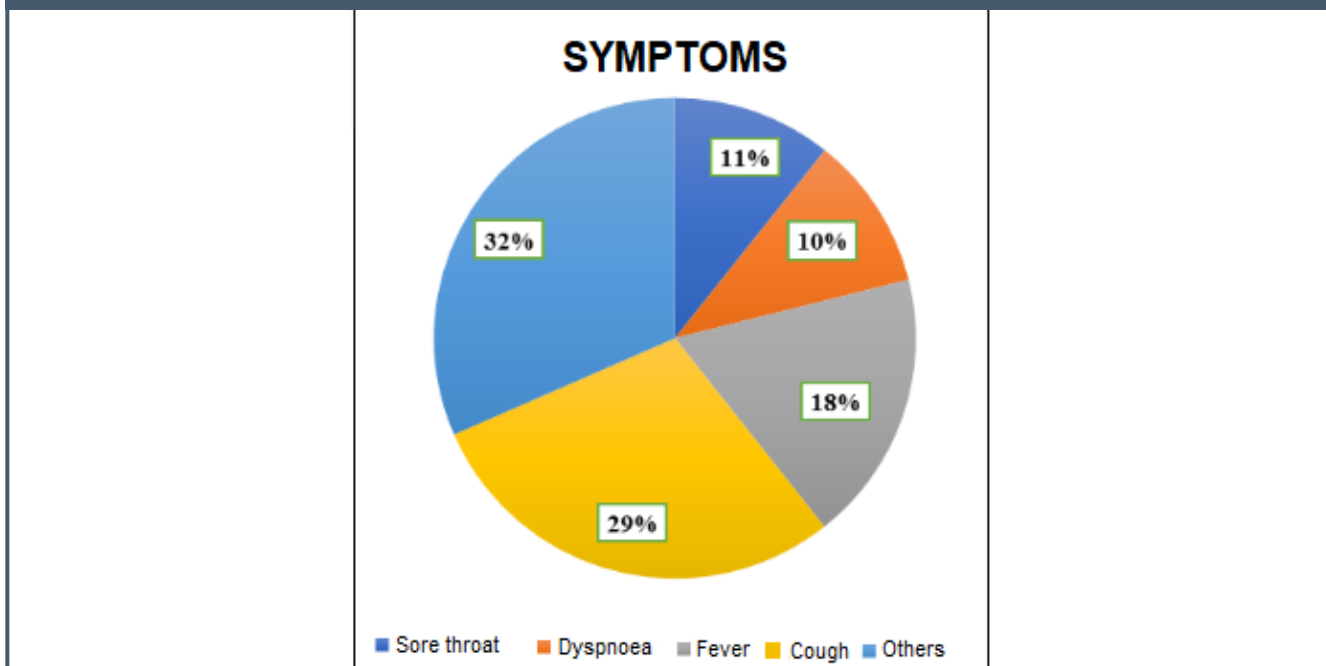
Source: Bahia Transparency Portal, 2022..

Graph 2 - Distribution of elderly people affected by COVID-19 by comorbidities in the southwest region, Bahia, 2022.



Source: Bahia Transparency Portal, 2022.

Graph 3 – Distribution of elderly by symptoms presented when affected by COVID-19 in the southwest region, Bahia, 2022.



Source: Bahia Transparency Portal, 2022.

immunosuppressed and 32 (1%) had other types of comorbidities not mentioned.

As for the symptoms presented by these elderly people, it appears that 893 (11%) reported having had a sore throat, 867 (10%) had dyspnea, 1525 (18%) had a fever, 2428 (29%) had a cough, 2635 (32%) had other symptoms during their illness.

As for mortality, it was identified that of the 271 people who died in 2020 in the region, 156 were male and 115 were female, distributed in the 24 municipalities of the studied region.

The municipality with the highest number of deaths caused by COVID-19 was Vitória da Conquista, totaling 171 deaths (63%), 76 female and 95 male. The second municipality that had the most elderly lives lost due to COVID-19 was Cândido Sales, with 19 (7%) total deaths, 8 women and 11 men. In third place appears the municipality of Poçoões, with 18 deaths in total, (6.6%), being 11 male and 7 female. The other municipalities had a number of less than 10 deaths, as can be seen in the graph below.

## DISCUSSION

According to the WHO <sup>(6)</sup>, Elderly people are more susceptible to contracting COVID-19, as health problems worsen at a faster rate and, consequently, increase the number of deaths caused by the disease. Thus, they are among the groups at greatest risk, mainly due to chronic and immunocompromised pathologies. <sup>(2)</sup>

With regard to the age of the elderly affected by COVID-19, the present study, according to Graph 1, makes it clear that the age group with the highest predominance is 60 to 70 years old and, as the age range increases, the number drops considerably. Such results can be explained by the fact that people in this age group are more active and thus have a certain resistance to respecting isolation and distancing measures and others advised by authorities and health professionals, as well as by the World Health Organization. <sup>(8)</sup>

Studies with similar results were fou-

nd in the municipality of Anápolis in Goiás and in a municipality in the south of Santa Catarina in the year 2022, which identified that the age group most affected by COVID-19 was 60 to 69 years old, with a percentage of 56.2%. <sup>(9-10)</sup> According to research, people aged between 60 and 69 years old were the ones who had the highest number of confirmed cases for COVID-19, but, on the other hand, they were the ones who also had the lowest rate of hospitalization and deaths.

This same study also showed that elderly people aged over 90 were the ones who had the highest number of deaths, identifying that 25.8% of cases evolved to death, due to the complications of COVID-19, which is directly related to factors inherent to aging, such as the impairment of the immune system, which ends up causing the cells of these people's bodies to be attacked by the SARS-CoV-2 virus, and thus replicating. Another factor also concerns the sedentary lifestyle that is associated with the worsening of the disease and

nutrient deficiency, which is very common in elderly people.<sup>(10)</sup>

In the present study, most of those affected by COVID-19 are female. Research carried out in the capital of Bahia, between 2020 and 2022, showed that 55% of the people surveyed were female and 45% were male.<sup>(11)</sup> Likewise, a survey carried out in 2020 with elderly people in Pará, identified a higher prevalence in women affected by COVID-19, with a percentage of 52.1%.<sup>(12)</sup>

Other studies, however, have shown different results, with elderly males being the most affected by the disease, such as the study that pointed out that cases of COVID-29 in elderly males predominated, which is in line with the results of national and international studies, which showed that there was a prevalence of hospitalizations among men aged 60 years or older.<sup>(13)</sup> An international study carried out in a Regional Hospital in Northwest Spain showed that among the patients, 66% were male, aged  $72.9 \pm 13.2$  years.<sup>(14)</sup>

Such results can be explained by the fact that men are more careless about self-care and seek less health services, due to several factors.<sup>(15)</sup> While women are more concerned and seek health services more frequently. Thus, this may be a context that justifies the higher number of women diagnosed with COVID-19.

The elderly and those with chronic diseases are the most vulnerable, since they are part of the risk group that may have complications, which include severe variations of the disease and even higher mortality. Diabetes and hypertension are among the comorbidities that most affect patients diagnosed with COVID-19.<sup>(16)</sup>

Among the groups at greatest risk are mainly the elderly, people with chronic pathologies and immunocompromised people.<sup>(17)</sup> Hypertension, diabetes, cardiovascular diseases and chronic respiratory diseases are among the main morbidities that increase the risk of complications caused by COVID-19.<sup>(18)</sup> In the same sense, Diabetes Mellitus and Systemic Arterial Hypertension

(SAH) are considered the main and most important chronic health factors that contribute to the risk of contamination by COVID-19.

Studies have shown similar results, with chronic heart diseases being the main comorbidities found in people positive for COVID-19, followed by diabetes and soon after chronic respiratory diseases.<sup>(17)</sup> In another survey carried out in Bahia, it also showed that among the comorbidities with the highest percentage, chronic heart diseases, followed by diabetes, were the ones with the highest percentage in confirmed cases of COVID-19.<sup>(19)</sup>

With regard to symptoms, the most common clinical symptoms of COVID-19 are: fever, cough, shortness of breath, muscle aches, mental confusion, headache, sore throat, rhinorrhea, impaired taste and smell, runny or stuffy nose, chest pain, diarrhea, abdominal pain, nausea and vomiting.<sup>(20)</sup>

In a survey carried out at a Reference Center in the Amazon, the main symptoms of patients diagnosed with COVID-19 were identified as: dry cough, fever, progressive dyspnea, chest pain, anosmia and headache.<sup>(21)</sup>

Similar results were also found in another study, carried out in the 9th health region of Paraíba.<sup>(22-23)</sup> Such research identified that the most frequent symptoms found were: cough, dyspnea, respiratory distress, fatigue, low oxygen saturation and fever. The authors point out that these symptoms were present in more than 60% of the total number of patients surveyed who were diagnosed with COVID-19.

It is noticed that there is a symptomatological pattern in cases of positive diagnoses for COVID-19. There is a recurrence of symptoms such as fever, dyspnea, cough, among others. In the study on screen, fever and cough appear as the main ones, as well as other studies that show that these are also the most common symptoms identified in people with COVID-19. According to the Ministry of Health, the main signs

and symptoms of COVID-19 are: fever equal to or greater than 37.8°C, cough, fatigue, dyspnea, malaise and myalgia, respiratory and gastrointestinal problems<sup>(24)</sup> (BRAZIL, 2020).

The first death by COVID-19, confirmed in Brazil, happened on March 17, 2020, being a 62-year-old man, who had comorbidities diabetes and hypertension.<sup>(25)</sup> The first death by COVID-19, confirmed in Brazil, happened on March 17th, 2020, being a 62-year-old man, who had comorbidities diabetes and hypertension.<sup>(2)</sup> In the first year of the COVID-19 pandemic, 2020, three out of four deaths caused by the disease occurred in people over 60 years old.<sup>(26)</sup>

In Bahia, the first death caused by COVID-19 happened on March 28, 2020, being a 74-year-old man, resident of the city of Salvador. The victim was a former smoker and had risk factors such as hypertension and dyslipidemia.<sup>(27)</sup>

As of October 28th, 2022, according to data from the Civil Registry Transparency Portal, the number of deaths of elderly people between 60 and 99 years old, from the beginning of the pandemic to the aforementioned date, was 482,043 people.<sup>(7)</sup> In Bahia, according to data available on the same portal, the number of deaths of elderly people between 60 and 99 years old, in the same period mentioned, was 19,210 deaths caused by COVID-19.<sup>(7)</sup>

The chances of death from a COVID-19 viral infection increase and worsen considerably with advancing age, especially when there are preexisting comorbidities, such as cardiovascular disease, diabetes and hypertension.<sup>(1)</sup>

As for income and social class, for some authors, the low-income population is more vulnerable to infection by the coronavirus, since these people use public transport, greater number of people in the same household, lack of basic sanitation and access to better health services, as well as the difficulty for the elderly and their families to maintain and respect social distancing



and isolation and quarantine without harming family income.<sup>(28)</sup>

Data on deaths in the region where the study was carried out showed that the number of deaths is directly related to the number of inhabitants of each municipality, considering, mainly, the three places where there were the highest number of deaths, according to the information in table 1, in municipalities that have a greater number of inhabitants, consequently have greater social inequality and thus possibilities of informal work, which is a factor that makes it difficult to comply with measures of social distancing and isolation and thus with a greater possibility of contamination by the disease.<sup>(29)</sup>

Another hypothesis that may be linked to the number of cases and consequently the number of deaths is that, among the three municipalities where the highest number of deaths occurred, two are crossed by the BR 116, such as Cândido Sales and Vitória da Conquista. As the BR passes through several states, connecting with several cities and municipalities, this means that there is a greater flow of people passing through these cities, therefore, there is a greater circulation of the virus and, consequently, a greater infection of people by the coronavirus.

Another factor that also boosted the increase in cases in the municipalities of the region studied in this research, especially in locations with the highest number of cases and deaths, concerns non-compliance with recommendations for social isolation. Of the 417 municipalities in the state, only 16 complied with social isolation measures above 50%, as recommended by health and health bodies and authorities.<sup>(30)</sup> It should be noted that none of the municipalities that are part of the southwest micro-region of Bahia appeared among those that complied with the measures and recommendations of social isolation.

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The results showed that males prevailed in terms of the number of deaths due to COVID-19 in the region studied, with 156 deaths of males, which corresponds to 57.56% of deaths. Except in a few municipalities where there were more female deaths than males. Several studies have identified a greater predominance of deaths in elderly males. A study pointed out that 56.25% of deaths of elderly people were male.<sup>(31)</sup>

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Indicators that intensify mortality in males have as a possibility the lack or low adherence of men regarding health care and medical help.<sup>(32)</sup> Another reason pointed out by the authors concerns the existence of comorbidities such as diabetes and cardiovascular diseases, since they are more present in men than in women.

On the other hand, factors associated with male mortality, in addition to low demand for medical services, also mention smoking as a condition that increases the risk of death from COVID-19 in males, since men are responsible for 11.8% against 6.7% among women, of the total percentage of smokers aged over 18 in Brazil.<sup>(28)</sup> Thus, smoking is a factor responsible for deaths caused by COVID-19 in men, as cigarettes cause lung impairment.

Since the pandemic, there has been a considerable increase in new cases of psychological disorders and without adequate psychological assistance, they are more vulnerable to these mental problems.<sup>(2)</sup> Among these, the most recurrent have been problems related to trauma, such as post-traumatic stress disorder and depression, developed especially during the pandemic period, which is linked to the large flow of negative information circulating about the disease and the pandemic and which are followed, especially by elderly people, and this ends up causing physical and emotional fatigue in people.<sup>(2)</sup>

The post-pandemic period demands special attention focused on the mental health of the elderly, thus adopting strategies that alert to signs and symptoms that lead to a precise and adequate look to ensure healthy aging.<sup>(3)</sup>

The epidemiological profile found in the state of Bahia shows a lot of similarity both with the national profile and with the profile identified in this study.<sup>(19)</sup> Thus, in Bahia, the profile that prevails is of women affected by COVID-19, but on the other hand, with regard to deaths, the record was higher in men and in terms of comorbidities,

it was identified that chronic heart diseases, diabetes and chronic respiratory diseases as the main risk factors related to COVID-19 in the state. <sup>(32)</sup>.

## CONCLUSION

Thus, it is observed that the profile found of elderly people affected by COVID 19 in this region was in the age group from 60 to 69 years old, female, with the most common symptomatology of cough and fever and risk factors for heart disease, diabetes and respiratory

disease. Although the number of elderly people affected is female, the mortality profile identified that males were the ones with the highest number of deaths from COVID-19 in the region.

It should be noted that the profile found in the region does not outline a general profile of the state and the country about people affected by COVID-19, although some data accurately portray a national reality. As well as the period of the analyzed data, which comprises the year 2020, the first year of the disease pandemic. Thus, fur-

ther research is needed and recommended to address the factors related to this epidemiological profile found.

It is also necessary to consider and rethink strategies aimed at men's health, since both the results of this research and international, national and state findings show that the male gender was the one that had the most lives lost to COVID-19. In addition, it is necessary to extend this thought and concern regarding the strategies adopted for the mental health of the elderly, in this post-pandemic period.

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