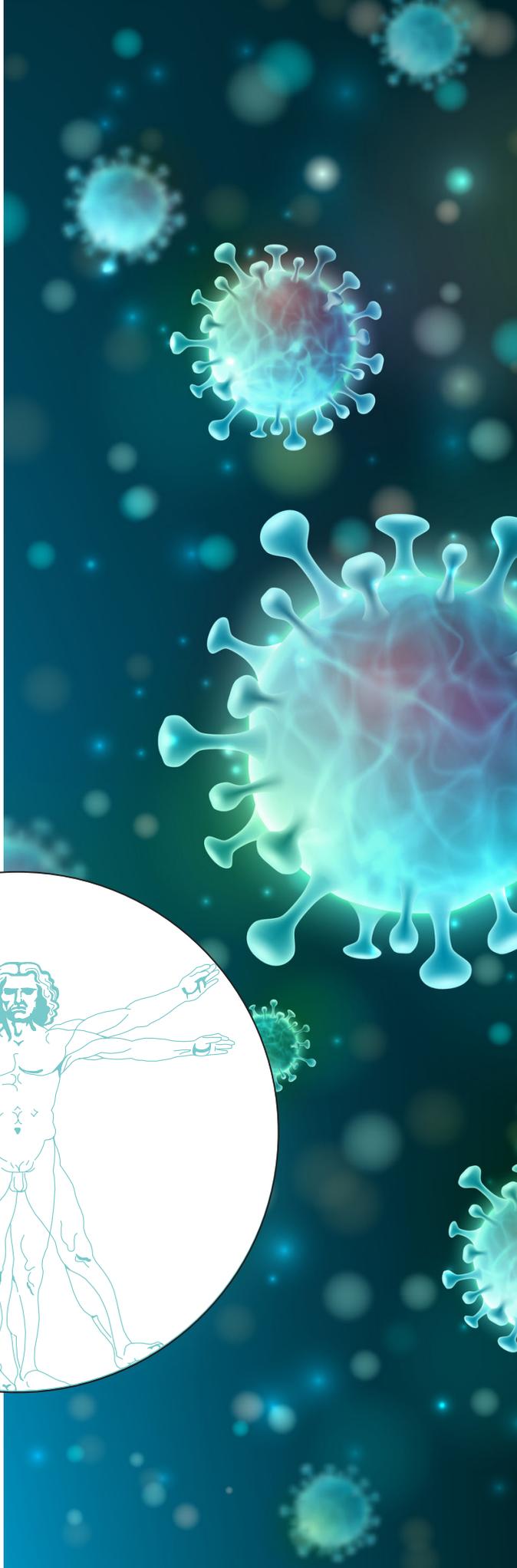
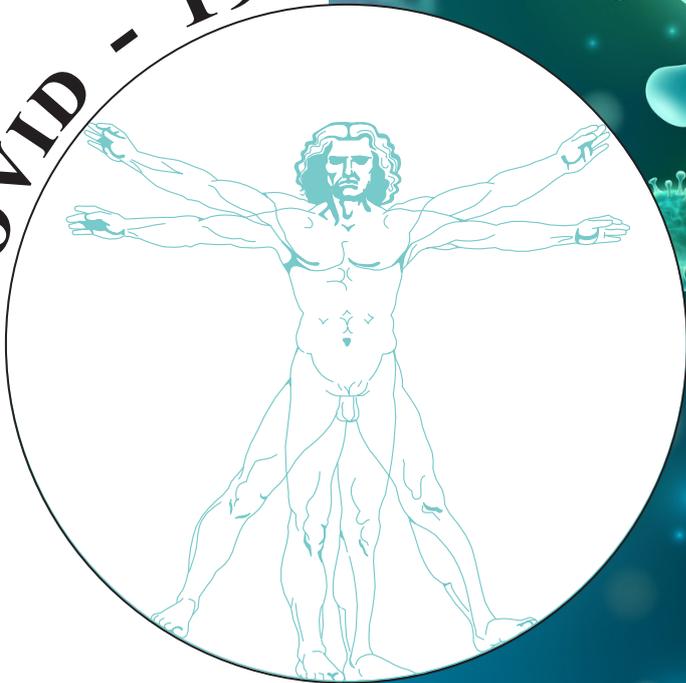


**COVID - 19**



# DESCRIPTIVE STUDY OF THE INITIAL CASES OF COVID-19 IN A CITY IN THE INTERIOR OF CEARÁ, BRAZIL

**FRANCISCO-ROSEMIRO GUIMARÃES-XIMENES-NETO<sup>1</sup>, SANDRA-MARIA CARNEIRO-FLORES<sup>2</sup>, REGINA-CÉLIA CARVALHO-DA-SILVA<sup>3</sup>, JOSIANE ALVES-DORNELES<sup>4</sup>, TARCIANA FERREIRA-SERAFIM<sup>5</sup>, FRANCISCO-WELLINGTON DOURADO-JÚNIOR<sup>6</sup>, JOÃO-PAULO CARNEIRO-MARQUES<sup>7</sup>, LUCIANO GARCIA-LOURENÇO<sup>8</sup>, MARIA-ROSELANGE GUIMARÃES-XIMENES<sup>9</sup>, FRANCISCO DIOGENES-DOS-SANTOS<sup>10</sup>, MARCOS AGUIAR-RIBEIRO<sup>11</sup>, ELIANY NAZARÉ-OLIVEIRA<sup>12</sup>, CIBELLY ALINY-SIQUEIRA-LIMA-FREITAS<sup>13</sup>, IZABELLE MONT'ALVERNE-NAPOLEÃO-ALBUQUERQUE<sup>14</sup>**

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- 1 Nurse. Doctor in Sciences. Health Sciences Center, Vale do Acaraú State University (UVA). Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-7905-9990>. E-mail: [rosemironeto@gmail.com](mailto:rosemironeto@gmail.com). Corresponding Author.
- 2 Nurse. Master's student in Family Health. Secretary of Health of the Municipality of Sobral. Ceará, Brazil. ORCID: <https://orcid.org/0000-0003-2266-9699>. E-mail: [sandra\\_flor38@hotmail.com](mailto:sandra_flor38@hotmail.com)
- 3 Nurse. Doctoral student in Public Health. Secretary of Health of the Municipality of Sobral. Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-3832-9624>. E-mail: [reginacarvalho741@hotmail.com](mailto:reginacarvalho741@hotmail.com)
- 4 Physician. Master in Family Health. Secretary of Health of the Municipality of Sobral. Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-5856-2941>. E-mail: [josianealvesdorneles2009@hotmail.com](mailto:josianealvesdorneles2009@hotmail.com)
- 5 5Dentist. Master's student in Family Health. Secretary of Health of the Municipality of Sobral. Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-3707-4842>. E-mail: [tarcianaserafim@hotmail.com](mailto:tarcianaserafim@hotmail.com)
- 6 Nursing Student. Health Sciences Center, Vale do Acaraú State University (UVA). Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-3326-338X>. E-mail: [wjunior0599@gmail.com](mailto:wjunior0599@gmail.com)
- 7 Physical educator. Master's student in Family Health. Federal University of Ceará (UFC), Sobral Campus. Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0001-9850-7034>. E-mail: [joaopaulocm1989@gmail.com](mailto:joaopaulocm1989@gmail.com)
- 8 Nurse. Doctor in Health Sciences. School of Nursing, Federal University of Rio Grande. Rio Grande, Rio Grande do Sul, Brazil. ORCID: <https://orcid.org/0000-0002-1240-4702>. E-mail: [lucianolourencao.enf@gmail.com](mailto:lucianolourencao.enf@gmail.com)
- 9 Physical education student. INTA University Center (UNINTA). Sobral Campus. Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0003-0483-0872>. E-mail: [roseximenes66@gmail.com](mailto:roseximenes66@gmail.com)
- 10 Nurse. Master's student in Family Health. Federal University of Ceará (UFC), Sobral Campus. Sobral Campus. Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-0849-5525>. E-mail: [diogenejunior@gmail.com](mailto:diogenejunior@gmail.com)
- 11 Nurse. Doctoral student in Sciences. Federal University of São Paulo. São Paulo, Brazil. ORCID: <https://orcid.org/0000-0001-7299-8007>. E-mail: [marcosribeiroce@gmail.com](mailto:marcosribeiroce@gmail.com)
- 12 Nurse. Doctor in Nursing. Health Sciences Center, Vale do Acaraú State University (UVA). Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-6408-7243>. E-mail: [elianyy@hotmail.com](mailto:elianyy@hotmail.com)
- 13 Nurse. Doctor in Nursing. Health Sciences Center, Vale do Acaraú State University (UVA). Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0002-0585-5345>. E-mail: [cibellyaliny@gmail.com](mailto:cibellyaliny@gmail.com)
- 14 Nurse. Doctor in Nursing. Health Sciences Center, Vale do Acaraú State University (UVA). Sobral, Ceará, Brazil. ORCID: <https://orcid.org/0000-0003-0856-5607>. E-mail: [izabellemontalverne@gmail.com](mailto:izabellemontalverne@gmail.com)

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## Summary

**Objective:** to describe the sociodemographic, epidemiological and clinical characteristics of the initial cases of Covid-19 in the municipality of Sobral, Ceará, Brazil. **Materials and methods:** descriptive, temporal and quantitative epidemiological study, developed in the municipality of Sobral - Ceará, Brazil, with 110 confirmed cases of Covid-19. Descriptive and analytical analysis was performed, using the Chi-square test and Logistic Regression to verify the association between variables. The level of significance was set at 95% ( $p \leq 0.05$ ). **Results:** it was observed that 60% of cases occurred in women, 74.5% were adults between 20 and 59 years old, 15.5% health workers and the lethality rate was 1.8%. In 58.2% of cases the main reporting unit was the hospital, 10% required hospitalization, and 64.5% were diagnosed with rapid tests. The main symptoms manifested were: cough (58.2%), fever (57.3%), sore throat (36.4%) and difficulty breathing (31.9%). There was an association between age and the presence of fever, cough and sore throat ( $p=0.05$ ). **Conclusion:** the results suggest that older people are more susceptible to some symptoms when compared to younger people. Associated with global estimates, this work can provide subsidies for Covid-19 prevention and control actions in small and medium-sized Brazilian municipalities.

**Keywords:** pandemics; coronavirus infections; epidemiology; communicable diseases, emerging; public health.

## Estudio descriptivo de los casos iniciales de Covid-19 en una ciudad del interior de Ceará, Brasil

### Resumen

**Objetivo:** describir las características sociodemográficas, epidemiológicas y clínicas de los casos iniciales de Covid-19 en el municipio de Sobral, Ceará, Brasil. **Materiales y métodos:** estudio epidemiológico descriptivo, temporal y cuantitativo, desarrollado en el municipio de Sobral - Ceará, Brasil, con 110 casos confirmados de Covid -19. Se realizó análisis descriptivo y analítico, utilizando la prueba de chi-cuadrado y regresión logística para verificar la asociación entre variables. El nivel de significancia se estableció en 95% ( $p \leq 0.05$ ). **Resultados:** se observó que el 60,0% de los casos ocurrieron en mujeres, el 74,5% eran adultos entre 20 y 59 años, el 15,5% trabajadores de la salud y la tasa de letalidad fue del 1,8%. En el 58,2% de los casos la principal unidad de notificación fue el hospital, el 10% requirió hospitalización y el 64,5% fueron diagnosticados con pruebas rápidas. Los principales síntomas manifestados fueron: tos (58,2%), fiebre (57,3%), dolor de garganta (36,4%) y dificultad para respirar (31,9%). Hubo asociación entre la edad y la presencia de fiebre, tos y dolor de garganta ( $p=0,05$ ). **Conclusión:** los resultados sugieren que las personas mayores son más suscepti-

*bles a algunos síntomas en comparación con las personas más jóvenes. Asociado a estimaciones globales, este trabajo puede proporcionar subsidios para acciones de prevención y control de Covid-19 en municipios brasileños pequeños y medianos.*

**Palabras Clave:** *pandemias; infecciones por coronavirus; epidemiología; enfermedades transmisibles emergentes; salud pública.*

## Introduction

On December 31, 2019, the Health Commission of Hubei Province, China, announced a series of atypical pneumonia cases of unknown cause, reported in Wuhan, with a clinical presentation similar to viral disease. After analysis of the throat smear, a new coronavirus of possible zoonotic origin was identified by the Chinese Center for Disease Control and Prevention (CCDCP), provisionally appointed by the World Health Organization (WHO) of 2019-nCoV, drawing international attention [1-5].

With the advance of cases and deaths from the disease, on January 30, 2020, WHO declared the outbreak caused by 2019-nCoV as "Public Health Emergency of International Importance (PHEII)", the highest alert level, as predicted International Health Regulations. On this day, 7,834 cases were recorded worldwide, with 7,736 cases and 170 deaths in China, and 98 cases distributed in 18 other countries, including eight cases of human-to-human transmission (community transmission) occurred in Germany, Japan, Vietnam and the United States of America (USA) [6].

On March 15, the world had confirmed 153,517 COVID-19 cases, 81,048 (52.8%) in China and 72,469 (47.2%) in other countries / territories, with 2,531 (3.4%) deaths distributed in 143 countries / territories / areas [7].

Brazil was affected by the disease at the end of February, registering the first case on the 26th, in São Paulo, in a 61-year-old man, who was admitted to Hospital Israelita Albert Einstein, with a history of travel to the Lombardy region, Italy, and this was the first case reported in Latin America [8].

In view of people's vulnerability to SARS-CoV-2 infection, epidemiological studies contribute to understanding the dynamics of transmission and evolution of the disease and becomes important for providing knowledge for the assessment of the epidemiological scenario, projections of the disease and targeting preventive measures [9].

In this context, this study seeks to describe the sociodemographic, epidemiological and clinical characteristics of the initial cases of Covid-19 in the municipality of Sobral, Ceará, Brazil.

## Materials and methods

Epidemiological, descriptive and quantitative study conducted in the Brazilian municipality of Sobral, Ceará state, using secondary data from the municipality's epidemiological surveillance system.

The municipality of Sobral is located northwest of the state of Ceará, with an estimated population for 2019 of 208,935 inhabitants and a demographic density of 88.67 inhabitants/km<sup>2</sup>, being the fifth largest population in the state. It has an area of territorial unit of 2,122,898 km<sup>2</sup>, bordering the municipalities of Cariré, Groaíras, Forquilha, Santa Quitéria, Irauçuba, Miraíma, Santa do Acaraú, Massapê, Meruoca, Alcântaras, Coreaú and Mucambo. Sobral is an important regional economic, educational and health center for dozens of municipalities in Ceará and neighboring states [10].

Sobral is home to a Health Region composed of 24 municipalities, with a population estimate of 629,957 inhabitants, and the 2nd Health Macro-Region of the State of Ceará, compri-

sing 55 municipalities, covering a population of approximately 1,634,050 inhabitants. The municipality has a wide Health System, historical in the formulation of several health policies and, in Primary Health Care (PHC), it has 37 Family Health Centers (23 at headquarters and 14 in the district), which have 70 Teams the Family Health Strategy (FHS), covering 100% of the municipality's population; 50 Oral Health Teams that cover 90% of the municipality's population; six teams from the Family Health Support Center (NASF), among others [11]. In addition to a powerful PHC assistance structure, Sobral has an important medium and high complexity structure, involving several specialized units, laboratories, Emergency Care Unit (UPA), mixed unit, Northern Regional Hospital (HRN), Santa Casa de Misericórdia de Sobral, Hospital do Coração, among others [12].

After the declaration of state of public danger by COVID-19 in the municipality, the entire Health Care Network (RAS), with two more field hospitals (which underwent municipal intervention, by means of decree, in the form of requisition of the building and all physical facilities) made up the assistance structure to support the pandemic, at the regional level.

The study population consisted of suspected cases of Flu Syndrome (FS) of people residing in municipality, who were attended by public and private health services of the municipal pandemic assistance network of Covid-19 and notified to Municipal Epidemiological Surveillance System of Sobral, until April 23, 2020. For reporting purposes, a suspected case of FS was considered any person "with acute respiratory condition, characterized by at least two of the following signs and symptoms - fever (even if referred), chills, sore throat, headache, cough, runny nose, olfactory disorders or taste disorders. In children: in addition to previous items, nasal obstruction is also considered, in absence of another specific diagnosis. In elderly: specific worsening criteria are also considered,

such as syncope, mental confusion, excessive drowsiness, irritability and lack of appetite. If Covid-19 is suspected, fever may be absent and gastrointestinal symptoms (diarrhea) may be present [13].

The study sample consisted of cases of SARS-CoV-2 infection, confirmed by laboratory criteria: immunochromatography test (rapid test) for antibody detection (SARS-CoV-2 antibody test®), performed eight days after start symptoms; and/or molecular test for viral detection using RT-PCR method, preferably carried out between third and fourth days after onset of symptoms, and may extend to tenth day, according to medical advice. As positive result of SARS-CoV-2 antibody test® rapid test does not indicate absolute evidence of SARSCoV-2 infection, when present, it was interpreted by doctor, based on patient's clinical-epidemiological history.

Until April 23, the Sobral Health Department had received 488 notifications of suspected cases of cases of FS or SAFS. To compose the sample, the 361 discarded cases and 17 that awaited test results were eliminated at the time of data collection, with 110 laboratory confirmed cases remaining, from residents of the municipality, notified between March 17 and April 23, regardless of imported case or community transmission.

Data were collected during the last week of April 2020, after authorization by the person responsible for the Department of Health, through the term of faithful depositary. Then, these were extracted from a "Covid-19 Monitoring Worksheet" and from e-SUS VE (new tool for registering suspected and confirmed cases of the New Coronavirus - Covid-19), and exported to the Excel program®. For the epidemiological analysis, the following variables were used: sex, age group, area of residence, occupation, reporting unit, type of laboratory examination performed, if hospitalization occurred, symptoms manifested and association with comorbidities.

## Data Analysis

The descriptive analysis was performed taking into account the frequencies and percentages of the variables. Pearson's chi-square test was performed to verify the association between categorical variables. To investigate whether men or women were more susceptible to symptoms, the variable "sex" was classified as independent of the variables related to symptoms (fever, cough, sore throat, difficulty breathing, among others), as dependent. The level of significance adopted for rejecting the null hypothesis of no association between sex and symptoms was 95% ( $p \leq 0.05$ ). In order to carry out the statistical test, two cases were excluded from the analysis due to the underreporting of at least one of the variables.

Logistic regression was performed to verify whether the increase in the age variable is associated with an increased likelihood that people will experience symptoms of fever, cough, sore throat, difficulty breathing and others, checking whether it is able to predict such symptoms. Likewise, the level of significance adopted for rejection of the null hypothesis was 95% ( $p \leq 0.05$ ). To aid in the analyzes, the statistical program R, version 4.0.0 was used.

## Ethics Statement

As this is data obtained from secondary sources, in the public domain, it was not necessary to submit this project to the appreciation of the Research Ethics Committee, as established by Brazilian law. However, the authors respected all ethical and legal principles of research involving human beings, established by Brazilian legislation and issued by Resolution No. 466/2012, of the National Health Council (NHC) [14].

## Results

As noted in Table 1, among 110 cases analyzed, there was a predominance of female

people (60.0%), aged 20 to 49 years (55.5%) and workers in the service sector (37.3%). There were 17 (15.5%) cases of infection in healthcare workers and as for the profession/occupation, 49.1% of the cases had no record, which shows the weakness of the notification process.

The incidence coefficient of Covid-19 in the municipality, during the study period, was 52.64/100,000 inhabitants. There was two died (1.8%), showing a mortality coefficient of 0.96/100,000 inhabitants.

Both deaths were women, one of whom was 61 years old, living in the rural area, with Diabetes mellitus (DM) and Systemic Arterial Hypertension (SAH), who had difficulty breathing and diarrhea, without cough and fever, and sought care at the Family Health Center (FHC), where he had a cardiorespiratory arrest; the other, 50 years old, living in the urban area, who had a cough and difficulty breathing, did not show fever and sore throat. He sought care at the Emergency Care Unit (UPA), where material was collected for examination of Covid-19. At another time, she sought care at the Hospital do Coração, as she has chronic heart disease and DM, and died in the emergency room. Both performed the RT-PCR test, and the result came out only after death.

Table 2 shows the distribution of Covid-19 cases, according to the reporting unit, type of examination performed and hospitalization. It was observed that the main reporting unit was the hospital (58.2%), followed by the Family Health Center (15.4%). Ten percent of the cases required hospitalization, so it is estimated that for every 10 confirmed cases, one subject was hospitalized. Regarding the type of diagnostic examination, rapid tests were predominant (64.5%). Thus, 82.1% more rapid tests were performed than RT-PCR.

**Table 1. Sociodemographic characteristics of Covid-19 cases**

Variables	n	%
<b>Sex</b>		
Female	66	60.0
Male	44	40.0
<b>Age group (years)</b>		
0 a 9	5	4.5
10 a 19	9	8.2
20 a 29	21	19.0
30 a 39	23	21.0
40 a 49	17	15.5
50 a 59	21	19.1
60 a 69	7	6.4
70 a 79	5	4.5
80 a 89	1	0.9
90 e mais	1	0.9
<b>Profession / Occupation</b>		
Nurse	6	5.5
Administrator/Administrative Assistant	6	5.5
Businessman	4	3.7
Student	4	3.7
Driver	3	2.8
Administrator	2	1.8
Lawyer	2	1.8
Community Health Agent (CHA)	2	1.8
Retired	2	1.8
General Services Assistant / Caretaker	2	1.8
Supermarket cashier	2	1.8
Housekeeper	2	1.8
Physiotherapist	2	1.8
Teacher / Pedagogue	2	1.8
Nursing Technician	2	1.8
Butcher	1	0.9
Bank officer	1	0.9
Hairdresser	1	0.9
Dental surgeon	1	0.9
Pharmaceutical	1	0.9
Journalist	1	0.9
Construction master	1	0.9
Health professional	1	0.9
Psychologist	1	0.9
Radio host	1	0.9
Receptionist	1	0.9
Computer technician	1	0.9
Laboratory technician	1	0.9
Ignored	54	49.1

Source: municipality's epidemiological surveillance system.

**Table 2. Distribution of Covid-19 cases according to reporting unit, type of tests performed and hospitalization**

Categories	n	%
<b>Notifying Unit</b>		
Hospital	64	58.2
Family Health Center	17	15.4
Private Laboratory	16	14.5
Epidemiological Duty	6	5.5
Infectious Diseases Center	4	3.7
UPA (Emergency Care Unity)	2	1.8
Ignored	1	0.9
<b>Hospitalization</b>		
Yes	11	10.0
No	99	90.0
<b>Exam Type</b>		
Rapid Test	71	64.5
RT-PCR	39	35.5

Source: municipality's epidemiological surveillance system.

Table 3 shows the main symptoms stratified by sex and age group. There was a predominance of cough (58.2%), fever (57.3%), sore throat (36.4%) and difficulty breathing (31.9%). Of the sample, 26.3% of women and 10.9% of men manifested other symptoms. Women also had nasal congestion and nausea (2.8%); chills (1.8%); and vomiting, asnomy, pain in the paranasal sinuses, arthralgia, irritability, difficulty in swallowing, presence of pharyngeal exudate, chest pain (0.9% each). Among men, the following symptoms were also observed: dyspnoea (2.8%); asthenia (1.8%); vomiting, nasal congestion, chills, nausea and arthralgia (0.9% each).

As for the presence of chronic disease, it was found that 3.7% of women and 1.8% of men had Diabetes Mellitus; 1.8% of women and 2.8% of men with chronic heart disease; 0.9% of women with chronic respiratory disease; 0.9% of women and 0.9% of men had systemic arterial hypertension.

As seen in Table 4, the logistic regression test showed that age is associated with symptoms such as fever ( $x^2 = 3.29$ ), cough ( $x^2 = 3.97$ ) and sore throat ( $x^2 = 3.97$ ). There was no statistically significant association between age and difficulty in breathing and other symptoms.

Table 3. Main symptoms of Covid-19 cases stratified by sex and age group

Variables	Symptoms																	
	Fever		Cough		Sore throat		Difficulty breathing		Myalgia		Coryza		Headache		Anosmia and Dysgeusia		Diarrhea	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Sex</b>																		
Female	35	31.8	39	35.5	25	22.7	20	18.2	7	6.3	5	4.5	10	9.1	3	2.8	6	5.4
Male	28	25.5	25	22.7	15	13.7	15	13.7	3	2.8	2	1.8	6	5.4	0	0	1	0.9
<b>Age group (years)</b>																		
0 a 9	1	0.9	2	1.8	1	0.9	1	0.9	1	0.9	1	0.9	0	0.0	0	0.0	0	0.0
10 a 19	6	5.4	2	1.8	3	2.8	1	0.9	1	0.9	1	0.9	1	0.9	0	0.0	0	0.0
20 a 29	9	8.2	13	11.8	9	8.2	5	4.5	2	1.8	2	1.8	6	5.4	1	0.9	1	0.9
30 a 39	12	11.0	14	12.7	10	9.1	6	5.4	2	1.8	1	0.9	3	2.8	1	0.9	2	1.8
40 a 49	13	11.8	11	10.0	6	5.4	9	8.2	3	2.8	1	0.9	2	1.8	1	0.9	0	0.0
50 a 59	13	11.8	15	13.6	7	6.3	8	7.3	0	0.0	1	0.9	3	2.8	0	0.0	2	1.8
60 a 69	3	2.8	2	1.8	1	0.9	3	2.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9
70 a 79	5	4.5	3	2.8	2	1.8	1	0.9	1	0.9	0	0.0	1	0.9	1	0.9	0	0.0
80 a 89	1	0.9	1	0.9	1	0.9	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90 e mais	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Source: municipality's epidemiological surveillance system.

Table 4. Logistic regression between the variables age and symptoms

Symptoms	Age		
	b	x <sup>2</sup>	p-value
Fever	0.019	3.29	0.05*
Cough	0.021	3.97	0.05*
Sore throat	0.021	3.97	0.05*
Difficulty breathing	0.014	1.72	> 0.05
Others	0.000	0.63	> 0.05

\* Statistically significant association. Source: municipality's epidemiological surveillance system.

Source: municipality's epidemiological surveillance system.

Table 5. Association between sex and symptoms

Symptoms	Sex				X <sup>2</sup>	gl	p
	Male		Female				
	f	%	f	%			
Fever	26	42.6	35	57.4	0.50	1	0.47
Difficulty breathing	15	42.9	20	57.1	0.14	1	0.70
Cough	25	39.1	39	60.9	3.22	1	1
Sore throat	15	37.5	25	62.5	0.00	1	0.98
Others	12	29.3	29	70.7	1.96	1	0.16

Source: municipality's epidemiological surveillance system.

The association of sex with symptoms, shown in Table 5, shows that there was a higher incidence of all symptoms among women, however,

there was no statistically significant association between symptoms and the female sex, suggesting that this fact may have happened at random. Thus, the null hypothesis cannot be rejected.

## Discussion

Research on behaviors and beliefs at the arrival of the Covid-19 pandemic in Ceará found that residents in cities in the interior of the state are more vulnerable to infection by the coronavirus, because they are less inmates, because they believe that the contamination will be less than in the rest of the country and because the climate is a positive factor for mitigating cases, a situation that can affect measures to contain the spread of the disease [8].

Located in the interior of the state, the municipality of Sobral recorded 110 cases of Covid-19 on April 23, 2020, with another 17 awaiting examination results and 361 discarded. On the same date, the state of Ceará registered 4,702 infected and 271 deaths from the disease, and in Brazil, the Ministry of Health recorded 49,492 cases of Covid-19, with 3,313 deaths, 26,573 people recovered and another 19,606 being followed up [15,16].

The municipality obtained confirmation of 23.4% of suspected cases, a rate higher than that found at the national level (2.0%) and in countries such as Spain (8.0%), Italy (7.0%), France (6.0%), Germany (5.0%), United Kingdom (5.0%), Turkey (4.0%), Iran (3.0%), China (3.0%) and Russia (3.0%). This confirmation rate was only lower than that of the USA (33.0%) and shows a high level of infection by the virus in cities in the interior of Brazil [17].

In China, the first notified death had serious comorbidities [2], a situation similar to that found in this study, in which the cases of death presented Diabetes Mellitus associated with chronic heart disease or Systemic Arterial Hypertension. In Brazil, among the deaths confirmed by Covid-19, 70.0% were over 60 years old and 67.0% had at least one risk factor, with heart disease being the main associated comorbidity, present in 1,566 deaths, followed by Diabetes Mellitus, present in 1,223 deaths [18].

The Ministry of Health considers as a risk group for Covid-19 people of any age who "have comorbidities, such as heart disease, diabetes, pneumopathy, neurological or kidney disease, immunodepression, obesity, asthma and puerperal women, among others", needing "redoubling care in measures to prevent coronavirus" [16].

Despite the high rate of positivity, the lethality rate observed in the municipality of Sobral (1.8%) was lower than that of the state of Ceará (5.8%) [15] and Brazil (6.7%) [16]. It is noted, therefore, that the state and country lethality rates are, respectively, 322% and 373% above that registered by the municipality. The lethality rate of Covid-19 in Sobral is still lower than that registered in other countries, such as France (14.0%), United Kingdom (13.7%), Italy (13.5%), Spain (10.2%), Iran (6.3%), China (5.6%), USA (5.6%), Germany (3.8%), Turkey (2.5%) and the World (6.9%); and higher only in Russia (0.9%) [17].

Both in the municipality of Sobral and in the state of Ceará [18] there was a predominance of cases of Covid-19 in women, corroborating a study carried out in the main district of Chongqing, adjacent to the west of Hubei province, which pointed to 50.7% of infections in female persons [19]. On the other hand, a study with the initial cases of Wuhan showed a predominance of males (68.0%) and a higher probability of infection among men, especially those with comorbidities [5].

Both the municipality of Sobral and the state of Ceará presented a high frequency of cases in young adults, with a low occurrence in elderly people, considered a risk group, even if they do not have other associated health problems [18]. The average age observed in Sobral (39.12 ± 18.46 years) was lower than that recorded in Wuhan (55.5 years) [5] and Chongqing (47 years), which registered only 2.9% of cases in children under 12 years [17,18].

The association between increasing age and the greater probability of occurrence of symptoms, notes in this study, corroborates a study carried out in the Northern region of Brazil, which concluded that the cost of hospital services, throughout Brazil, tends to increase with age, especially from 50 years old [20]. Still, a study on the characteristic of coagulation function in 303 patients with Covid-19, identified that the group with an average age of 50 years old, presented mild characteristics, while the group with an average age of 65 years old, presented severe characteristics [21].

Most of the people diagnosed with Covid-19 in Sobral worked in the service sector, a group with greater exposure to the risk of contamination and illness, due to its characteristics of direct service to the public [22]. During the pandemic period, the service sector has been affected worldwide, due to the attempt to mitigate the disease, prevent serious cases and deaths, and contain a collapse in health systems. With social isolation, only essential services have been maintained.

In Sobral, the various economic sectors had their activities suspended in order to reinforce social isolation and, consequently, the mitigation of Covid-19. The pandemic imposes important political, scientific and public health challenges on countries [23], in addition to economic, financial and work-related impacts. In Wuhan, at the beginning of the outbreak, 64.0% of those infected were self-employed (self-employed), 19.0% were retired, 15.0% employed and 2.0% worked in agriculture [5].

Another important aspect is the contamination of workers in the health sector. While worldwide it is recommended that the population stay at home, health workers are at the forefront of combating the new coronavirus, in the clinical management of cases, and are exposed to the virus, under occupational risks of illness and death. In China, more than 3,300 health workers were infected by the beginning of March and at least 22 had died. In Italy, 20.0% of health professionals were infected and some died [24].

It is noteworthy that 7.3% of the workers diagnosed with Covid-19 were nursing professionals, with 5.5% being nurses and 1.8% nursing technicians. According to data from the Nursing Observatory, of the Federal Nursing Council (COFEN), on April 23, Brazil registered 6,807 nursing professionals with Covid-19 and 58 deaths. Contamination and deaths of professionals occur, above all, and due to overload and precarious working conditions and difficulty in accessing Personal Protective Equipment (PPE), such as a surgical mask and N95, cloak/apron, glasses or mask for eye protection, among others [25,26].

According to an editorial by The Lancet as the pandemic accelerates, access to PPE for healthcare professionals becomes an important concern. Although many countries prioritize health teams, there is a shortage of PPE in health facilities, which means that professionals serve users who may be infected, without using PPE or with equipment that does

not meet the minimum safety requirements. In addition to personal risk, health professionals still carry the fear of contaminating their family members [24].

The failure to protect health professionals has contributed to the spread of the disease, starting with health services [27]. As an aggravating factor, Brazil also has the “undersizing of teams and maintenance of professionals who are part of the groups at greatest risk in the front line of care” [28].

As for hospitalization, the percentage observed in the municipality of Sobral (10.0%) is close to that of the state of Ceará, which admitted 11.5% of the total number of diagnosed people [15] and below the percentage of Brazil (18.8%) [16]. It is evident, therefore, that the interiorization of the Covid-19 pandemic in the state of Ceará demands “contingency measures aimed at the distribution of specific intensive care beds for cases of Covid-19, to meet the disease demand” [29].

He pointed out that all hospitalized patients had difficulty breathing, 91% had a fever, 81.8% cough, 36.4% sore throat, 18.9% diarrhea, 18.0% myalgia and 18.0% had Diabetes Mellitus. In the state of Ceará, the main signs and symptoms of those hospitalized for Covid-19 were: fever (86.6%), cough (83.7%), dyspnea (78.1%) and respiratory distress (59.5%), in addition to 81.0% presenting some chronic disease, being 31.2% cardiovascular disease, 25.2% Diabetes Mellitus, 6.0% chronic kidney disease and 4.4% with lung diseases [15].

In Chongqing, China, the common symptoms of the disease were cough (50.7%), fever (47.1%) and fatigue (14.0%) [19]. And a multi-center study in two hospitals in Wuhan found that 48.0% of patients had comorbidities, such as Systemic Arterial Hypertension (30.0%), Diabetes Mellitus (19.0%) and coronary heart disease (8.0%) [30].

Regarding the type of diagnostic test, in the municipality of Sobral, the use of the rapid test

stood out (64.5%), contrasting the reality of Wuhan, who used the RT-PCR to diagnose all cases of Covid-19 [5]. In Brazil, the Ministry of Health advises that the diagnosis of respiratory viruses, including SARS-CoV-2, be carried out using RT-PCR, according to the Charité protocol. However, it suggests that the effectiveness of the diagnosis depends on “epidemiological parameters and availability of tests”, in addition to observing the characteristics of each type of test (molecular and serological) [18].

Rapid tests are described as more advantageous for the detection of SARS-CoV-2 due to the quick detection and result, in addition to the low cost, although they suffer from low sensitivity. However, the incorporation of gold-labeled colloidal immunoglobulin G (IgG) as a detection reagent is an approach that may increase the sensitivity of rapid antigen tests for respiratory viruses [31]. A review study showed that immunochromatographic fluorescence tests are accurate, fast, early and simple for nucleocapsid protein from SARS-CoV-2, and consequent diagnosis of Covid-19 [32].

In this context, it is understood that the expansion of the testing capacity is fundamental to produce information and indicators necessary to direct actions and to support strategies to fight the pandemic, such as the adoption or suspension of socioeconomic activities and the end of social isolation [33].

It is known that the testing of symptomatic people and their contacts represents a great symbolism in the face of the pandemic, as it allows the early identification of cases and favors the mitigation of transmission, especially the community, in addition to contributing to the planning of actions and the availability of hospital beds (clinical and ICU), by health service managers. In view of this, Brazil still needs to move forward in testing symptomatic and communicating individuals, and this requires political decision, mobilizing the population to contribute to isolation and greater investments in the acquisition of tests, especially rapid tests,

to facilitate the diagnosis of Covid-19 in remote regions of the country.

Finally, it is highlighted that, despite the data already available, the evolution of the epidemic in Brazil is still uncertain and its severity will depend on the capacity of responses by the political and health authorities [27]. As it is one of the greatest global health challenges of this century, the Covid-19 pandemic can only be overcome with inter-sectoral government actions, with the support of the private initiative, aimed at stopping the spread of the virus and preserving the lives of thousands of citizens [33].

## Conclusion

The study showed that, when affected by the new Coronavirus, older people are more prone to the development of fever, cough and sore throat, than younger people; and that men and women seem to be equally susceptible to these prominent symptoms. The professions / occupations most affected by Covid-19 are related to the service sector, classified as essential during the pandemic, and which provide direct service to the public, with emphasis on workers in the health sector.

These data allow an early assessment of the epidemiological and clinical characteristics of Covid-19 in the city, so that public managers can adopt the appropriate measures for the mitigation and management of cases. And, associated with the global estimates, the results of the study may provide subsidies for Covid-19 prevention, control and clinical management actions.

However, future studies are needed to investigate information from a larger number of people and address a greater number of variables related to Covid-19, contributing to a better understanding of the context surrounding the new coronavirus pandemic.

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