Preliminary epidemiological study of the COVID-19 pandemic in Piauí, Brazil

Estudo epidemiológico preliminar da pandemia de COVID-19 no Piauí, Brasil

Estudio epidemiológico preliminar de la pandemia COVID-19 en Piauí, Brasil

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ABSTRACT

Introduction: The novel Coronavirus is the pathogen of COVID-19 or Severe Acute Respiratory Syndrome (SARS-CoV-2), whose more common symptoms are fever, dry cough and dyspnea. This study aimed to analyze the epidemiological profile of all COVID-19 confirmed cases in the state of Piauí. **Outline**: Descriptive epidemiological study, as of data concerning to the confirmed cases collected in the epidemiological panel of Piauí with the following variables of study: total of cases, gender, age range, comorbidities associated to the deaths of people by COVID-19, occupation rate of the hospital and UCI beds in the state of Piauí. **Results**: The COVID-19 cases are of mainly occurrence in adults in the age range of 30 to 49, of the gender female. The deaths by the disease presented higher concentration in the elderly with associated comorbidities. More than 60% of the UCI beds are occupied by patients affected by the disease. **Implications**: The data about the COVID-19 in Piauí are quite of alarming, with an elevated number of contaminated persons. It is necessary to implement strategies for preventing the disease, to keep the measures of social isolation and to ensure qualified care to the affected ones, aiming to keep COVID-19 under control.

DESCRIPTORS

Coronavirus; Pandemics; Epidemiology; Public Health.

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INTRODUCTION

The COVID-19 is an infectious disease caused by the novel coronavirus, counting on a parcel of either asymptomatic or olygosymptomatic and another parcel which requires hospital cares with possibility of evolution for respiratory insufficiency and death. The disease was recognized by the World Health Organization on January 12, 2020 and, in a short time, had become a pandemic, striking more than 180 countries. The first case of the disease was recognized in China on December 31, 2019. In Brazil and in Piauí, the first cases of the disease were notified in February and March 2020, respectively.[1-3]

The COVID-19 manifests as upper and lower respiratory tract infection, showing mild symptoms as cough and sneezing, evolving with fever, shortness of breath and, in its serious form, shows pneumonia. The incubation period ranges from 1 to 14 days, depending on individual's immune system. The disease causes a series of complications in patients which show associated comorbities.[4]

The COVID-19 pandemic brought with it a series of concerns and changes in worldwide health care systems, being, therefore, a current and quite of relevant thematic for the society. This study has as goal to analyze the epidemiological profile of all COVID-19 confirmed cases in the state of Piauí.

METHOD

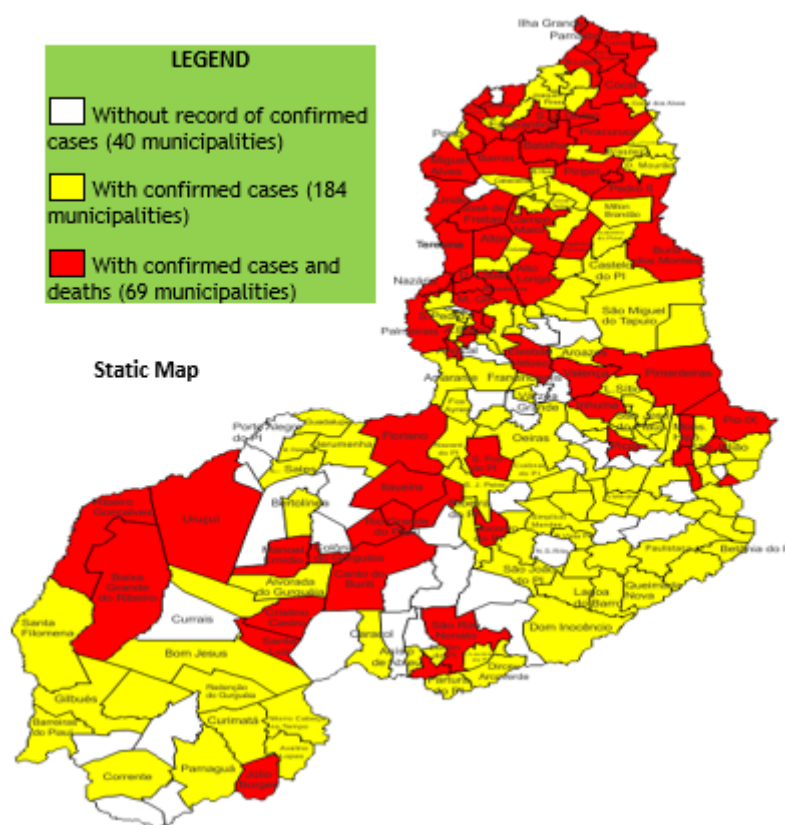The study is of transversal kind, descriptive and retrospective. The collection of secondary data was performed by means of the compiled of information of the Health State Secretary of Piauí (SESAPI), available in the COVID-19 Panel of Teresina-PI with free and online access. The collected data comprises the cases notified until June 22, 2020.

The study population was composed by the COVID-19 affected individuals in the state of Piauí. There were included all the data of confirmed cases, as well as deaths caused by the disease ever since its emergence until the day June 22, 2020. The data collection was performed on June 22, 2020. For obtaining the epidemiological profile of the cases in Piauí, the following variables were analyzed: total of cases, gender, age range, comorbidities associated to the people's deaths by COVID-19, occupation rate of hospital and UCI beds in the state of Piauí.

The data analysis was carried out through the software Microsoft Excel™, with statistical analysis by means of absolute values and percentages, with posterior construction of graphs. The study waives submission to the Research Ethics Committee as these are publicly available data, in public domain, by SESAPI, in the COVID-19 Panel of Teresina-PI. Yet, all ethical aspects established by Resolution 466, of December 12, 2012, were duly respected.

RESULTS

The Figure 1 illustrates the map of the State of Piauí, evidencing the municipalities with COVID-19 confirmed cases and deaths by the disease. It is notably that the largest concentration of cases is in the north of the state. Few municipalities have not reported COVID-19 cases yet.

Figure 1 – Map with Confirmed Cases and Deaths per Municipality. Piauí, Brazil, 2020.

Source: COVID-19 Teresina Panel, SESAPI, 2020.

The Table 1 shows the profile of the COVID-19 confirmed cases in the state of Piauí with highlight for cases of the disease in the age range of 30 to 39 (24.61%). The age range of 40 t0 49 occupies the second place and the age range with the lowest index of infection is the one of 0 to 9, totalizing 2.95%. The female gender shows 52.4% of the confirmed cases of infection by COVID-19 in the state.

Table 1 – COVID-19 confirmed cases by age range and gender. Piauí, Brazil, 2020. (N=15,269).

Variable		n(%)	TOTAL OF CASES
Age range	0 to 9 years old	2.95%	100%
	10 to 19 years old	4.83%	
	20 to 29 years old	17.28%	
	30 to 39 years old	24.61%	
	40 to 49 years old	18.59%	
	50 to 59 years old	14.41%	
	60 to 69 years old	8.63%	
	70 to 79 years old	5.45%	
	80 years old and over	3.25%	
Sex	Male	47.60%	100%
	Female	52.40%	

Source: COVID-19 Teresina Panel, SESAPI, 2020.

The Table 2 demonstrates the deaths by COVID-19 in the state of Piauí. The age range of 80 and over concentrates the higher number of cases (28.28%), followed by the age range of 70 to 79

(27.5%). The age range with the fewest number of deaths is the one of 0 to 9 (0.19%). The gender male

shows 61.4% of the confirmed deaths by COVID-19 in the state.

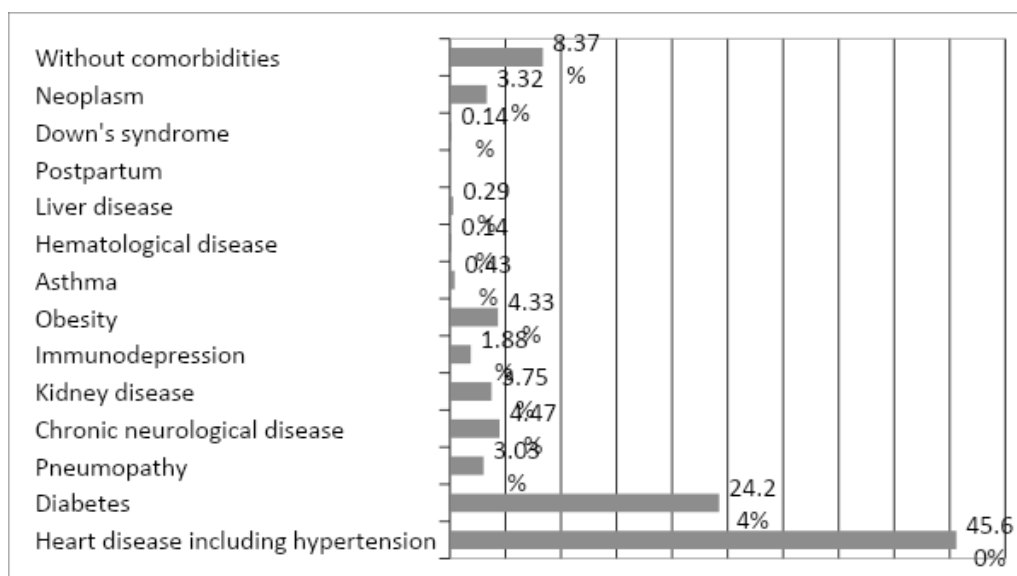**Table 2** – COVID-19 confirmed death cases by age range, gender. Piauí, Brazil, 2020. (N=517).

Variable		n(%)	TOTAL OF CASES
Age range	0 to 9 years old	0.19%	100%
	10 to 19 years old	0.37%	
	20 to 29 years old	1.69%	
	30 to 39 years old	3.37%	
	40 to 49 years old	7.30%	
	50 to 59 years old	11.99%	
	60 to 69 years old	19.66%	
	70 to 79 years old	27.15%	
	80 years old and over	28.28%	
Sex	Male	61.40%	100%
	Female	38.60%	

Source: COVID-19 Teresina Panel, SESAPI, 2020.

The Chart 1 shows the distribution of the comorbidities and of risk factors in people which had confirmed death by COVID-19. The most common comorbidity among the deaths was the cardiopathy, including Systemic Arterial Hypertension (45.60%), followed by Diabetes Mellitus (24.24%). A percentage of 8.37% of the deaths was of people without associated comorbidities.

Chart 1 – Frequency of the comorbidities or risk factors among the confirmed deaths in Piauí. Piauí, Brazil, 2020. (N=393).

Source: COVID-19 Teresina Panel, SESAPI, 2020.

The rate of occupation of UCI beds of the state of Piauí, evidencing an occupation of 71% of the beds by hospital-interned patients because of COVID-19, what constitutes an alarming datum. In relation to the hospital beds of the state of Piauí, those are with occupation of 50% of the beds by hospital-interned patients because of COVID-19.

DISCUSSION

It is important to report that these numbers can be higher, considering that the data can have limitations of the sorts: underreporting, problems related to health information systems, the scarcity of tests for mass diagnosis at the beginning of the pandemic. The largest number of COVID-19 cases in the state of Piauí is in adults on the age range of 30 to 49, individuals which can be asymptomatic, hampering disease tracking, with consequent virus dissemination. This makes control of COVID-19 incredibly challenging for the health authorities.

The deaths due COVID-19 are higher in the elderly ones which have associated comorbidities, what can be explained by the fact that the aging makes the seniors more susceptible to complications. Such fact is worrying not only in the state of Piauí but, also, in Brazil and in the world.[5] The metabolic changes in the seniors are related to the low immunity, seeing that the T and B cells do not have a good performance due to ageing, with concomitant larger production of type 2 cytokines. The high numbers of deaths among seniors are usual all around the world, if these ones show associated comorbidities, the possibility of complication and death is bigger.[6-8]

The articulations between the networks of health care in the state have important factor, since speedily there were opened field hospital which stay at constant adaptation, however, the health situation is not ideal. With the opening of new clinic and UCI beds, besides of the constant health-staff training, it has been observed great effort by local health authorities in the state. Although the number of UCI beds had been duplicated in the state, there still have situations of waiting for hospital interment vacancy.[9-10]

It can be observed that the networks of emergency care and primary care are relatively resolute in activities of tracking the disease. Also, there were acquired a lot of intensive life support equipment, as mechanical ventilators, beyond of the increasing in the number ambulances for transportation of suspect and confirmed cases.[11-13]

Ahead of COVID-19 pandemic, the respect to the standard of prevention of the disease are essential, it is necessary the Society to understand how disease transmission occurs and, thus, to have more consciousness that the use protection masks, correct hand hygiene, and avoiding crowded locations are primordial measures to break the chain of transmissibility of the virus.[13]

CONCLUSION

It is notorious that the data about the COVID-19 are quite of worrisome, with an elevated index of contaminated persons and a lot of deaths by the disease. The age range of 30 to 49 is the one with the highest number of confirmed cases of the disease. However, the age range that concentrates the highest number of deaths comprises the senior citizens with comorbidities. It is necessary to increase the strategies for preventing the disease, to increment the tracking of new disease cases aiming to start the treatment in an initial stage of the disease, enhancing the control of the evolution of disease cases. More important than treating is avoiding the disease setting in, being the social isolation measures a determining factor in the management of the COVID-19 pandemic.

RESUMO

Introdução: O novo Coronavírus é o agente patogênico da COVID-19 ou Síndrome Respiratória Aguda grave (SARS-CoV-2), cujos sintomas mais comuns são febre, tosse seca e dispneia. Este estudo objetivou analisar o perfil epidemiológico de todos os casos confirmados de COVID-19 no estado do Piauí. **Delineamento**: Estudo epidemiológico descritivo, a partir de dados relativos aos casos confirmados coletados no painel epidemiológico do Piauí com as seguintes variáveis de estudo: total de casos, sexo, faixa etária, comorbidades associadas aos óbitos de pessoas por COVID-19, taxa de ocupação dos leitos clínicos e de UTI no estado do Piauí. **Resultados**: Os casos de COVID-19 são predominantes em adultos com faixa etária de 30-49 anos, do sexo feminino. Os óbitos pela doença apresentaram maior concentração em idosos com comorbidades associadas. Mais de 60% dos leitos de UTI estão ocupados por pacientes acometidos pela doença. **Implicações**: Os dados sobre a COVID-19 no Piauí são muito preocupantes, com um elevado número de pessoas contaminadas. É necessário implementar estratégias de prevenção da

doença, manter as medidas de isolamento social e assegurar atendimento qualificado aos doentes, a fim de manter controle sobre a COVID-19.

DESCRITORES

Coronavirus; Pandemia; Epidemiologia; Saúde Pública.

RESUMEN

Introducción: El nuevo Coronavirus es el patógeno de COVID-19 o Síndrome Respiratorio Agudo Severo (SARS-CoV-2), cuyos síntomas más comunes son fiebre, tos seca y disnea. Este estudio tuvo como objetivo analizar el perfil epidemiológico de todos los casos confirmados de COVID-19 en el estado de Piauí. **Delineación**: Estudio epidemiológico descriptivo, basado en datos relacionados con casos confirmados recolectados en el panel epidemiológico de Piauí con las siguientes variables de estudio: casos totales, sexo, grupo de edad, comorbilidades asociadas a las muertes de personas por COVID-19, tasa de ocupación de camas y UCI en el estado de Piauí. **Resultados**: Los casos de COVID-19 son predominantes en adultos de 30 a 49 años, mujeres. Las muertes por la enfermedad mostraron una mayor concentración en los ancianos con comorbilidades asociadas. Más del 60% de las camas de UCI están ocupadas por pacientes afectados por la enfermedad. **Implicaciones**: Los datos sobre COVID-19 en Piauí son muy preocupantes, con un elevado número de personas infectadas. Es necesario implementar estrategias de prevención de enfermedades, mantener medidas de aislamiento social y asegurar una atención calificada a los pacientes, con el fin de mantener el control sobre COVID-19.

DESCRIPTORES

Coronavirus; Pandemias; Epidemiología; Salud Pública.

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COLLABORATIONS

All the authors contributed to work conception or outline; to data collection, analysis and interpretation; to article writing or to its critical review; and to the final version to be published. All the authors agree and take responsibility for the content of this manuscript version to be published.