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KNOWLEDGE OF THE POPULATION OF CEARÁ ABOUT SARS-COV-2 / COVID-19

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ABSTRACT

Objective: to analyze the knowledge of Ceará about the Severe Acute Respiratory Syndrome (SARS-CoV) and Coronavirus (COVID-19). Method: observational research, carried out from March to April 2020. A questionnaire was applied on a digital platform on the website of the School of Public Health of Ceará and disseminated on social media. Research according to resolution 466/12. Results: 565 people participated, mean 35.39 ± 11.56 years, 99.8% claim to know the disease, 94.5% confirm the veracity of the information before passing it on, 98.76% conceptualize it as pandemic, 92.2 % recognize the main preventive measures, 74.34% recognize the symptoms, more than 20% affirm that Basic Health Units, Emergency Care Units and Hospitals are reference services for health care and, 96.8% agree with measures prevention and control. Conclusion: From the information, it was possible to have a feedback on people's knowledge about the virus and thus better decision-making in health.

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INTRODUCTION

The first human coronaviruses were isolated for the first time in 1937. However, it was in 1965 that the virus was described as coronavirus, due to the profile under microscopy, looking like a crown. Most people are infected with common coronaviruses throughout their lives, with young children being the most likely to become infected with the most common type of the virus (Huang *et al*., 2020). Coronavirus (Cov) belongs to the Coronaviridae family and causes a respiratory disease, called Covid-19. Corona Virus Disease (COVID-19) is the disease and not the virus and "19" represents 2019, the year in which it appeared. The World Health Organization (WHO) issued the first alert for the disease on December 31, 2019, after Chinese authorities

reported cases of a "mysterious" pneumonia in the city of Wuhan (Sun *et al*., 2020). In the beginning, the first Chinese patients identified were, for the most part, workers who would have links with a seafood and wild animals market, suggesting that the spread occurred from animals to people. However, there was an increase in the number of patients who, supposedly, had no contact / exposure with the animal market, thus indicating the occurrence of spread from person to person (Rodriguez-Moral *et al*., 2020). Over the years, the virus has been strengthened by mutations in a new coronavirus, a new cause of the disease, called Severe Acute Respiratory-SARS-CoV-2. A new strain of Coronavirus, that is, a virus that is different from Coronavirus (Acute Respiratory Syndrome) and that causes great damage to health (Zhu *et al*., 2020). In March 2020, WHO declared COVID-19 a pandemic, as all continents confirmed cases of contamination (PRIMO *et al*., 2020). Up to April 11th, 2020, approximately 1,709,014 cases have been detected worldwide, with more than 103,536 deaths, demonstrating its transmissibility (basic number of reproduction -R0, estimated between 1.4 to 5.5) and lethality estimated at about 4.1% (Who, 2020). The increase in the number of cases of contamination and death by the coronavirus in China and Europe raised the alert of Brazilian health authorities, causing them to act quickly, in order to avoid the flood of cases in the country and the overload of health services. Thus, on January 22nd, 2020, the Public Health Emergency Operations Center for the new Coronavirus (COE-nCoV) was activated in Brazil, and on January 27th the first suspected case was notified (ANVISA, 2020).

On February 3rd, 2020, the Ministry of Health (MH), through Ordinance MS No. 188, declared a Public Health Emergency of National Importance (ESPIN) due to human infection with the new Coronavirus (SVS, 2020c), however, as of February 21st, no cases had been confirmed. Brazil identified the first case of COVID-19 on February 25th, 2020, in the municipality of São Paulo / SP (ANVISA, 2020). According to international data, until April 20th, 2020, 2,423,470 cases of COVID-19 were confirmed, with 166,041 deaths worldwide (ANVISA, 2020). In Brazil, on the same date, 40,581 cases of COVID-19 were confirmed. The United States of America is the country with the highest number of cases (764,265). And Brazil is the 11th in number of confirmed cases and the 11th in number of deaths (BRASIL, 2020). Efforts to contain the virus are underway in Brazil and worldwide as measures for greater surveillance, rapid identification of suspected cases, followed by transfer and isolation of the individual, rapid diagnosis, screening and monitoring of potential contacts. In line with the discussion of this research, approximately 30% of cases of infections related to health care can be preventable by simple measures, since hand hygiene with water and soap or 70% alcohol are basic, effective and less costly actions (GUEDES *et al*., 2020). The State of Ceará had its first case of COVID-19 confirmed on March 15th, 2020. On that day, the Epidemiological Bulletin of the Ceará Department of Health reported that 9 cases were confirmed, 8 in Fortaleza and 1 in the municipality of Aquiraz. Considering the scenario that occurred in other countries, such as China and Italy, in which preventive measures of social isolation were belatedly instituted, Ceará chose to adopt measures of social isolation as of March 19th, 2020. This determination aims to minimize the impact of COVID 19 on the public health system and, consequently, possible worsening of the health situation and deaths of the population of Ceará (Sesa, 2020). On April 10th, the Secretariat of Health of Ceará, through the IntegraSUS platform, disclosed 67 deaths from Covid-19 and 1,558 confirmed cases. The city of Fortaleza concentrates most of the state's records, reaching 1,366 confirmed cases of the disease. In total, Covid-19 was diagnosed in 53 municipalities in Ceará. Of the deaths, 53 occurred in Fortaleza, while the others occurred in 12 other municipalities: Eusébio (2), Iguatu (2), Aracati (1), Cariús (1), Caucaia (1), Farias Brito (1), Horizonte (1), Itaitinga (1), Jaguaribe (1), Maracanaú (1), Santa Quitéria (1) and Tianguá (1) SESA, 2020).

With the spread of the virus and the action of the state government, there were changes in people's lives, this new routine involves social distance, horizontal isolation and the "stay at home" strategy. Many people, when they stay in their homes, end up using a large part of their time on the internet, both for entertainment and for searching for information on the theme of this study. The internet, more specifically the websites and social networks (Whatsapp, Facebook, Instagram and Twitter and others) have impacted the level of knowledge of the population with the speed of the information. In times of pandemic crisis, correct information is an important ally in fighting the disease. Thus, strategies are needed to ensure access to truthful information through digital channels, which the vast majority of the population accesses, through health communication. In this scenario, the role of the School of Public Health of Ceará Paulo Marcelo Martins Rodrigues stands out, which has been conducting digital communication through educational care for the entire population of Ceará. At the School of Public Health, information technology has been used for educational care in the lines of promotion, rehabilitation, prevention and cure, based on scientific evidence, with easy reach and accessible language. Thus, this study was carried out in order to seek answers to the following research question: what does the population of Ceará know about SARS-CoV-2 / COVID-19 regarding the signs and symptoms of the disease, care in the Health System and control measures?. From the information collected, it was possible to have feedback on people's knowledge about SARS-CoV-2 / COVID-19 and, thus, the best decision making in communication and health education strategies in the State in relation to symptomatic manifestation of the disease, flow of care and control measures. Therefore, the objective was to analyze the knowledge of the population of Ceará about Severe Acute Respiratory Syndrome (SARS-CoV) and Coronavirus (COVID-19).

MATERIALS AND METHODS

An observational research of a quantitative nature was carried out by the Secretariat of Health and School of Public Health of Ceará (ESP) / Brazil Paulo Marcelo Martins Rodrigues, more specifically the Center for Scientific Research, in the period between March and April 2020. The research is characterized as quantitative for resorting to mathematical language to describe the knowledge of the population of Ceará about Severe Acute Respiratory Syndrome (SARS-CoV) and Coronavirus (COVID-19), referring to the symptomatic manifestation of the disease, care flow and control measures.

As a tool for data collection, a questionnaire was used that presented in the first part 11 questions about the participant's socioeconomic profile and, in the second part, 14 specific questions about the population's perception and knowledge about the coronavirus, two of which were subjective and 12 objective. The questions in the second part of the questionnaire

focused on how the population has obtained information about the pandemic and what knowledge it informs about the ways of prevention and care in relation to the disease. The questionnaire was made available through a virtual environment and the answers were given by self-application, due to the demands of the social distance strategy and the high probability of obtaining a larger sample size. The form was anchored on ESP's official website and shared through social media. The sample was selected by convenience, totaling 565 people at the end of the study. The analysis of the questionnaires was performed using descriptive statistics, obtaining the counting of the absolute and relative frequency of the categorical and average data with standard deviation for the age variable. This analysis was performed using the software Statistical Package for the Social Sciences 20.0. The research is in accordance with the ethical precepts of Resolution 466/2012. Project was submitted from the School of Public Health of Ceará, with opinion No. 3,948,100.

RESULTS

565 people participated in the study with an average age of 35.39 ± 11.56 years. Table 1 shows the socioeconomic and demographic characteristics of the study participants. There was a greater participation of women (75.5%). Most are health professionals (50.8%), followed by civil society (49.02). In the category of health professionals, the percentage of greater participation is nurses (12.3%).

Table 1. Socioeconomic and demographic characteristics of the study participants (n = 565), Fortaleza - Ce, Brazil

Participant	n	Percent
Citizen	278	49,2
Health Professional	287	50,8
Sex		
Woman	429	75,9
Occupation area		
Nursing	71	12,3
Physiotherapy	52	9,2
Psychology	24	4,2
Education level		
Specialization	168	29,7
University graduate	162	28,7
Complete high school	92	16,3
Monthly income		
Above 3 minimum wages	259	45,8
1 (one) to 3 (three) minimum wages	227	40,2
Do you live in Ceará?		
Yes	550	97,3
In which municipality of Ceará?		
Fortaleza	384	68
Caucaia	18	3,2
If you live outside Ceará, where?		
Rio Grande do Norte	3	0,5
Minas Gerais	2	0,4
Type of healthcare system you use		
Health insurance	344	60,9
Health Unic System (SUS)	199	35,2

Graduation (29.7%) and specialization (28.7%) were the most prevalent educational levels. Monthly income was more prevalent than 3 minimum wages (45.8%). About 97.3% of respondents live in Ceará, of which 68% are from the city of Fortaleza. Among the participants who do not live in Ceará, the highest percentage of responses was from residents in Rio Grande do Norte (0.5%). When asked about the use of the Health System, 60.9% make use of the health plan. Table 2 presents the results related to the knowledge about the symptomatological manifestation of the disease, the flow of care in the Health System and the pandemic control measures. Regarding knowledge about the theme, 99.8% claim to know the disease, 94.5% when they receive information, confirm whether they are true before passing on, 98.76% conceptualize the current situation of the coronavirus as a pandemic, 92.2% recognize the main preventive measures, 74.34% recognize the main signs and symptoms of the disease, more than 20% affirm that both Basic Health Units, Emergency Care Units and Hospitals are reference services for health care and 96.8 % agree with the prevention and control measures of the State of Ceará.

DISCUSSION

It is important to relate the socioeconomic profile of the research participants with the results found regarding their knowledge about the Severe Acute Respiratory Syndrome (SARS-CoV) and Coronavirus (COVID-19), referring to the symptomatic manifestation of the disease, care flow and the control measures. According to data from the Brazilian Institute of Geography and Statistics (IBGE), in 2018, 60% of Brazilians earned less than 1 (one) minimum wage, but in the Northeast the average income is R $ 619.00 per month, while 86% survey respondents earn more than 1 (one) minimum wage (IBGE, 2018). It was possible to observe the greater participation of women (75.5%) in the research. This may be related to women seeking health care and services more frequently than men and being the majority among health professionals. Men, in general, suffer more from severe and chronic health conditions than women, and also die more than them from the main causes of death. However, although male rates assume a significant weight in the morbidity and mortality profiles, it is observed that the presence of men in health services is less than that of women (TEIXEIRA; CRUZ, 2017). It was identified in the study that most of the participants are trained in the health area (50.8%), presenting some level of knowledge about the coronavirus. Health professionals are one of the groups of vulnerability in relation to the coronavirus, since the number of deaths among health professionals concerns the authorities (SSDF, 2020). Regarding the category in the health area, nurses prevailed (12.3%). It is noteworthy that nurses occupy the second position in the ranking of higher education careers that most generated employment in Brazil. There are several possibilities for entering the market, including outpatient clinics, clinics, industries and hospitals (Guimarães and Felli, 2016). However, it does not guarantee the recognition of the working conditions that determine the various forms of illness they experience, especially in the situation of the pandemic. It is seen in the responses to the form that the majority use health plans (60.9%), in addition to living in the urban area. One of the causes may be less or limited access to the internet in rural areas, as well as lower income. Most of these people with lower incomes use the Unified Health System - SUS. Private health care plans operate in the Brazilian health system, representing yet another factor in generating social inequalities in access to and use of health services, as they cover only a specific portion of the population, in which predominate: people with higher family income, inserted in certain branches of activity in the labor market; people who rate their health status as "very good" or "good"; residents of capitals / metropolitan regions, places where access to the accredited network of service providers and the average number of providers per operator is higher than that observed in

Table 2. Knowledge about the symptomatic manifestation of the disease, flow of care in the Health System and measures to control the pandemic (n = 565), Fortaleza-CE, Brazil

	n	Percent
Know what SARS-COV-2 / COVID-19 is	564	99,8
Confirm the accuracy of information on SARS-COV-2 / COVID-19 before forwarding		
Ministry of Health or State Health Secretariat	534	94,5
Share information right away	31	5,5
How the worldwide spread of the new disease is known		
Epidemic	3	0,53
Pandemic	558	98,76
Recommendations for avoiding SARS-COV-2 / COVID-19		
Agglomerations and contact with people who have returned from abroad, handshake, kisses, etc.	521	92,2
Agglomerations and contact with people who returned from abroad	18	3,2
Recognize the main signs and symptoms of the disease		
Fever, dry cough are common symptoms; sometimes shortness of breath, sore throat, headache and tiredness; diarrhea, sneezing, body aches, malaise, runny nose or stuffy nose are rare symptoms	420	74,34
Fever, headache, tiredness and dry cough are common symptoms; sometimes runny or stuffy nose, sore throat, diarrhea; shortness of breath, sneezing, body aches and malaise are rare symptoms	108	19,12
In the case of signs and symptoms, where to seek care		
Health post, Emergency Care Unit - UPA	127	22,5
Health Center, Emergency Care Unit, Reference Hospital	117	20,7
Agree with measures adopted by the government of the State of Ceará	547	96,8

municipalities with less than 80,000 inhabitants (Albuquerque *et al*., 2008). The fact that the survey was conducted online was important to achieve a greater number of responses in a period of social detachment, but there is a public limitation, since it was restricted to a specific group, the one that has access to the internet. Access and quality of this in Brazil is restricted to the wealthiest. It is also seen that the higher the income and the lower the age, the greater the access (SILVA, 2015). According to the Brazilian Internet Steering Committee (2019), urban regions with 74% of the population are connected to the internet, slightly higher than the average and than rural areas. It is of great concern, because it points to the lack of information on the part of the great mass of people, who do not even have access to the correct information, are in a position to give their opinion before a poll, can follow through some informative medium what is happening here and around the world regarding the Covid-19 pandemic. Most of the participants (94.5%) answered that when they receive information, they confirm that they are true before passing on. One of the concerns to COVID-19 is related to the fight against Fake News, since Brazil is the third country in the world to consume more false news (Recuero; Gruzd, 2019).

The concept of Fake News is today synonymous with misinformation, used freely by news outlets to indicate rumors and false news that circulate mainly on social media. Likewise, there is an immense and varied amount of information qualified by the literature within this concept, comprising both satires, as well as rumors and manufactured news (Tandoc Ling, 2018). At this time, it is essential to adopt good health practices and be aware of the guidelines for health communication in situations of risk. More than providing guidance on the use of masks and hand washing, it is necessary to work on the risk scenario through communication plans designed in conjunction with the media, health professionals, managers / decision makers and the population itself (Brasil, 2020). Although 96.8% of survey participants indicated that they agree with the prevention and control measures adopted by the State of Ceará, which involves horizontal isolation, the state had a rate of 52.8% social isolation in the first week of April, 3rd highest rate among Brazilian states, but still below the 70% required for the action to be more effective (Recuero; Gruzd, 2019). In this scenario, the best prevention and control measures for coronavirus are non-pharmacological ways, which aim to reduce the transmissibility of the virus in the community and delay the progress of the pandemic. In line with the discussion, approximately 30% of cases of infections related to health care can be prevented by simple measures, since hand hygiene with water and soap or alcohol at 70% are basic, effective and less costly actions (Roy *et al*., 2020). Evidence suggests the effectiveness of physical interventions on reducing the spread of respiratory viruses such as hand washing, use of gloves, masks, aprons and / or eye protection, surface disinfection, isolation and infection control measures (Roy *et al*., 2020). Changes in health education practices are necessary, as they are characterized by a centralized, vertical and unidirectional hegemonic model, guided by the dissemination of knowledge. And educational health care in the community is highlighted, replacing merely country-based practices aimed at illness and acting directly in the promotion of care (Abreu *et al*., 2019). Related to the transmission of the infection, in general, it occurs through the air or through contact with infected people, through droplets of saliva and phlegm, disseminated, for example, by sneezing and coughing; touch or handshake. It is possible that contamination also occurs through contact with contaminated objects or surfaces, followed by contact with the mouth, nose or eyes (Huang *et al*., 2020). It is recommended to wash hands frequently with soap and water for at least 20 seconds and, if there is no soap and water, use an alcohol-based hand sanitizer. Avoid close contact with sick people, as well as touching the eyes, nose and mouth with unwashed hands. Stay at home when sick, cover mouth and nose when coughing or sneezing with a tissue and throw it in the trash. And cleaning, disinfecting objects and surfaces that are frequently touched (Zhu *et al*., 2020).

The clinical signs and symptoms of the disease are mainly respiratory, similar to a common cold, such as fever, cough and difficulty breathing. Fever and cough appear in more than 80% of patients, while difficulty in breathing appears in about 30%. The World Health Organization (WHO) warns that only sick people should wear masks. The entity stated that there must be "a rational use of masks" so that there is no shortage for those who need it (Huang *et al*., 2020). Regarding the diagnosis, it can be divided into clinical, laboratory and differential. In clinical diagnosis, the condition resembles flu-like syndrome, however, unlike what is observed in cases of influenza, fever increases and persists for more than three to four days. For laboratory diagnosis, molecular biology exams are performed to detect SARS-CoV-2 viral RNA in respiratory

secretions (Wang *et al*., 2020). In relation to vaccines and medicines, it is emphasized that vaccines and clinical trials are being developed in several countries, such as France, the United States, China, Spain and other Countries, with testing of medicines against ebola and malaria (Khan *et al* ., 2020). All actions and measures to combat COVID-19, in Ceará, continue to be adopted to identify and prevent the virus from spreading in a timely manner, that is, strategies are aimed at preventing this virus from being transmitted from person to person (Sesa, 2020). Thus, it is confirmed the importance of carrying out actions to disseminate preventive measures to young people, through platforms and social networks, as a way of guiding the means of preventing the disease, during the period of social isolation. In China, in addition to preventive measures, they combined changes in population behavior, awareness of the virus and increased personal protective behavior with the use of face masks, social distance, self-isolation when sick (Abreu *et al*., 2019). Care mediated by communication and information has been built in the context of health. To exercise the practice that hosts this object, the population needs to understand its multidimensionality, its changing character and the potential of the digital tools available in the territory by the public policies that permeate the production of this type of care (Roy *et al*., 2020).

Conclusion

In this sense, it is still possible to believe in the possibility that, this large population contingent will be or is already being informed of what is happening in your municipality, state, country and in the rest of the world, through some health professional on duty in your locality. Thus, the dissemination of the research, despite the number of responses reaching 59 municipalities, that is, almost a third of the total territory of Ceará, also, it is imagined that these professionals are taking secure information to the most distant regions and difficult to access by the State, in an attempt to prevent populations. It is noteworthy that, to date, many efforts have been made by managers, health professionals among other categories and institutions to combat and control the pandemic. However, it must be stressed that Education needs to rethink its curricular grades since Elementary School, in the sense of informing, instructing, educating for basic rules of hygiene, health and sociability, as it has also been perceived in large scale, lack of knowledge about the care of oneself and of the other, on the part of many Brazilians, when not adhering to and complying with the recommendations of WHO and the Ministry of Health (MS).

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