



Health conditions and contextual inequalities in quilombola communities in the covid-19 pandemic

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ABSTRACT

Objective: To analyze the vulnerabilities and health conditions in Sergipe quilombola communities during the Covid-19 pandemic. **Method:** Cross-sectional study, with analysis of both the perception of quilombolas about Covid-19 and their socioeconomic, environmental and health conditions. **Results:** The communities presented a relatively adequate infrastructure, with water and electricity supplies coming from the general network. The sewage collection network is incipient in the communities, where 66.96% of the sewage is collected in a rudimentary cesspool, while in the communities of Capela, the cesspool is present in 53.24% of the residences. Some residents still rely on supply by wells or springs located on the property or around the household. In the Alagamar, Terra Dura and Coqueiral communities, schooling is predominantly high; in Aningas and Pirangi, the majority of the population has incomplete elementary education. **Conclusion:** Actions that support and strengthen sanitary conditions, housing and frequent access to treated water for quilombola communities are of paramount importance, especially in times of pandemic.

RESUMO

Objetivo: analisar as vulnerabilidades e as condições de saúde em comunidades quilombolas sergipanas durante a pandemia de Covid-19. **Método:** estudo seccional, com análise tanto da percepção dos quilombolas sobre a Covid-19 quanto de suas condições socioeconômicas, ambientais e de saúde. **Resultados:** as comunidades apresentaram uma infraestrutura relativamente adequada, com fornecimentos de água e energia elétrica provenientes da rede geral. A rede de captação de esgoto é incipiente nas comunidades, onde 66,96% do esgoto é recolhido em fossa rudimentar, enquanto, nas comunidades de Capela, a fossa se apresenta em 53,24% das residências. Alguns moradores ainda dependem de abastecimento por poços ou nascentes localizadas na propriedade ou ao redor do domicílio. Nas comunidades Alagamar, Terra Dura e Coqueiral, a escolaridade é predominantemente alta; já em Aningas e Pirangi, a maioria da população possui ensino fundamental incompleto. **Conclusão:** ações que apoiem e fortaleçam as condições sanitárias, de moradia e acesso frequente à água tratada às comunidades quilombolas são de suma importância, especialmente em tempos de pandemia.

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Introduction

Covid-19, a disease caused by the SARS-CoV-2 Coronavirus, causes severe respiratory syndrome. After initial identification in China in December 2019, a Public Health Emergency of International Importance was declared on January 30th, 2020; and, in March of the same year, it was considered a pandemic (Oliveira et al., 2020).

SARS-CoV-2 can be found in biological samples acquired from various locations in the body of individuals with the disease, and is mainly detected in lower respiratory tract samples. However, the virus has also been found in anal and oral feces and smears, indicating the possibility of SARS-CoV-2 being transmitted via the fecal-oral route (Silva et al., 2020).

The relationship between pandemic and social vulnerability has already been observed in other periods of human history, such as in the cases of the Spanish flu, H1N1 (Swine Flu) and SARS (Severe Acute Respiratory Syndrome), in which it was verified that such inequalities determine the power of transmission and severity of these diseases (Farias, & Leite, 2021).

Among those who are in a situation of vulnerability, it's possible to highlight the quilombolas. These population groups considered vulnerable have a presumption of African ancestry and are related to the resistance to oppression suffered due to Brazilian slavery. After this period, quilombolas began to live in communities far from urban centers, with preserved cultural values and agricultural activities (Bispo et al., 2019).

The socioeconomic and environmental problems related to quilombola communities go beyond issues related to ethnic, social, historical and cultural resistance. Racial discrimination, poverty, territorial tensions, human interference in the landscape and environmental balance, low household income, precarious housing conditions, lack of fixed employment, lack of access to health and education goods and services all play a role in socioeconomic, environmental and health inequalities in quilombola communities (Hora et al., 2021).

Poor access to water and sanitation services contributes to the emergence of enteroparasitic and waterborne infections. In addition, there is the possibility of fecal-oral transmission of Covid-19, which brings us a vigilance and sentinel alert about the likelihood that parasitic infection may cause greater susceptibility or severity of Covid-19 (Silva et al., 2020; Bishop et al., 2019).

Self-reported color and socioeconomic conditions are potential factors that influence the health and well-being of these communities (Hora et al., 2021). Although the SARS-CoV-2 virus does not have contagious selectivity, the consequences of infection will be felt in unequal ways according to the socioeconomic, environmental and health aspects that involve each population (Estrela et al., 2020).

Therefore, this study aims to analyze the vulnerabilities and health conditions in Sergipe quilombola communities during the Covid-19 pandemic. To this end, the following

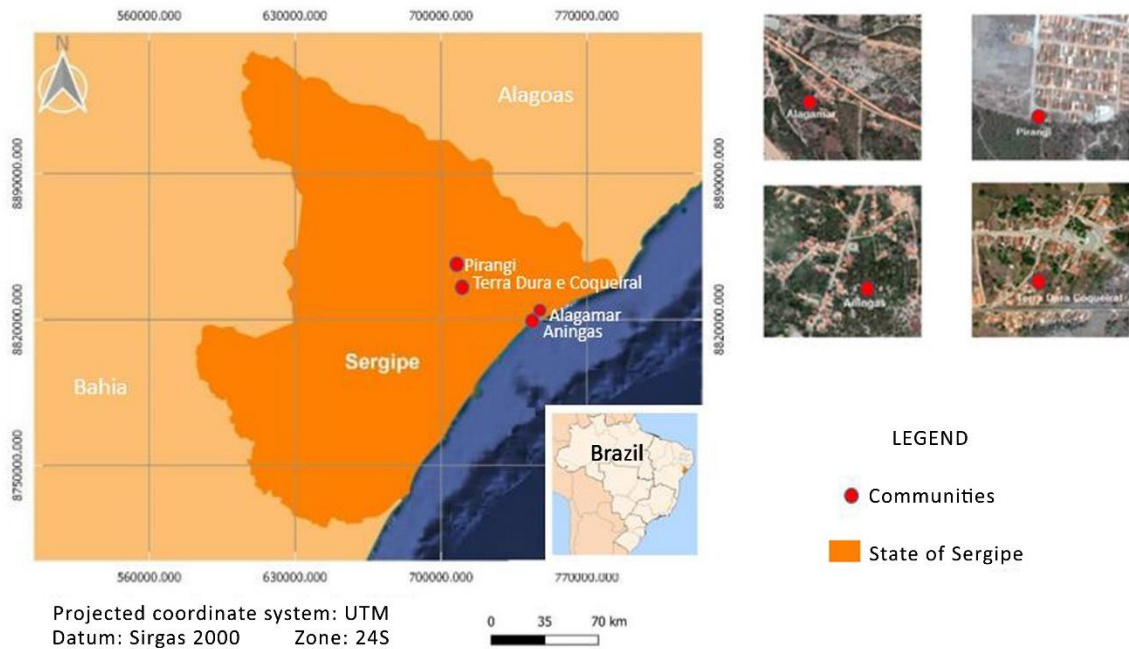
guiding question was asked: What were the vulnerabilities and health conditions of the Sergipe quilombola communities during the Covid-19 pandemic?

Methods

This is a cross-sectional study with a quantitative approach, analyzing both the perception of quilombolas about Covid-19 and their socioeconomic, environmental and health conditions. The interviews lasted an average of 20 minutes and were conducted from March to August 2021, in the quilombola communities of Alagamar, Aningas, Terra Dura and Coqueiral and Pirangi, located in the state of Sergipe, Northeast Region, Brazil.

Figure 1

Location of quilombolas communities Alagamar, Aningas, Terra Dura and Coqueiral, Sergipe, 2021.



For the sample calculation, we used the number of families registered as quilombolas in each community, and the error of 0.05 and the confidence level of 95% were considered. The number of participants in the minimum sample was 207 with an increase of 20% (for possible losses or refusals), resulting in a sample of 248 individuals. However, due to the community's interest in participating in the research, the sample totaled 254 people. One individual per family, aged 18 years or older, was selected in each household to answer the semi-structured form, standardized and validated by specialists who have knowledge and experience with quilombola communities.

The analysis of the information in the questionnaire proceeded through the construction of a database, with the aid of software Statistica 7.0 (Stat Soft Inc.) and BioEstat 5.0 (Fundação Mamirauá). The Mann-Whitney U test was applied to verify the difference between the ages of the individuals in each community. The G test was used to verify differences between the proportions of the frequencies of the variables studied, being used between the quilombola communities belonging to the same county and between the counties, unifying the communities (Tables 1 to 4). The tests were applied adopting an alpha of 5%.

The study was submitted to the Research Ethics Committee, according to the Certificate of Presentation for Ethical Appreciation (CAAE) 37888620.7.0000.5371, and obtained approval.

Results

In 2021, for all four quilombola communities studied, 254 interviews were conducted with an average duration of 20 minutes, with adults between 18 and 89 years old. Most participants were female (81%), single (35.5%), self-declared mulatto (60.6%) and unemployed in the formal sphere (46.1%). The predominant level of education is incomplete elementary school (49.6%), and 79.8% of the quilombolas reported knowing how to read and write.

The communities of Alagamar (Pirambu) and Terra Dura and Coqueiral (Capela) are similar in several sociodemographic aspects, and in both communities, the average ages are lower than those of the communities of Aningas and Pirangi (Table I). Another aspect to consider is the level of education, which is higher and more homogeneous in the Alagamar and Terra Dura and Coqueiral communities, while in the communities of Aningas and Pirangi, approximately 70% of the population have incomplete elementary education (Table I). Still in relation to the similarities between the communities of Alagamar and Terra Dura and Coqueiral, both have a high gender ratio, with a predominance of females (1:6,18 and 1:7,23 respectively - $p=0,7219$) in relation to the communities of Aninga and Pirangi (1:1,77 and 1:2,20 respectively - $p=0,6720$).

Table 1.
Sociodemographic aspects of quilombola communities in the counties of Pirambu and Capela, Sergipe.

Communities	Counties			
	Pirambu		Capela	
	Alagamar (N = 79)	Aningas (N = 36)	Pirangi (N = 32)	Terra Dura and Coqueiral (N = 107)
Age (Average ± Standard deviation)	41,38 ± 15,71	46,94 ± 11,45	46,47 ± 18,84	38,84 ± 13,56
p ¹	0,0305		0,0403	
Schooling				
FI	45,57%	69,44%	68,75%	40,19%
F1C / F2I	21,52%	11,11%	9,38%	20,56%
FC / MI	10,13%	13,89%	6,25%	14,02%
MC / SI	13,92%	5,56%	15,63%	12,15%
SC	8,86%	-	-	13,08%
p ²	0,0220		0,0050	
Gender				
Male	13,92%	36,11%	31,25%	12,15%
Female	86,08%	63,89%	68,75%	87,85%
p ²	0,0084		0,0159	
Color				
Yellow	2,53%	2,78%	-	8,41%
White	2,53%	5,56%	-	2,80%
Indigenous	1,27%	-	3,13%	-
Brown	67,09%	83,33%	31,25%	56,07%
Black	26,58%	8,33%	65,63%	32,71%
p ²	0,1416		0,0010	
Occupation				
Retired	7,59%	2,78%	15,63%	5,61%
Autonomous	20,25%	33,33%	53,13%	13,08%
Informal	22,78%	25,00%	9,38%	10,28%
With employment	5,06%	-	6,25%	12,15%
Does not work	44,30%	38,89%	15,63%	58,88%
p ²	0,2020		< 0,0001	

Source:

¹ Mann-Whitney U Test; ² G Test.

FI – Incomplete Elementary School; F1C/F2I – Complete Elementary I / Incomplete Elementary II; FC/MI – Complete Elementary School / Incomplete High School; MC/SI – Incomplete High School / Incomplete Superior; SC – Superior Complete

The self-declared brown color predominated in three of the four quilombola communities (Alagamar, Aningas and Terra Dura and Coqueiral), while in the community of Pirangi, black people prevailed, and there was no self-declaration of white and yellow colors (Table I). Also in the Pirangi community, there was a concentration of self-employed professionals (53.13%) in relation to the work occupation; in the other communities, on the other hand, domestic services performed mostly by the female population prevailed.

According to the answers to the questionnaire, all quilombola communities had relatively adequate infrastructure, with most of their own residences (paid off or in the process of being discharged), with two or more rooms and with water and electricity supplies from the general network.

It was observed that the residences of the population analyzed are located in paved or paved streets (69.4%), with water supply for domestic purposes coming from the general distribution network (88.7%). Most individuals live in a house built with bricks, 88% of which consist of several rooms, and 7% represent single-room dwellings used in various domestic functions, such as sleeping and cooking. In addition to this housing profile, it's noteworthy that 5% of the quilombolas still live in structured housing with tarpaulins, wood and cardboard.

The communities, in a way, receive services provided by the county in which they are located, with the destination of garbage being the aspect that presented the greatest disparities between communities. The flow of solid and liquid waste is mainly through rudimentary cesspools (60%); and garbage, burned on the property (41.3%).

In the community of Alagamar (Pirambu), most of the garbage is burned on the land itself or in vacant lots near the residences. In the community of Aningas, also in Pirambu, part of the garbage is collected by direct collection or in a collective dumpster, and part is burned on the grounds. In the communities of Pirangi and Terra Dura and Coqueiral, both in the county of Capela, garbage is mostly collected in the form of direct collection.

Although most of the residences in the four communities have access to the water network, some residents still depend on supply by wells or springs located on the property or in a peri-domiciliary area.

The rudimentary cesspool is present in most of the residences of three of the four communities (Alagamar, Aningas and Terra Dura and Coqueiral), and in the community of Pirangi, the septic tank prevails. However, some residents still use sewage dumps directly into open ditches and rivers in all communities. The sewage collection network is incipient in the communities and does not exist in the community of Aningas (Table II).

Table 2
Environmental and infrastructure aspects of quilombola communities in the counties of Pirambu and Capela, Sergipe.

Communities	Counties			
	Pirambu		Capela	
	Alagamar (N = 79)	Aningas (N = 36)	Pirangi (N = 32)	Terra Dura and Coqueiral (N = 107)
Residence				
Own paid	89,87%	91,67%	50,00%	85,98%
Own unpaid	3,80%	0,00	46,88%	1,87%
Rented	-	-	-	0,93%
Assigned by the employer	-	-	-	0,93%
Otherwise ceded	6,33%	8,33%	3,13%	10,28%
p ¹	0,6626		< 0,0001	
Type of house				
Cabin (canvas)	-	-	3,13%	10,28%
One room	-	8,33%	46,88%	-
Two or more rooms	100,00%	88,89%	50,00%	89,72%
p ¹	0,0264		< 0,0001	
Access to water				
General network	89,87%	72,22%	96,88%	89,72%
Well or spring on the property	7,59%	11,11%	-	0,93%
Well or spring outside the property	1,27%	13,89%	3,13%	9,35%
Others	1,27%	2,78%	-	-
p ¹	0,0361		0,5463	
Destination of sewage				
Rudimentary pit	64,56%	72,22%	37,50%	57,94%
Septic pit	30,38%	19,44%	56,25%	32,71%
Sewage system	3,80%	-	6,25%	5,61%
Trench/River	1,27%	8,33%	-	3,74%
p ¹	0,0767		0,0583	
Destination of garbage				
Direct collection	1,27%	27,78%	43,75%	60,75%
Bucket collection	6,33%	22,22%	46,88%	15,89%
Burnt	86,08%	50,00%	9,38%	14,95%
Vacant land/patio	5,06%	-	-	8,41%
Buried	1,27%	-	-	-
p ¹	< 0,0001		0,0040	
Access to electricity				
General network	100,00%	100,00%	65,63%	95,33%

No access	-	-	34,38%	4,67%
p ¹	-	-	< 0,0001	

Source: ¹G Test.

Regarding food hygiene habits, 63.5% of the quilombolas stated that they did not have the habit of eating vegetables and fruits without washing. Most quilombolas (85.1%) have already had contact with permanent water collections (river, stream or lagoon), especially due to leisure, washing clothes and fishing.

Regarding health conditions, 32% reported diarrhea; 19% intestinal infections; and 5.5% skin diseases. Among the chronic non-communicable diseases (NCDs), 29.4% reported being hypertensive; and 10.2% were diabetic, with a concomitance of 5.5% of the two NCDs. Approximately 60% of the research subjects had access to the diagnostic test for Covid-19, 51% with rapid test and 8.6% with RT-PCR. Among individuals who were tested for Covid-19, only a minority reported testing positive (12%). In prevention, 96.4% reported the use of masks; and 73.4%, the use of alcohol gel and hand washing with soap and water.

In general, the prevalence of the disease was higher in the communities of the county of Pirambu (13.91%), which present 66.96% of the sewage collected in a rudimentary cesspool, while in the communities of the county of Capela, the rudimentary cesspool is present in 53.24% of the households (p<0,0001), with Covid-19 prevalence of 10,79% (Tabela II).

The most common symptoms related to Covid-19 reported by respondents were: headache (66.9%), cough (41.1%), body pain (31.5%) and tiredness (25.8%). Table 3 shows the signs and symptoms presented by each quilombola community.

Table 3

Signs and symptoms related to Covid-19 in the quilombola communities of the counties of Pirambu and Capela, Sergipe.

Communities	Counties			
	Pirambu		Capela	
	Alagamar (N = 79)	Aningas (N = 36)	Pirangi (N = 32)	Terra Dura and Coqueiral (N = 107)
Signs and symptoms presented in 2021				
Cough	36,71%	41,67%	43,75%	44,86%
Shortness of breath	8,86%	22,22%	12,50%	9,35%
Tiredness	27,85%	44,44%	21,88%	21,50%
Reported fever	17,72%	22,22%	37,50%	16,82%
Sore throat	18,99%	33,33%	25,00%	36,45%
Nasal congestion	24,05%	27,78%	21,88%	32,71%
Headache	50,63%	72,22%	65,63%	78,50%
Pain in the body	22,78%	41,67%	43,75%	9,35%

Difficulty breathing	6,33%	16,67%	-	9,35%
Diarrhoea	12,66%	30,56%	15,63%	20,56%
Didn't present	17,72%	11,11%	18,75%	7,48%
p¹	0,6550		0,0013	
Testing for Covid-19				
Yes, quick test	60,76%	22,22%	12,50%	64,49%
Yes, in the laboratory	3,80%	11,11%	15,63%	9,35%
Didn't do the test	35,44%	66,67%	71,88%	26,17%
p¹	0,0004		<0,0001	
Test result for Covid-19				
Positive	15,19%	11,11%	9,38%	11,21%
Negative	40,51%	19,44%	6,25%	44,86%
Didn't receive the result	8,86%	2,78%	12,50%	17,76%
Didn't do the test	35,44%	66,67%	71,88%	26,17%
p¹	0,0152		<0,0001	
Risk factors related to Covid-19				
Hypertension	34,18%	36,11%	40,63%	20,56%
Diabetes	8,86%	16,67%	31,25%	2,80%
Age over 60 years	10,13%	11,11%	15,63%	10,28%
Cardiopathy	2,53%	8,33%	3,13%	0,93%
Respiratory disease	3,80%	5,56%	-	1,87%
Sickle-cell anemia	-	-	3,13%	3,74%
Doesn't have	56,96%	44,44%	21,88%	59,81%
p¹	0,6912		<0,0001	

Source: ¹G Test.

The quilombolas in the 33 to 48 year-old age group had more access to testing for Covid-19, and most of the tests were of the rapid type (immunochromatographic assays) of SARS CoV-2. With the increase in age, there was a trend of reduction in testing.

In case of illness, the majority of quilombolas (92.5%) seek a Basic Health Unit (BHU). To improve the environmental and sanitary situation of the communities, the interviewees highlighted the following items: improvement of sanitary facilities, implementation of programs that contribute to the reduction of river pollution, improvement of garbage collection and availability of access to drinking water.

Discussion

Low schooling in quilombola communities, expressed basically by incomplete elementary education, was also evidenced in other studies with quilombola population (Pauli et al., 2019); and is inversely associated with proper care of one's own health.

In the four quilombola communities, there was a deficiency in access to basic sanitation services, garbage collection and treatment for the consumption of drinking water. The habit of not proceeding to any type of treatment of drinking water influences the increased risk of ingesting water contaminated by pathogenic organisms, as the scarcity of treated water establishes a favorable environment for the transmission of parasitic diseases (Rosine et al., 2018).

The rudimentary cesspool and the bathroom at the bottom of the yard are often used in quilombola communities. The disposal of garbage occurs mainly by burning in the yard, because, due to the location and irregularity in the collection of garbage by cleaning services, the interviewees choose this option. A similar result was found in Pará, where 76.9% of the quilombolas burn the waste produced (Figueiredo et al., 2019).

Rural quilombola communities generally have a deficit in basic sanitation, use artesian wells to drink water and pits to dispose of waste. These attitudes can promote soil contamination by possible infiltration, proliferation of vectors and microorganisms that cause parasitic and endemic diseases (Rosine et al., 2018). However, rudimentary trench construction strategies that meet the requirements of minimum distance between the bottom of the pit and the water table, in addition to the minimum distance between the system and well or spring, can minimize risks of contamination of the underground aquifer and water wells, making such strategies an appropriate sanitation solution for specific socio-environmental conditions, such as those of the quilombola communities of Sergipe (Figueiredo et al., 2019).

Environmental unhealthiness due to inadequate sanitation can lead to enteroparasitic infections via fecal-oral transmission by direct or indirect contact/ingestion of water. However, in the same environmental context of unhealthiness, in the quilombola communities where individuals with a higher level of education live, including higher education, such as in Alagamar, they are allowed to understand the health-disease process and tend to develop more sustainable preventive strategies in the control of parasitic diseases (Rosine et al., 2018).

In addition, a small portion of the quilombolas live in unfavorable conditions, such as housing in shacks with tarps, use of used wood, floor consisting of rammed earth; and without any kind of security. Housing precariousness can lead to the emergence of infectious and respiratory diseases and allergic reactions, since unhealthy housing can favor the proliferation of insects and food insecurity, in addition to not having adequate ventilation (Pasternak, 2016).

The chronic diseases that stood out the most in the reports of the quilombolas were systemic arterial hypertension (SAH) and diabetes mellitus (DM). Other studies reveal that the occurrence of SAH has been found in certain racial ethnic groups (Afro-descendants), with Brazilian states such as Bahia, Alagoas and Minas Gerais presenting high numbers of hypertensive quilombolas (Pauli et al., 2019).

When it came to Covid-19, most of the individuals interviewed used the preventive measures (masks and hand hygiene) recommended by the Ministry of Health. The coping measures adopted by the government of the State of Sergipe - such as those of Decree No. 40,570, of April 3, 2020, for the Selective Social Distancing (SSD) regime, which proposed the operation of only essential services - triggered financial difficulties for quilombola families. The quilombolas in informal activities were unable to work, and this affected spending and family income during the pandemic period (Sergipe, 2020).

Many quilombolas are informal workers and need to move to urban centers to generate family sustenance. In the Terra Dura and Coqueiral communities, for example, men work as rural workers, and women work as sugarcane pickers, informal and domestic sellers, in the county of Aracaju. In addition, a study conducted in Sergipe quilombola communities revealed that low socioeconomic status was present in most quilombolas, who belonged to class D-E, whose average household income is R\$ 708.19 (Santos, 2020). It's perceived that the Covid-19 pandemic reaches, with greater intensity, the populations that live in informal employment, in precarious housing, without access to drinking water and basic sanitation (Costa, 2020).

The problems stemming from racism are exacerbated by the adoption of preventive measures for Covid-19 related to social distancing. This is because being in seclusion with your family without exercising a financial activity weighs mainly on blacks and browns, since these represent the majority of informal workers, domestic service, commercial, food, transportation and storage. In short, staying inactive during the Covid-19 pandemic is still a major challenge for these individuals in informal activities (Goes et al., 2020).

Regarding parasitic diseases, especially schistosomiasis, it was found that, mostly, the interviewees declared that they had no knowledge about the disease, symptoms and preventive measures. This is similar to the findings of another study, in which it was shown that quilombola communities have a lack of knowledge about the disease, which is worrisome because it's not understood as a serious disease by these individuals (Silva et al., 2020).

It was found that adequate hygiene habits are present in most quilombolas and only a small part of them are not aware of health promotion and disease prevention measures, especially those of water transmission, which configures an individual protective aspect in the quilombola communities of Sergipe. Health education practices aimed at disease prevention through the adoption of good hygiene habits and awareness of their relevance in the prevention

of parasitosis are fundamental in promoting the health and well-being of quilombola communities (Rosine et al., 2018).

It's known the importance of knowing the measures that promote health and prevent diseases and injuries. In the pandemic scenario, this knowledge becomes a very useful tool in controlling the spread of Covid-19, as the information directly affects the behavior and attitudes of a population towards the disease (Oliveira et al., 2020).

Most quilombolas seek assistance at the UBS in case of illness. Thus, it's essential that this service can offer infrastructure and care aimed at the socioeconomic and cultural needs/demands of quilombola communities. However, there are limitations in access to health care for Brazilian quilombola communities, because it's a multifactorial, complex and subjective context (Guimarães et al., 2020).

At the beginning of the pandemic, the media (internet, television, among others) reported the disparities and difficulties observed among black Brazilians in the urban context, especially those living in the peripheries. However, rural quilombola communities were on the margins of care policies and support networks, especially health services such as testing for the diagnosis of Covid-19 (Matta et al., 2021).

In addition, there is underreporting of morbidity and mortality data from Covid-19 due to low testing, especially in vulnerable communities (Furtato et al., 2021). These quilombola communities have not received due attention on the records of epidemiological data, due to the underreporting of cases and difficulties in accessing tests for the diagnosis of Covid-19 (CONAQ, 2021).

In the pandemic, the inequalities imposed by structural and institutional racism can aggravate the social inequalities of the black population, since these individuals have poor access to health services and are on the margins of the actions of the State in their territories (Goes et al., 2020).

Faced with the scenario of Covid-19, associating the dimension of racism and social class with the context of the pandemic requires broad strategies to cope with the disease for the entire population. However, the actions will be effective if there are changes that take into account the social organization adjusted to social inequality, especially in Brazil. The specificities of vulnerable groups, such as low access to frequent hand washing, 70% alcohol use, among other preventive measures, are complex implementation and adoption recommendations, especially in spaces with inadequate basic sanitation (Farias & Leite, 2021).

CONCLUSIONS

The Covid-19 pandemic has brought new challenges and perspectives on measures to prevent and control the spread of the disease. The SARS-CoV-2 virus does not present selectivity regarding affected individuals, including symptomatic or asymptomatic individuals.

However, the pandemic exposes the existing inequalities in society, as poor access to basic sanitation, health and housing services can influence viral infection and worsening of the disease.

Quilombola communities need actions that support and strengthen sanitary conditions, housing and frequent access to treated water. The marginalization suffered by blacks throughout history puts them in a situation of socioeconomic, environmental and educational inequality, especially those who are far from large urban centers.

Thinking about strategies for health promotion and prevention of harm to less favored communities is of paramount importance, as it allows for a balance in access to public services, since, as these individuals are included in the actions developed by the State, there is a better response to unexpected situations, such as the Covid-19 pandemic.

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