

ORIGINAL ARTICLE

# A look at vulnerability: analysis of the lack of access to health care for quilombolas in Brazil

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## Abstract

**Introduction:** In Brazil, access to health care is a constitutional right guaranteed by the Unified Health System that provides, in its guiding principles, universality, and equity of access to health services.

**Objective:** To analyze the factors associated with the quilombola population's access to health services.

**Methods:** Cross-sectional study with 91,085 quilombolas. To measure the absence of access to health, the variables sex, ethnicity, work, disability, age group, illiteracy, place of residence, and average family income were used. The lack of access to health services was due to the identification of health care establishments by quilombola families in the Cadastro Único database. The association between socioeconomic characteristics and the lack of access to health services were assessed using the chi-square test and the measures of magnitude of the association and respective confidence intervals were estimated by Poisson Regression with robust variance.

**Results:** Among the factors associated with access to health services for the quilombola population, it is observed that the group with the highest risk is the elderly quilombolas, who declare themselves indigenous and who reside in the central west region. It is noted that in 2004 there was a reduction in the lack of access to health by quilombolas to health services, however, between 2005 and 2015, there is an increase in the lack of access to health by quilombolas, after that period there is an ascendancy of access to health by this population.

**Conclusion:** Several factors are associated with access to health by quilombola populations, which, related to the inequalities experienced by this population, directly impact government actions.

**Keywords:** vulnerable populations, access to health services, information systems.

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## Authors summary

### Why was this study done?

Access to health services is a constitutional right, but there are still barriers to access by Brazilians. The scarcity of information about the factors that are associated with this access is a challenge to be overcome in the Unified Health System, as it is from this information that public policies are created. Our objective was to analyze the factors that are associated with the quilombola population's access to health services.

### What did the researchers do and find?

This study identified information about quilombolas in the Cadastro Único database. In this database, it was also possible to identify the name of the health care establishment that these quilombolas used. The results indicated that the group at greatest risk for access to health services are the elderly quilombolas, who declare themselves indigenous and who live in the central west region of the country.

### What do these findings mean?

These findings suggest that the factors associated with access to health services by the quilombola population are age group, ethnicity, and region of residence. This type of study can contribute to the construction of public policies aimed at guaranteeing access to health services, in particular, the prevention and health promotion of vulnerable populations, especially quilombolas.

## INTRODUCTION

In Brazil, access to health is a constitutional right provided by the Unified Health System (SUS) to all Brazilians, with universality and equity being the fundamental principles for implementing health actions.

Although SUS has experienced a significant advance over the years since its creation, there are still geographic and social inequalities regarding access to health services, especially among people who declare themselves to be mixed, black, and indigenous<sup>1</sup>.

The concept of access to health is broad and complex. Access refers to the “offer and the ability to produce services” based on the needs of the population, taking into account the individual factors of each user<sup>2</sup>.

Equity of access, especially to vulnerable populations, is something that has been sought since the early 1970s with the Brazilian Health Reform. The development of social movements, the consolidation of the democratic process, and the federal government's effort to guarantee the rights of vulnerable groups over the years resulted in the construction of public policies for the Promotion of Equity. This policy aims to reduce health inequities<sup>3,4</sup>.

As for the construction of public policies for vulnerable populations such as quilombolas, one of the main problems highlighted is the invisibility of these populations in the existing information systems, information is an essential tool for access to health services, this information about this population in an accessible way is a challenge<sup>1,5-7</sup>.

Quilombolas are black people who live in rural communities formed by descendants of enslaved Africans, then called Quilombola Remaining Communities<sup>8-10</sup>. Known as ethnic-racial groups with a historical trajectory of pain and oppression experienced by black ancestors, they live scattered throughout Brazil; in remote communities formed by a strong kinship bond, they are marked by the stigma of social-historical exclusion<sup>11,12</sup>.

This population is considered a vulnerable group because of its cultural heritage, susceptibility to risks, social disparities, ethnic discrimination, and this group is more sensitive to inequalities in access to health<sup>1,13,14</sup>. Vulnerable populations are those with limited capacity or freedom to consent or refuse, unable to protect their own interests<sup>15</sup>. Quilombolas are considered a vulnerable population, suffering historical oppression due to the

presence of the idea that they are a group of “fugitives”. This group tends to suffer materially and socially, and psychologically from the effects of exclusion, whether for religious, health, ethnicity, physical or mental disabilities, and even access to education<sup>16</sup>.

Thus, the objective is to analyze the factors associated with the quilombola population's access to health services.

## METHODS

### Study design

This is a cross-sectional study<sup>17</sup> carried out according to the guidelines of STROBE - Strengthening the Reporting of Observational Studies in Epidemiology<sup>18</sup>, using secondary data collected through the database of the Single Registry of the Ministry of Social Development (MDS).

### Study location and period

We used the unidentified database of the Cadastro Único with marking of the Bolsa Família program in a section from the years 2002 to 2017.

The Cadastro Único (CadÚnico) “is an instrument for the identification and socioeconomic characterization of low-income Brazilian families, which must be used to select beneficiaries and integrate federal government social programs aimed at serving this public”<sup>19</sup>.

### Studied Population and Eligibility Criteria

The target population consisted of members of the families registered in CadÚnico identified as quilombolas in the database. In this system, quilombola families are registered as individuals who compose “ethnic-racial groups, according to criteria of self-attribution, with their own historical trajectory, endowed with specific territorial relations, with a presumption of black ancestry related to the resistance to historical oppression”<sup>11</sup> and who self-determine belonging to that group. As an eligibility criterion, only data from years showing family registration in all months of the year were used.

Inclusion criteria were the family identifying itself as quilombola and the identification of the name health care establishment. Data on vulnerable populations with the exception of quilombolas are considered losses.

### Sample

The total sample was 91,085 quilombolas after the statistical adjustment.

### Data analysis

The analyzed outcome was the lack of access to health by quilombolas. The characteristics and profile of the population that does not have access to health were described using the variables: sex, race, work, disability, age group, education, average family income, and access to health; the confounder was the region of domicile. Being the age group as an effect modifier.

The non-access to health characteristic was chosen to write this work because it is an indicator used for the construction and viability of public policies in the country.

In this study, the de-identified database was used, and the bases: family sample and person sample were used for the composition of this study. The access was made through the electronic address <https://aplicacoes.mds.gov.br/sagi/portal/index.php?grupo=212>, being chosen the microdata of December 2017.

The data were downloaded on April 18, 2018, in csv format; the information was exported to Access version 1908 of the Microsoft Office 365 package, a program used to build the database. To identify quilombolas in both databases, a simultaneous query was made using the quilombola filter in the family base since only that bank had the marking of this population. When carrying out the consultation, a link was made from the identifiers of the quilombola id\_family in the personal bank, making it possible to identify and remove the information that refers to the people who make up the quilombola families for the sample.

Two variables were categorized: age and monthly income. The age variable was categorized as age group following the criteria of the World Health Organization (WHO), is considered a child the individual aged 0 to 12 years; teenager from 12 to 18 years old; adult from 18 to 59 years old and elderly from 60 years old; in relation to the variable monthly average income, it was categorized as poverty using as a parameter the daily value of US\$1.90

or less as the income considered by WHO as the necessary income for the survival of the individual, for the calculation it was used as a basis the value of the US dollar of R\$4.05, requiring a monthly income of R\$230.85.

Qualitative variables were described by absolute and relative frequency. The association between socioeconomic characteristics and non-access to health services was assessed using the chi-square test. The measures of magnitude of the association (prevalence ratio) and respective confidence intervals were estimated by Poisson Regression with robust variance; the significance level was 5%. The collected data were processed and analyzed using the Stata® Program (StataCorp, LC) version 14.2.

### Ethical and legal aspects of research

This research, since it is with secondary data, in the public domain, without identifying the individual, there was no need for this research to be submitted to the Research Ethics Committee for consideration, following the precepts of Resolution 466/12.

### RESULTS

91,085 quilombolas registered in CadÚnico were selected and presented data from the years they had every month in the family register.

Among the participants, 48,058 (52.76%) are female, 62,417 (68.53%) quilombolas declare themselves to be brown, 40,011 (65.44%) do not have any type of job, 89,028 (97.74%) do not have any type of disability. Among the quilombolas assessed, the age group that stood out was the adult with 46,792 (51.64%), 64,277 (70.60%) are not illiterate, the largest concentration of this population is in the northeast region of the country, 62,407 (68.52%), 78,459 (86.14%) are on the poverty line. Regarding the variable no access to health, male quilombolas stood out with 18,995 (44.05%). These self-declared themselves as indigenous 71 (58.20%), have some type of work 9,300 (44.02%), with the elderly 2,105 (48.81%), located in the central west region 2,495 (60.47%) are those who have greater difficulty in accessing health care (table 1).

**Table 1:** Characteristics associated with non-access to health. Palmas, Tocantins, Brazil, 2019

Variables	n (%)	Non- accesses to helath n (%)	RP (IC 95%)	p*
Sex				
Male	43.027 (47.24)	18.955 (44.05)	Ref.	Ref.
Female	48.058 (52.76)	20.994 (43.68)	0.99 (0.97; 1.00)	0.262
Race				
Black	21.337 (23.43)	9.212 (43.17)	Ref.	Ref.
White	6.723 (7.38)	2.872 (42.72)	0.99 (0.96; 1.02)	0.512
Brown	62.417 (68.53)	27.544 (44.13)	1.02 (1.00; 1.04)	0.016
Indigenous	122 (0.13)	71 (58.20)	1.35 (1.16; 1.57)	<0.001
Notdefined	486 (0.53)	250 (51.44)	1.19 (1.09; 1.30)	<0.001
Work				
Has no job	40.011 (65.44)	17.580 (43.94)	Ref.	Ref.
Has a job	21.128 (34.56)	9.300 (44.02)	1.00 (0.98; 1.02)	0.851

**Continuation - Table 1:** Characteristics associated with non-access to health. Palmas, Tocantins, Brazil, 2019.

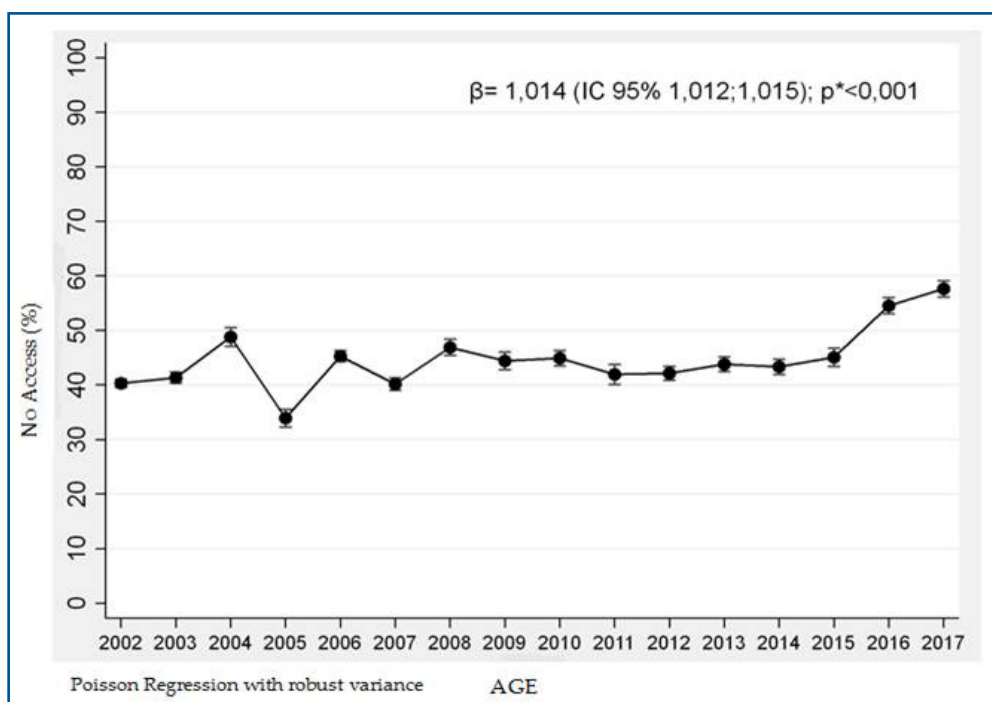
Variables	n (%)	Non- acces to helath n (%)	RP (IC 95%)	p*
Disability				
No	89.028 (97.74)	39.064 (43.88)	Ref.	Ref.
Yes	2.057 (2.26)	885 (43.02)	0.98 (0.93;1.03)	0.443
Age group				
Children	25.682 (28.34)	11.206 (43.63)	Ref.	Ref.
Teenager	13.832 (15.26)	5.934 (42.90)	0.99 (0.96; 1.00)	0.162
Adult	46.792 (51.64)	20.500 (43.81)	1.00 (0.98; 1.02)	0.646
Elderly	4.313 (4.76)	2.105 (48.81)	1.11 (1.08; 1.15)	<0.001
Illiteracy				
No	64.277 (70.60)	28.120 (43.75)	Ref.	Ref.
Yes	26.769 (29.40)	11.808 (44.11)	1.00 (0.99; 1.02)	0.315
Place of Residence				
NortheastRegion	62.407 (68.52)	26.495 (42.46)	Ref.	Ref.
North Region	13.804 (15.16)	5.827 (42.21)	0.99 (0.97; 1.01)	0.973
Southeastregion	8.494 (9.33)	4.322 (50.88)	1.19 (1.17; 1.22)	<0.001
South region	2.254 (2.47)	810 (35.94)	0.84 (0.80; 0.89)	<0.001
Midwestregion	4.126 (4.53)	2.495 (60.47)	1.42 (1.38; 1.46)	<0.001
Poverty				
No	12.623 (13.85)	5.810 (46.03)	Ref.	Ref.
Yes	78.459 (86.14)	34.139 (43.51)	0.94 (0.92; 0.96)	<0.001

Source: Elaborated by the author, 2020.

Non-access to health care is more prevalent in the elderly of the indigenous race that resides in the central west region of the country, even with the adjusted analysis.

The results obtained show that in 2004 there was a reduction of 20% in the absence of access to health for

this population, in 2005 a new increase begins that remains stable until mid-2015, from that period onwards there is an ascendancy in the absence of access to health by this population (figure 1).



**Figure 1:** Time trend of quilombolas' lack of access to health care between 2002 to 2017. Palmas, Tocantins, Brazil, 2019.

Source: Prepared by the author, 2020.

Regarding the factors associated with non-access to health services, the variables that showed the greatest significance were race, age group, and place of residence (table 2).

**Table 2:** Factors associated with non-access to health services. Palmas, Tocantins, Brazil, 2019

Model 1	PE (95% CI)	p*
Race		
Black	Ref.	Ref.
White	1.00 (0.97; 1.03)	0.858
Mixed	1.03 (1.01; 1.05)	<0.001
Indigenous	1.34 (1.15; 1.55)	<0.001
Not declared	1.19 (1.09; 1.30)	<0.001
Age group		
Children	Ref.	Ref.
Adolescents	0.98 (0.96; 1.00)	0.182
Adults	1.00 (0.98; 1.02)	0.599
Elderly	1.10 (1.06; 1.13)	<0.001
Place of residence		
Northeast Region	Ref.	Ref.
North region	0.99 (0.97; 1.01)	0.768
Southeast region	1.20 (1.17; 1.22)	<0.001
South region	0.85 (0.80; 0.90)	<0.001
Midwest region	1.42 (1.38; 1.45)	<0.001

The interaction between the elderly and race variables was analyzed, in which it is observed that the factors remain statistically significant (table 3).

**Table 3:** Predictive model of the interaction between the elderly and race for non-access to health. Palmas, Tocantins, Brazil, 2019.

Model 2 – Elderly x Race (interaction)	PR (95% CI)	p*
Non-elderly black	Ref.	Ref.
Non-elderly white	0.99 (0.96; 1.03)	0.935
Non-elderly mixed	1.03 (1.01; 1.05)	0.001
Non-elderly indigenous	1.34 (1.14; 1.57)	<0.001
Non-elderly not declared	1.19 (1.08; 1.30)	<0.001
Elderly black	1.08 (1.03; 1.15)	0.002
Elderly white	1.15 (1.03; 1.29)	0.010
Elderly mixed	1.13 (1.08; 1.18)	<0.001
Elderly indigenous	1.45 (1.02; 2.07)	0.037
Elderly not declared	1.39 (0.94; 2.05)	0.091
Northeast Region		
North region	Ref.	Ref.
Southeast region	0.99 (0.97; 1.01)	0.732
South region	1.20 (1.17; 1.22)	<0.001
Midwest region	0.85 (0.80; 0.90)	<0.001
Midwest region	1.42 (1.38; 1.45)	<0.001

## DISCUSSION

In this study, the results showed that the factors that are associated with the lack of access to health services by quilombolas in Brazil are age group, ethnicity, and region of residence.

Elderly quilombolas, who declare themselves indigenous and who live in the central west region of the country, are the group most at risk for non-access to health services.

The quilombola population is considered a vulnerable population, with low income, low level of education, and difficulties in accessing existing public policies, especially due to the geographic location of their homes, characteristics that predispose the lack of access to health services<sup>20-23</sup>.

Studies carried out with quilombola populations show the prevalence of females<sup>20-22,24,25</sup>. Regarding self-declaration, it is observed that the brown and black self-declarations are constant in the studies, corroborating with the results found<sup>22,24</sup>.

With regard to poverty, the results are in line with the population profile of the members of the Cadastro Único, Brazilians living in extreme poverty<sup>26,27</sup>.

The presence of indigenous and white self-declaration within quilombola communities is due to the presence of this ethnic mix since the emergence of

quilombos, even though black is predominant in this scenario<sup>28</sup>. Currently, the ancestry of quilombolas has been the subject of studies. In a study carried out in 2006 that analyzed the informative markers of ancestry in four quilombola communities, it observed the contribution of this ethnic group<sup>29</sup>.

In the country, 24 states recorded the existence of quilombola communities in their lands, with the exception of the states of Acre, Roraima, and the Federal District. The largest concentration of communities is in the Northeast, which corresponds to 63.52%<sup>26</sup>. Greater health care is needed for quilombolas living in that region.

Regarding the improvement in access to health services, it is believed that the reduction in 2004 is related to the creation of Decree No. 4,887/2003 that identifies and recognizes quilombolas as provided for in the 1988 Federal Constitution, accompanied by the institution of the Technical Committee in 2004 in order to subsidize the advancement of equity in health care for the black population. These were significant milestones for this population, which until then was not seen as a priority in the National Health Plan (PNS). After this period, there is a slight increase and stabilization of access for this population until mid-2009. It is believed that this fact may be associated with the difficulty of implementing public health policies, a reality currently experienced<sup>11,30</sup>.



In 2009, the black population celebrated the creation of the National Policy for the Integrated Health of the Black Population, considered as a consolidation landmark for public policies aimed at this population<sup>31</sup>.

SUS changes in the period from 1981 to 2017 showed essential changes, especially the evolution of the care network, human resources, and access to health services. That can be observed in the reports of the National Household Sample Survey (PNAD) and the Research Nacional de Saúde (PNS), data sources that assess access to health services in Brazil<sup>32</sup>, which would explain the ascendancy in access of this population. Even with this advance, there are still regional differences by level of education and income that need to be addressed in order to reduce racial and ethnic disparities, socioeconomic factors, and the universalization of the system to the detriment of the real needs of this population in particular<sup>2,33</sup>.

The main limitations found are the control over data collection, estimating access based on the variable identification of the health establishment, and obtaining information through a single informant; in this case, the Head of the Family Unit can cause an information bias.

The scarcity of studies regarding the quilombola population is still a challenge in the country. Although the sample size is significant, it is difficult to conclude the magnitude of access to public policies with regard to this population, especially concerning information systems for this specific group, which is still incipient.

The results of this study can be used for the construction of public policies in order to reduce inequalities in access to health services by vulnerable populations such as quilombolas, indigenous people, riverside residents, and refugees.

Thus, several factors are associated with access to health care for vulnerable populations, requiring complementary studies to analyze more detailed information about these vulnerable populations, especially quilombolas.

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In conclusion, in this study, we identified that the factors that are associated with the lack of access by quilombolas to health services in the country based on information from CadÚnico are age group, ethnicity, and region where they live. These factors directly impact government actions, which are still unable to respond to the needs of these communities in particular. Although there are initiatives capable of changing this pattern, reducing inequalities experienced by this vulnerable population is necessary through actions marked by the extension of the coverage of universal and equitable policies.

## Authors' Contributions

ANM - responsible for all aspects of the work and the communication between the co-authors. ESM - substantial contributions to the conception, design, elaboration, and review of intellectual content. FRPQ - substantial contributions to the conception, design, and review of intellectual content. FAA - contributions to the critical review of intellectual content. FLAF - contributions to the critical review of intellectual content. FA - substantial contributions to the revision and final approval of the version to be published.

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## Conflicts of interest

The authors declare that they have no conflicts of interest regarding the authorship and/or publication of this article.

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## Resumo

**Introdução:** No Brasil, o acesso à saúde é um direito constitucional garantido a partir do Sistema Único de Saúde que prevê, em seus princípios norteadores, a universalidade e a equidade de acesso aos serviços de saúde.

**Objetivo:** Analisar os fatores associados ao acesso da população quilombolas aos serviços de saúde.

**Método:** Estudo transversal com 91.085 quilombolas. Para mensurar a ausência do acesso à saúde utilizou-se as variáveis sexo, etnia, trabalho, deficiência, faixa etária, analfabetismo, local de domicílio e a renda média familiar. A ausência do acesso aos serviços de saúde se deu a partir da identificação dos estabelecimentos de assistência à saúde pelas famílias quilombolas na base de dados do Cadastro Único. A associação entre as características socioeconômicas e a ausência do acesso aos serviços de saúde foram avaliadas pelo teste qui-quadrado e as medidas de magnitude da associação e respectivos intervalos de confiança foram estimados por Regressão de Poisson com variância robusta.

**Resultados:** Dentre os fatores associados ao acesso aos serviços de saúde da população quilombolas, observa-se que o grupo com maior risco é os quilombolas idosos, que se autodeclararam indígenas e que residem na região centro oeste. Nota-se que no ano de 2004 houve uma redução na ausência do acesso à saúde dos quilombolas aos serviços de saúde, entretanto entre 2005 a 2015 iniciou-se um aumento na ausência do acesso à saúde, a partir desse período uma ascensão do acesso à saúde por parte dessa população.

**Conclusão:** Diversos fatores estão associados ao acesso à saúde pelas populações quilombolas, os quais, relacionado às desigualdades vivenciadas por essa população, impactam diretamente nas ações governamentais.

**Palavras-chave:** populações vulneráveis, acesso aos serviços de saúde, sistemas de informação.

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