Trends in the access and use of health services in PHC among Brazilian older adults in the years 2008, 2013 and 2019

Vanovya Alves Claudino Cesário (https://orcid.org/0000-0002-9707-8554) [1]
Marquiony Marques dos Santos (https://orcid.org/0000-0001-5812-4004) [2]
Tamires Carneiro de Oliveira Mendes (https://orcid.org/0000-0002-7254-4096) [3]
Paulo Roberto Borges de Souza Júnior (https://orcid.org/0000-0002-8142-4790) [4]
Kenio Costa de Lima (https://orcid.org/0000-0002-5668-4398) [5]

[1] Programa de Pós-Graduação em Ciências da Saúde, Universidade Federal do Rio Grande do Norte. Av. Sen. Salgado Filho 3000, Lagoa Nova. 59064-720 Natal RN Brasil. vanovya@gmail.com.
[2] Universidade do Estado do Rio Grande do Norte. Caicó RN Brasil.
[3] Conselho Estadual dos Direitos da Pessoa Idosa do Rio Grande do Norte. Natal RN Brasil.
[4] Instituto de Comunicação e Informação Científica e Tecnológica em Saúde, Fundação Oswaldo Cruz. Rio de Janeiro RJ Brasil.
[5] Programa de Pós-Graduação em Saúde Coletiva, Universidade Federal do Rio Grande do Norte. Natal RN Brasil.

Abstract *This paper aims to identify the conditions and trends in access and use of primary health care (PHC) services by Brazilian older adults in 2008, 2013, and 2019. We performed a cross-sectional panel study with a descriptive analysis of the percentages and confidence intervals of the variables listed, in which data on the elderly population investigated in the Health Supplement of the 2008 National Household Sample Survey (PNAD) and the 2013 and 2019 National Health Surveys (PNS) were obtained. We initially identified that, while PHC was the primary service sought for care needs, this demand tended to decline in all Brazilian regions, among older women, the 60-69 years age group, and whites. The number of households registered with the USF increased 15.2%; the search for a place, service, or health professional by 4.5%; and the population served by 31.4%. The main factors of non-attendance were not being able to get a vacancy/service ticket and doctor unavailability. A growing trend was observed among those diagnosed with Systemic Arterial Hypertension, Diabetes Mellitus, and multimorbidities among those investigated.*

Key words *Aged, Health services accessibility, Primary health care*

Introduction

The increase in Chronic Non-Communicable Diseases (NCDs) in the epidemiological profile of the Brazilian and global population is one of the most challenging global health problems, especially among older adults. Diseases such as systemic arterial hypertension, diabetes mellitus, and osteoarticular problems that, in more than half of elderly individuals, show multimorbidities (simultaneous occurrence of ≥ 2 or ≥ 3 chronic diseases), cause limitations and incapacity for work and activities of daily living, affect the quality of life for an extended period, and can lead to premature mortality[1-4].

In the care of older adults, a fragmented care model with the multiplication of specialized visits, uncoordinated care, non-shared information, increased polypharmacy, repetition of tests, and other procedures, overloads the health system, causes iatrogenic events, and does not adequately meet the users' health needs. Thus, the current Brazilian epidemiological profile demands a model that prioritizes light levels of care, the PHC, with promotion actions, considering the education and active participation of subjects, the prevention and delay of diseases and frailties, and the maintenance of independence and autonomy so that the greater longevity achieved by current generations can be enjoyed with quality of life[5,6].

The need to strengthen and prioritize PHC revives its relevance in the SUS by being defined as the preferred gateway and communication center with the health care network and reinforces its relevance in securing equality in access and promoting the use of health services[7]. Access is the user's entry into the health service according to the identified individual need. This must have a universal character and promote substantial impacts on health care, such as reducing inequalities, strengthening the SUS, identifying and redirecting actions, through the particularities of population groups, such as older adults, and favoring the proper use of services, which consists of direct or indirect contact with health services, through visits, hospitalizations, preventive actions, and diagnostic tests[8-11].

The current reality shows that sociodemographic factors are closely related to the access and use of health services. Thus, it requires a reliable analysis of elderly care, such as possible differences in gender, ethnicity, age, and region of residence[12,13]. In this context, data from the Health Supplement of the National Household Sample Survey (PNAD) and the National Health Survey (PNS) allow an in-depth analysis of the casuistry, considering the most diverse perspectives, from users who did not attempt to enter the service to those who were adequately attended to.

Thus, this study aimed to identify the conditions and trends in the access and older adults' use of Brazilian PHC health services in 2008, 2013, and 2019, identifying the similarities and disparities according to the studied variables in the periods in question.

Methods

This cross-sectional panel study analyzed the historical series of indicators of access and use of health services in the PHC based on data from the Health Supplement of the 2008 National Household Sample Survey (PNAD) and the 2013 and 2019 National Health Surveys (PNS). These national household surveys were conducted by the Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Ministry of Health, and the PNS is a continuation of the PNAD supplements, with greater detail and specificity of methods for the health theme[14]. The PNAD and the PNS are population-based studies representative of the country, large regions, Federation Units, capitals, and metropolitan regions[15]. Data on the elderly population aged 60 years and over were considered for this study.

The indicators were calculated from the common questions in the different surveys (Table 1) used in the questionnaires to guarantee the maintenance of data comparability in the historical series. The variables that referred to the follow-up of treatment by the service/professional, the health service they usually look for when needed, a recent search for health service, type of health service sought, difficulty in accessing the health service, and reason for not receiving care in the last visit were considered to analyze the access and use of health services in PHC, as explained in Table 1.

Morbidity indicators were based on variables prevalence of diabetes mellitus, the prevalence of systemic arterial hypertension, and prevalence of multimorbidities (with the presence of two or more of the following pathologies: chronic spine diseases, rheumatoid arthritis, cancer, diabetes mellitus, asthma/bronchitis, systemic arterial hypertension, heart disease, chronic renal failure, and high cholesterol). PHC coverage was based on the variable registration in the Family Health Unit, as shown in Table 1.

Chart 1. Questions presented in the different surveys.

Study variable	PNAD 2008	PNS 2013	PNS 2019
Registration at the Family Health Unit	V0233 – Is your household enrolled (registered) at the Family Health Unit?	B1 – Is your household registered with the family health unit?	B1 – Is your household registered with the family health unit?
Diabetes prevalence	V1312 – Has any doctor or health professional already said that _____ has/have diabetes?	Q30 – Has any doctor ever given you a diagnosis of diabetes?	Q30a – Has any doctor ever given you a diagnosis of diabetes?
Arterial hypertension prevalence	V1314 – Has any doctor or health professional already said that _____ has/have hypertension (high blood pressure)?	Q2 – Has any doctor already given you the diagnosis of arterial hypertension (high blood pressure)?	Q2a – Has any doctor already given you the diagnosis of arterial hypertension (high blood pressure)?
Follow-up of treatment by the service/ professional	V1345 – Do/does_____ usually look for the same place, the same doctor, or the same health service when you need health care?	J9 - Do/does_____ usually look for the same place, the same doctor, or the same health service when you need health care?	J9 - Do/does_____ usually look for the same place, the same doctor, or the same health service when you need health care?
The health service you usually go to when you need it	V1346 – When you are sick or in need of health care, _____ look for:	J10 – When you are sick or in need of health care, _____ look for:	J10a – When you are sick or in need of health care, _____ look for:
Study variable	PNAD 2008	PNS 2013	PNS 2019
Recent search for health service	V1350 – In the last two weeks, did _____ look for any place, service, or health professional for care related to own health?	J14 – In the last two weeks, did _____ look for any place, service, or health professional for care related to own health?	J14 – In the last two weeks, did _____ look for any place, service, or health professional for care related to own health?
Health service type	V1357 – Where did ___ look for the last health care visit for this exact reason in the last two weeks?	J20 – Where did ___ look for the last health care visit for this exact reason in the last two weeks?	J20a – Where did ___ look for the last health care visit for this exact reason in the last two weeks?
Difficult access to health services	V1358 – This last time you sought health care, in the last two weeks, were/was _____ seen?	J21 – This last time you sought health care, in the last two weeks, were/was _____ seen?	J21 – This last time you sought health care, in the last two weeks, were/was _____ seen?
Reason for not attending the last visit	V1359a – Why was/were _____ not seen the last time _____ sought health care in the past two weeks?	J22 - Why was/were _____ not seen the last time _____ sought health care in the past two weeks?	J22a – Why was/were _____ not seen the last time _____ sought health care in the past two weeks?

Source: National Household Sample Survey (2008). National Health Survey 2013 and 2019.

Older adults investigated in the three surveys were characterized by gender, age, and ethnicity/skin color. The historical series of health profile/need and access/use indicators were analyzed by frequencies and confidence intervals at the national level and in the large regions, based on estimates of complex samples. Then, the Wald test with Rao-Scott correction was performed to find differences between the proportions of categorical variables in the PNAD 2008, PNS 2013, and PNS 2019, considering the sample weight and the effect of the design on the calculations.

Results

Older adults interviewed in the PNAD 2008 totaled 26,350, while in the PNS 2013 and 2019, they were 23,815 and 43,554, respectively. Figure 1 shows the distribution of older adults who usually look for PHC, which, despite remaining as the primary service sought, decreased from 53.2% in 2008 to 46.2% in 2019. On the other hand, the results show an increase in the search for public or private emergency care services, ranging from 4.6% in PNAD 2008 to 14.4% in PNS 2013 and 14.6% in PNS 2019, while other types of services had similar numbers over the period.

Table 1 assesses the percentage of older adults who seek PHC, stratified by gender, age group, ethnicity, and region. This assessment identified a decrease in both genders. However, a reduction of almost eight percentage points from the PNAD 2008 to the PNS 2019 in females was observed. The declining demand for PHC is also observed regarding the age group and is more evident in the 60-69 years age group, from 55.7% in 2008 to 47.80% in 2019.

The trend in demand for PHC varies between ethnicity/skin color categories in the period evaluated. Black older adults sought PHC less from PNAD 2008 to PNS 2013, but an increase was observed for PNS 2019. Another highlight is the most significant decrease in white self-declared older adults, from 46.1% to 38.8%, as shown in Table 1. The older adults' demand for PHC also varies by region of residence, with a decline in all regions from 2008 to 2013, a trend that remained in 2019 in the Southeast, while a slight increase was observed in the other regions (Table 1).

Despite the reduction in demand for PHC services, the percentage of households registered in the Family Health Unit (USF) increased considerably, approximately 12 percentage points, from PNAD 2008 to PNS 2013. In contrast, a 4.5% increase was observed in current demand for a health location, service, or professional, and approximately 31 percentage points among users served (Table 2) from 2008 to 2019.

The main reasons for non-attendance by the PHC service remained practically the same: not being able to get a vacancy/service ticket and doctor not available, so that this last sample showed a declining trend of 18 percentage points from 2008 to 2019, as shown in Table 2. Brazilian regions share this trend, highlighting older adults in the Northeast in 2013 (34%) and the Midwest in 2019 (58.9%), who mentioned that they waited too long and gave up on getting access and

use of the service as a reason for not attending. In the North in 2008 and 2019 and the Southeast in 2019, respectively, a relevant amount of 34.3% and 25.7% and 20.6% of older adults reported unavailable specialized service or professional as a determining factor for not performing their care (Table 3).

Concerning morbidities, an increasing trend was identified in elderly patients assisted by the PHC diagnosed with arterial hypertension, diabetes mellitus, and multimorbidities, emphasizing an increase of approximately 12 percentage points in the latter, as seen in Table 2. At the regional level, significant differences are shown in Table 3 only in the Northeast and Midwest regions for the diagnosis of hypertension, with an increase of 5 and 7 percentage points, respectively. The number of older adults with diabetes and multimorbidities showed an upward trend in all Brazilian regions, particularly multimorbidities in the South and Southeast, which evidenced a growth of 10.2% and 13.1%, respectively.

Discussion

The results show a higher level of access and use of PHC health services by older adults in Brazil over the years analyzed, which could be observed in all Brazilian regions, in both genders, in all age groups, especially women, older adults aged 60-69, those with morbidities, and residing in the Midwest region.

Among these results, more significant disparities were found between the PNAD and the two editions of the PNS, which may be related to methodological issues, such as favoring a more significant sampling plan effect in the PNAD due to the greater number of households included in the sample. It is also noteworthy that the PNS allowed the unlinking of health information from the Continuous PNAD and its inclusion in the SIPD, besides having a specific design and exclusively directed to the collection of health data[15,16]. Thus, conducting a specific health survey probably led to greater precision in the PNS estimates. However, we should consider that, despite these disparities, this research was designed to monitor most of the indicators listed in the PNAD 2008[15].

The higher number of older adults throughout the surveys reflects the current demographic trend of population aging, with a projected variation of 10.1% to 13.8% in the representation of individuals aged 60 or more in the Brazilian population from 2008 to 2019[17]. This phenome-
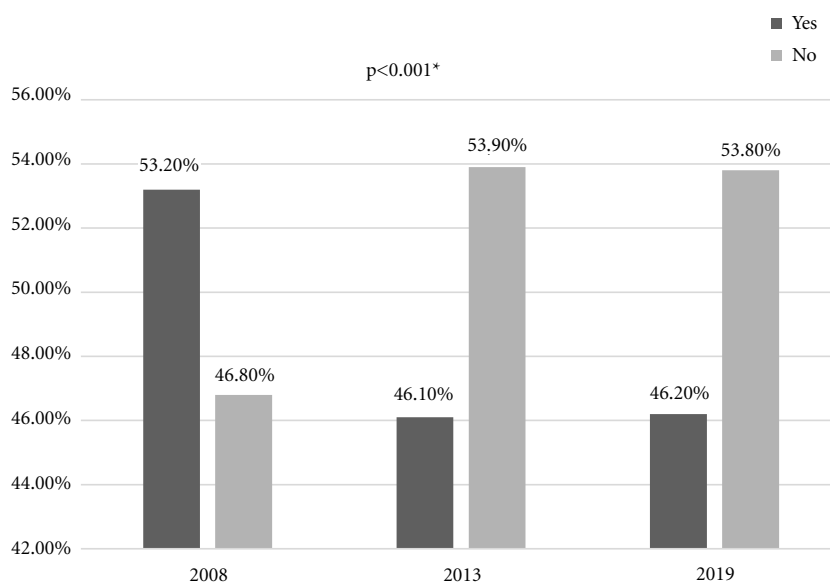
Figure 1. Distribution of older adults who usually seek PHC in Brazil, 2019.

Source: National Household Sample Survey (2008). National Health Survey 2013 and 2019.

Table 1. Percentage of older adults seeking PHC. stratified by gender. age group. ethnicity/skin color. and region in Brazil. 2019.

	2008 (n=26350) % (95% CI)	2013 (n=23815) % (95% CI)	2019 (n=43554) % (95% CI)	p-value
Gender				
Male	53.5 (52.0 – 54.8)	46.6 (44.7 – 48.6)	47.3 (45.2 – 48.3)	<0.001
Female	53.0 (52.5 – 55.4)	45.6 (43.6 - 47.4)	45.3 (43.2 – 46.0)	<0.001
Age group				
60-69 years	55.7 (54.4 – 57.0)	47.6 (45.6 – 49.6)	47.8 (45.7 – 48.7)	<0.001
70-79 years	52.0 (51.2 – 54.3)	46.1 (43.7 – 48.5)	45.8 (43.4 – 47.0)	<0.001
80 years and over	45.8 (44.2 – 49.1)	39.8 (36.6 – 43.3)	40.3 (37.4 – 42.5)	<0.001
Ethnicity/skin color				
White	46.1 (44.7 – 47.5)	40.8 (38.5 – 43.0)	38.8 (36.6 – 39.9)	<0.001
Black	66.5 (63.7 – 69.2)	48.5 (43.5 – 52.9)	55.3 (51.9 – 58.0)	<0.001
Yellow	27.8 (23.6 – 39.1)	22.5 (14.0 – 34.0)	38.9 (28.2 – 45.7)	0.054
Brown	63.5 (62.0 – 65.3)	54.5 (52.2 – 56.7)	54.4 (52.1 – 55.3)	<0.001
Indigenous	58.7 (40.6 – 64.9)	43.2 (25.7 – 63.5)	51.4 (38.7 – 62.0)	0.388
Region				
North	54.8 (51.0 – 61.3)	52.0 (47.7 – 56.1)	51.2 (48.2 – 53.5)	0.502
Northeast	59.4 (56.5 – 61.8)	51.1 (48.0 – 53.8)	52.3 (49.8 – 53.6)	<0.001
Southeast	48.5 (47.8 – 51.0)	41.3 (38.6 – 44.2)	39.1 (36.3 – 40.7)	<0.001
South	57.7 (54.8 – 60.4)	52.1 (48.2 – 56.0)	55.3 (52.0 – 56.8)	0.069
Midwest	53.3 (49.7 – 56.3)	44.6 (41.0 – 48.1)	48.0 (43.9 – 50.9)	0.001

Source: National Household Sample Survey (2008). National Health Survey 2013 and 2019.

Table 2. Temporal description of variables related to morbidities, access, and use of health services in the Brazilian elderly population, 2019.

	2008 (n=26350) % (95% CI)	2013 (n=23815) % (95% CI)	2019 (n=43554) % (95% CI)	p-value
Is your household enrolled (registered) at the Family Health Unit?				
Yes	61.7 (60.1-63.3)	73.3 (71.2-75.3)	76.9 (75-78.6)	<0.001
No	38.3 (36.7 -39.9)	19.7 (18-21.5)	16.3 (14.7-18)	
Don't know	-	7.0 (6-8.2)	6.9 (6.1-7.8)	
Did _____ look for any place, service, or health professional for care related to own health in the last two weeks?				
Yes	22.3 (21.4-23.2)	25.6 (24.1-27.3)	26.8 (25.6-28)	<0.001
No	77.7(76.8-78.6)	74.4 (72.7-75.9)	73.2 (72-74.4)	
In the last two weeks, the last time you sought health care was/were _____ seen?				
Yes	55.4 (41.5-68.4)	57.9 (38.7-75.0)	86.8 (82.8-90.0)	<0.001
No	44.6 (31.6-58.5)	42.1 (25.0-61.3)	13.2 (10.0-17.2)	
Why was/were _____ not seen the last time _____ sought health care in the past two weeks?				
Did not get a vacancy or service ticket	21.5 (9.6-41.2)	24.7 (11.1-46.1)	26.8 (17.8-38.2)	0.015
No doctor available	57.7 (38.5-74.9)	64.9 (42.5-82.2)	39.5 (27.5-52.9)	
There was no specialized service or professional	12.8 (4.5-31.3)	-	9.7 (4.1-21.4)	
The service or equipment was not working	3.1 (0.4-19.1)	0.5 (0.1-3.4)	2.3 (0.7-6.8)	
The health service equipment was not working or available for use	-	1.4 (0.2-9.9)	6.2 (1.9-18.6)	
Waited a lot and gave up	3.4 (0.5-20.7)	5.3 (1.4-18.1)	9.6 (4.5-19.2)	
Other reason	1.5 (0.2-9.9)	3.3 (0.5-18.6)	6.0 (2.4-14.4)	
Diabetes				
No	83 (82.2-83.8)	79 (76.7-81.1)	77.4 (75.8-78.9)	<0.001
Yes	17 (16.2-17.8)	21 (18.9-23.3)	22.6 (21.1-24.2)	
Hypertension				
No	42.9 (41.7-44.0)	44.6 (41.8-47.5)	41.1 (39.3-43.0)	<0.001
Yes	57.1 (56.0-58.3)	55.4 (52.5-58.2)	58.9 (57.0-60.7)	
Multimorbidity				
No	50.0 (48.9-51.2)	42.9 (40.0-45.9)	38.5 (36.7-40.2)	<0.001
Yes	50.0 (48.8-51.1)	57.1 (54.1-60.0)	61.5(59.8-63.3)	

Source: National Household Sample Survey (2008). National Health Survey 2013 and 2019.

non is part of the demographic transition, which began in Brazil in the 1940s with the drop in mortality due to advances in living conditions, driven by the Industrial Revolution and urbanization, resulting in increased life expectancy, and continued with the declining fertility rates from the 1960s. Thus, these factors affected the population's age structure and a more significant proportion of older adults, so that the United Nations (UN) considers the current period from 1975 to 2025 as the Age of Aging[18,19].

A decrease in the PHC demand by Brazilian older adults was found in this study despite the increasing level of PHC coverage in all regions over the same period analyzed in Brazil, ranging from 64.32% in 2008 to 70.58% in 2013 and 74.76% in 2019, according to the Ministry of Health[20]. Synchronously with this trend, the search for Urgent and Emergency care units grew, which can be explained by the implementation of Emergency Care Units (UPA) in 2009. The use of health facilities depends, in part, on the per-

Table 3. Temporal description of variables related to morbidities, access, and use of health services in the Brazilian elderly population, by geographic region, 2019.

	2008 (n=26350) %(95% CI)	2013 (n=23815) %(95% CI)	2019 (n=43554) %(95% CI)	p-value
Your household is enrolled (registered) at the Family Health Unit				
North	65 (58.7-70.8)	65.6 (60.7-70.3)	77.3 (74.7-79.8)	<0.001
Northeast	76.7 (74-79.2)	81.5 (78.9-83.8)	86.5 (84.8-88.0)	<0.001
Southeast	50.6 (47.8-53.4)	68.3 (64.1-72.2)	67.5 (63.6-71.2)	<0.001
South	64.8 (61.3-68.1)	75.7 (71.2-79.8)	80.4 (77.3-83.2)	<0.001
Midwest	67.8 (64.1-71.3)	74.9 (70.9-78.5)	82.4 (79.3-85.2)	<0.001
Look for any place, service, or health professional for care related to their health				
North	21.5 (18.4-24.9)	17.0 (14.2-20.3)	23.1 (20.9-25.5)	0.004
Northeast	19.1 (17.7-20.6)	19.7 (17.7-21.9)	22.5 (20.9 -24.2)	<0.001
Southeast	23.8 (22.3-25.3)	27.8 (24.9-30.9)	28.7 (26.3-31.1)	<0.001
South	23.0 (21.1-24.9)	32.0 (28.8-35.5)	30.4 (28.1-32.8)	<0.001
Midwest	23.5 (20.5-26.9)	24.6 (21.4-28.2)	26.6 (23.8-29.5)	<0.001
Seen the last time you sought health care, in the last two weeks				
North	56.7 (13.6-91.6)	35.0 (7.3-78.8)	82.2 (70.3-90.0)	0.032
Northeast	48.3 (26.5-70.8)	38.4 (20.4-60.4)	78.1 (68.9-85.1)	<0.001
Southeast	56.9 (35.8-75.8)	47.3 (23.2-72.7)	87.5 (79.0-92.8)	<0.001
South	47.6 (18.1-78.9)	46.2 (14.8-81.0)	91.1 (84.6-95.0)	0.028
Midwest	36.5 (8.8-77.3)	51.3 (22.4-79.4)	86.0 (75.9-92.3)	0.005
Why was/were _____ not seen the last time _____ sought health care in the past two weeks?				
North				
Did not get a vacancy or get a service ticket	-	91.0 (51.9-99.0)	21.2 (8.1-44.9)	0.232
No doctor available	65.7 (10.7-96.8)	9.0 (1.0-48.1)	32.4 (13.0-60.6)	
There was no specialized service or professional	34.3 (3.2-89.3)	-	25.7 (4.7-70.8)	
Waited a lot and gave up	-	-	12.1 (2.8-39.7)	
The health service was not working	-	-	6.5 (1.3-27.3)	
The health service equipment was not working or available for use	-	-	2.1 (0.3-14.6)	
Northeast				
Did not get a vacancy or service ticket	24.8 (5.2-66.4)	13.4 (4.4-34.4)	35.7 (20.4-54.7)	0.087
No doctor available	58.3 (24.6-85.7)	40.5 (15.7-71.5)	42.6 (24.5-63.0)	
There was no specialized health service or professional to assist	-	-	3.1 (0.9-9.9)	
Waited a lot and gave up	11.8 (1.6-52.3)	34 (10.7-68.8)	2.6 (0.4-16.6)	
The health service was not working	-	2.9 (0.4-19.3)	4.7 (1.1-18.1)	
The health service equipment was not working or available for use	-	9.2 (1.3-44.5)	8.8 (1.9-33.3)	
Other reason	5.1 (0.7-30.4)	-	2.3 (0.5-9.6)	

it continues

ceived need by individuals and, considering that the UPAs are intermediary units between primary care and hospital emergencies, it is inferred that many users have started to look directly to the UPA for assistance to the urgent needs. However, many of these needs can be met by PHC[21,22].

Thus, we observe the establishment of health care unlinked from care longitudinality, health promotion, and disease prevention and, therefore, weakening and lower PHC resolution, with an overload and deviation from the purpose of the UPAs, undermining their care potential.

Table 3. Temporal description of variables related to morbidities, access, and use of health services in the Brazilian elderly population, by geographic region, 2019.

	2008 (n=26350) %(95% CI)	2013 (n=23815) %(95% CI)	2019 (n=43554) %(95% CI)	p-value
Southeast				
Did not get a vacancy or service ticket	15.8 (3.8-47.2)	7.6 (1.1-38.4)	8.0 (2.2-25)	0.400
No doctor available	70.4 (40.2-89.4)	86.5 (56.7-96.9)	43.4 (19.6-70.8)	
There was no specialized service or professional	7 (0.9-37.4)	-	20.6 (6.5-49.1)	
Waited a lot and gave up	-	-	0.7 (0.1-5.0)	
The service or equipment was not working	6.8 (0.9-36.8)	-	9.8 (1.4-46.1)	
Other	-	5.8 (0.8-32)	17.4 (5.9-41.7)	
South				
Did not get a vacancy or service ticket	40.4 (7.9-48.3)	58.6 (12.3-93.4)	48 (19.6-77.8)	**
There was no specialized service or professional	59.6 (15.7-92.1)	41.4 (6.6-87.7)	39.2 (14.1-71.6)	
Waited a lot and gave up	-	-	12.8 (1.7-55.3)	
Midwest				
Did not get a vacancy or service ticket	17.5 (2.2-67.2)	67.2 (24.2-92.9)	19.2 (5.7-48.2)	**
No doctor available	82.5 (32.8-97.8)	32.8 (7.1-75.8)	22.0 (7.8-48.4)	
Waited a lot and gave up	-	-	58.9 (29.2-83.2)	
Arterial hypertension				
North	50.2 (44.3-56.0)	45.9 (39.2-52.6)	47.4 (43.8-51.1)	0.310
Northeast	53.8 (51.8-55.7)	48.3 (43.2-53.5)	58.8 (55.7-61.8)	<0.001
Southeast	60.1 (58.4-61.9)	60.5 (55.5-65.4)	59.7 (56.1-63.3)	0.195
South	57.1 (54.1-60.0)	56.1 (51.0-61.2)	59.8 (56.4-63.1)	0.071
Midwest	55.3 (52.1-58.5)	54.6 (48.1-61.0)	62.3 (57.3-66.9)	0.042
Diabetes				
North	14.9 (12.4-17.8)	16.8 (12.4-22.2)	18.2 (15.2-21.6)	0.009
Northeast	13.9 (12.7-15.2)	17.5 (14.0-21.6)	20.1 (17.9-22.6)	<0.001
Southeast	19.4 (18.1-20.7)	23.6 (19.8-27.8)	25.3 (22.4-28.3)	<0.001
South	16.2 (14.3-18.4)	19.8 (16.2-23.9)	20.9 (18.2-23.9)	0.003
Midwest	16.5 (14.2-19)	23.8 (18.5-30.0)	25.3 (21.2-30.0)	<0.001
Multimorbidity				
North	48.6 (43.9-53.2)	44.4 (37.5-51.5)	53.0 (48.8-57.1)	0.004
Northeast	44.4 (42.3-46.5)	48.7 (43.2-54.2)	57.3 (54.2-60.4)	<0.001
Southeast	50.7 (48.9-52.5)	61.8 (56.7-66.6)	63.8 (60.5-67.1)	<0.001
South	55.3 (52.7-57.9)	62.1 (56.4-67.4)	65.5 (62.4-68.4)	<0.001
Midwest	54.7 (51.6-57.8)	51.6 (44.8-58.4)	60.7 (56.0-65.3)	<0.001

** Non-comparable categories due to test limitation

Source: National Household Sample Survey (2008). National Health Survey 2013 and 2019.

It is noteworthy that the PHC should not be excluded from this care process within the UPA but instead articulated to ensure the longitudinality and coordination of care. Furthermore, the health network must see to the fact that the curative and hospital-centered model is not encouraged to the detriment of health promotion and prevention actions, especially promoted by the PHC and essential to face the more significant burden of NCDs in the contemporary world, ev-

idenced by a higher prevalence of diabetes mellitus, systemic arterial hypertension, and multi-morbidities[23].

As in the data of the total population, this health profile of the current elderly population was modified by the changes as mentioned above in the age structure, typical of the demographic transition, associated with economic, social, cultural, and environmental factors, promoting what Omran[24] conceptualizes as an epidemiological transition. This is defined as a reduced morbimortality from infectious diseases and higher relevance of NCDs. Thus, it is essential to consider several simultaneous morbidities (multimorbidities) in meeting this demand[25]. The increase in the prevalence of NCDs in the study represents a trend and may be related to the more significant opportunity for their diagnosis, requiring the strengthening of PHC to meet all the existing demand[26] effectively.

Observing other types of health services, the private ones, data from the National Supplementary Health Agency (ANS) show that the rate of coverage by private health plans increased from 2008 (21.87%) to 2013 (25.4%) while showing a slight reduction in 2019 (24.2%)[27,28]. We can infer that this setting has contributed to the observed reduction, throughout the surveys, in the search for PHC by the most socioeconomically favored strata: white people and residing in the Southeast region.

Regional inequalities are known characteristics in the Brazilian reality and reflect health care inequalities. The North and Northeast regions usually show more unfavorable results for health indicators, such as worse health status assessment, more significant restriction of activities, and lower use of health services[26]. This setting is observed in the result of lower PHC demand in the North region. However, the same finding in the Southeast contradicts the trend of better indicators. This situation in the Southeast can be explained by the lower PHC coverage among Brazilian regions, calculated at 68.84% in October 2020 by the Ministry of Health[20], and with greater coverage of private plans among older adults, 33.1% in 2015, according to data from the National Supplementary Health Agency[30], when compared to other Brazilian regions.

Ethnicity/skin color is a significant perspective of inequality, and black, brown, and indigenous individuals have the most unfavorable indicators for schooling, work, and access to goods and services, including healthcare[31]. The findings of this study showed a different result: lower PHC demand by white people, which is due to the methodology used, specifically for this type of establishment.

PHC is a predominantly public service, and it was identified that 99.2% belonged to the SUS in 2017[8]. Therefore, black or brown people are more dependent on the SUS, while a relevant portion of white people has private health plans, which corresponded to 53.1% of white older adults, according to Silva et al.[32] in the Health, Well-being, and Aging Study conducted in the city of São Paulo (SP). This data reflects the reality of health inequalities determined by ethnicity, which is included in the concept of social determinants of health as a structuring factor of social hierarchy, interfering with health, disease, and death outcomes[33].

The considerable increase in the number of households registered at the USF favors the findings of this study, identifying that the elderly population investigated, when approached about the recent search for health services, sought more health care over the period, and had considerable success in achieving it in 2019. This variable was a trend inversely proportional to the lack of a doctor as a justification in the cases that did not receive care, with more negative numbers from 2008 to 2013 but with a relevant positive outlook in 2019. Therefore, besides the expanded PHC, we can infer that the greater availability of medical professionals contributes to the result of users obtaining care, and these achievements can be explained by the creation and implementation of the *Mais Médicos* (More Doctors) Program, which aims to reduce regional inequalities arising from the lack of these professionals and strengthening PHC as the coordinating perspective of health care[34].

Even so, the lack of doctors represents the biggest hurdle to care for the elderly population, with an insufficient number of professionals to meet all the current demands. This reality aggravates the difficult access to the service, as the challenging task of achieving a vacancy or service ticket, possibly due to the reduced number of professionals to meet the existing demand, was the second most frequent reason for non-service in 2008, 2013, and 2019, with a considerable increase in the Northeast, to the detriment of what was seen in other regions. It is noteworthy that the targeting of care through the distribution of service tickets can adversely affect the achievement of access and use of health services because, as Nunes et al.[22] emphasize, this model encourages the culture of long waiting lines before the onset of service opening hours at the UBS, in order

to ensure health care and realization of the use of the health service.

Considering that this is a cross-sectional panel study, the limitations were susceptibility to survival bias; also, both surveys, the Health Supplement of PNAD 2008 and PNS, disregarded the population residing in collective institutions, embassies, consulates, and institutionalized people residing in collective households of institutional establishments, such as military personnel in barracks or dependencies of military installations, people deprived of liberty, inmates in schools, orphanages, asylums, hospitals, the religious in convents, and monasteries. However, this is a nationwide study that identifies the conditions and trends of access and use of PHC health services by the elderly Brazilian population.

Final considerations

The current epidemiological transition in Brazil could be ratified with the identification of a growing trend in the prevalence of systemic arterial hypertension, diabetes mellitus, and multimorbidity between the PNAD 2008 and PNS 2019 data, reaffirming the need for monitoring and mobilization to achieve the goals agreed in the Plan for fighting chronic non-communicable diseases 2011-2022.

The PHC is one of the essential mechanisms for coping with NCDs. The increased registration of the USFs, associated with greater demand and service at this level of care, reinforces the relevance of consolidating the PHC to qualify health care for Brazilian elderly population to promote healthier older adults.

In line with this considerable expansion of PHC in this study, identifying the increase in access to and use of PHC health services in all Brazilian regions, it is possible to list the relevant role of the various policies that promote elderly health care, affecting the assurance of access to and use of health services positively, and monitoring these older adults in any region of the country, as identified in this research.

Collaborations

VAC Cesário and TCO Mendes worked in planning, data collection, interpretation of results, and drafting the text. MM Santos participated in the study planning, analysis, interpretation, and writing of the results. PRB Souza Júnior participated in the study analysis, interpretation, and writing of the results. KC Lima contributed to the theoretical-methodological planning. All authors performed a critical review and approved the final version of the manuscript.

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