Inequalities in health care and access to health services among adults with self-reported arterial hypertension: *Brazilian National Health Survey*

Desigualdades na assistência à saúde e no acesso aos serviços de saúde em adultos brasileiros com autorrelato de hipertensão arterial: *Pesquisa Nacional de Saúde*

Inequidades en la atención de salud y acceso a servicios de salud entre adultos con hipertensión arterial autoinformada: *Encuesta Nacional de Salud*

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Abstract

This study compared indicators of care and access to health services by adults who self-reported hypertension in 2013 and 2019, analyzing those indicators according to gender, age group, schooling level, and race/color. This is an analytic study with data from the Brazilian National Health Survey *(PNS), conducted in 2013 and 2019 in Brazil. The indicators to care and access to health services by individuals with arterial hypertension in both surveys were compared. For 2019, those indicators were analyzed according to sociodemographic characteristics. This study estimated the proportions, prevalence ratio (PR), and their respective 95% confidence intervals (95%CI). In total, 60,202 individuals were evaluated in 2013 and 88,531 in 2019, of these 24.4% reported arterial hypertension in 2013 and 23.9% in 2019. Women received more medical care for hypertension within the last year (PR = 1.07; 95%CI: 1.04; 1.11), had the last physician appointment at an basic health unit (PR = 1.11; 95%CI: 1.05; 1.17) than men. About race/color, black people had more hospitalization for hypertension or some complication (PR = 1.2; 95%CI: 1.05; 1.38) and intense or very intense degree of limitation in performing daily activities (PR = 1.37; 95%CI: 1.06; 1.76). In 2019, inequalities were evidenced and worse indicators were observed for males, black, with low education and young age. Therefore, investments in the Brazilian Unified National Health System, as well as public policies and strategic actions are essential to reduce inequalities, promote health care.*

Hypertension; Health Status Disparities; Chronic Disease; Risk Factors; Primary Health Care

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Introduction

Arterial hypertension is considered the main modifiable risk factor for cardiovascular diseases (CVD) and kidney disease. It is defined by high blood pressure levels, or systolic blood pressure ≥ 140mmHg, and/or a diastolic blood pressure ≥ 90mmHg [1].

According to the World Health Organization (WHO), one in every four men and one in every five women had arterial hypertension in 2015 [2], and the global age standardized prevalence of arterial hypertension was estimated at 24.1% for men and 20.1% for women [3]. Studies show a global increase in the number of people with this condition: in 1990, there were 2.18 billion people, and in 2019, 4.06 billion people [4]. High systolic blood pressure was the second risk factor for disability-adjusted life years (DALYs) in 2019. Moreover, the total number of DALYs caused by high systolic blood pressure increased from 154 million (1990) to 235 million DALYs (2019), reaching 10.8 million deaths in 2019 [4].

In Brazil, the frequency of medical diagnosis of arterial hypertension was 23.4%, which was higher for women (27.3%) than for men (21.2%) [5]. Notably, estimates for hospitalization costs, ambulatory procedures, and medication provided by the Brazilian Unified National Health System (SUS) for the treatment of some noncommunicable diseases (NCDs) in 2018, indicated that arterial hypertension was responsible for 59% of the direct costs, corresponding to approximately BRL 2 billion per year [6].

Considering that care and access to health services are essential to prevent the worsening of NCDs, a study carried out in 2019 showed a significant increase in the prevalence of people who report care and use of health services to control arterial hypertension between 2003-2015, especially among older adults in the Municipality of São Paulo, Brazil [7]. Thus, our results indicate the importance of broadening the understanding of how adults with arterial hypertension use health services to control the disease in Brazil and, above all, provide data that can support health promotion strategies, reduce access barriers and inequalities.

Due to consequences of arterial hypertension for both individuals and the health system, it is required that health professionals focus on the treatment of health in general, especially on reducing the risk of future cardiovascular complications. Therefore, all the risk factors must be controlled conducting an integrated approach, involving both non-pharmacological (healthy eating habits, the practice of physical activities, and a reduction in alcohol consumption) and pharmacological strategies [8].

Besides the non-pharmacological and pharmacological strategies, it is necessary to pay particular attention to the social and health inequalities in the country, which represent a serious problem for the control and handling of arterial hypertension in primary healthcare (PHC). One literature review showed that in low- and middle-income countries there is an association between low socioeconomic levels and low educational attainment and NCDs, including arterial hypertension [9].

Thus, the Care Lines (CL) are strategies which seek to strengthen and to organize health services, guaranteeing both integrity and longitudinal health care at every level of healthcare network (RAS) [9]. The Brazilian Ministry of Health has created protocols for the care of NCDs and arterial hypertension adults, including longitudinal follow-up by primary health professionals [10]. Other determinations by the Brazilian Society of Cardiology (SBC) and the WHO also emphasize the continuous follow-up and monitoring of the NCD in adults, as well as access to medication and care [1,11]. The *Brazilian National Health Survey* (PNS) is destined to provide information regarding the determining and conditioning factors and health needs of the Brazilian population, allowing for more consistent and effective measures and supporting effective public policies. It also enables monitoring the health care provided, by monitoring access to health services, medications, and services among patients with NCDs [12].

This study can contribute to decision-making by health services, especially SUS, and for the reorganizing of the CL for people with hypertension. This study aimed: (a) to compare the indicators of care and access to health services by adults who self-reported hypertension in 2013 and 2019; (b) to analyze those indicators for 2019 according to gender, age group, education and ethnicity.

Methodology

Study design and sampling

This is a cross-sectional quantitative and analytic study, which used data from the PNS conducted in 2013 and 2019 by the Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Brazilian Ministry of Health.

The PNS sample was from conglomerates in three stages of selection: primary units (census sectors or group of sectors), secondary units (households), and tertiary units (residing adults aged ≥ 18 years) [12,13,14]. In 2013, in the third stage of selection, the resident was selected randomly among those who were aged 15 years or older, based on the list of residents obtained at the moment of the interview. However, to be comparable to the PNS 2019, the analyses of the current study were performed only with residents aged 18 years or older.

To calculate the size of the sample, our study considered the average values, variances, and effects of the sampling plan, assuming a no-response rate of 20%. In 2013, the size of the sample was approximately 80,000 households, and information was collected from 64,348 households [14]. In 2019, the sample was 108,525 households, and data was collected from 94,114 households [12].

Due to the complex sampling design and distinct probabilities of selection, it is necessary to define the expansion factors and sample weights, for both households and selected residents in order to analyze the data from the PNS. More detail about the sampling plan has been published elsewhere [12,14].

To ensure comparability between the two editions of the survey, IBGE performed a new calibration of the PNS 2013 expansion factors considering the revision of the population projection of Federation Units by gender and age.

Variables of the study

The prevalence of self-reported hypertensive adults was evaluated by the answer "yes" to the question: "Has any physician ever diagnosed you with arterial hypertension (high blood pressure)?". The prevalence of adults who had never had their blood pressure checked was evaluated by the answer "never" to the question: "When was the last time you had your blood pressure checked?".

Among the adults who reported having arterial hypertension, the indicators referring to care and access to health services were evaluated.

(a) Proportion (%) of people who refer to having a medical diagnosis of arterial hypertension and had medication prescribed for them. Numerator: Q5b = 1/denominator: male: Q2a = 1; female: Q2a = 1 and Q2b = 2 (reported hypertension).

(b) Proportion (%) of people who have taken all the prescribed medication to control hypertension in the two weeks prior to the survey (Q6a = 1).

(c) Proportion of people who took some medication to control arterial hypertension and that obtained at least one medication from the program "We Have a Popular Pharmacy Here" (*Aqui tem Farmácia Popular*) (Q8a = 1 or 2).

(d) Proportion (%) of people who reported a medical diagnosis of arterial hypertension and had received medical care for hypertension within the last year (Q11a = 1 or 2).

(e) Proportion (%) of people who reported a medical diagnosis or arterial hypertension and had their last physician appointment at a basic health unit (Q12a = 2).

(f) Proportion (%) of people who reported a medical diagnosis of arterial hypertension and had an appointment with the same physician from the previous appointments. (Q16 = 1).

(g) Proportion (%) of people who had every appointment with a specialist, from the total number of people who reported a medical diagnosis of arterial hypertension [Q22 = 3 or (Q22 = 1 and Q23a = 1)].

(h) Proportion (%) of people who reported a medical diagnosis of arterial hypertension who were referred to schedule an appointment with a specialist and managed to have all the appointments with the specialist (Q23a = 1).

(i) Proportion (%) of people who reported a medical diagnosis of arterial hypertension and were hospitalized because of hypertension or a complication (Q26 = 1).

(j) Proportion (%) of people who reported a medical diagnosis of arterial hypertension and had a very intense or intense degree of limitation in their usual activities due to hypertension or to some complication (Q28 = 4 or 5).

If you want to find more details about the questions and the answer possibilities, have a look at the Supplementary Material (Box S1: http://cadernos.ensp.fiocruz.br/static//arquivo/suppl-e00125421_7485.pdf).

Statistical analysis

The prevalence and respective 95% confidence intervals (95%CI) of the indicators were estimated in 2013 and 2019. To analyze the comparisons of the indicators between the years studied, all indicators described above were considered, except for the items "prescribed medication" and "appointments with a specialist", which were included only in the PNS 2019. The differences were evaluated by the Pearson's chi-square test, considering p-value < 0.05.

For 2019, the prevalence ratios (PR) and 95%CI of the indicators were calculated according to gender (male and female); age group (18-29; 30-59; 60 years or older); education (no education or incomplete primary school; complete primary school and incomplete high school; complete high school and incomplete higher education; complete higher education); ethnicity (white, black, mixed-race; the other categories were added to the total, as they could not be individualized due to the small number of occurrences), using Poisson regression with robust variance. Furthermore, analyses were adjusted for gender, age, education level, and health plan. The level of significance was set at 5%.

The software for Stata, version 14.0 (https://www.stata.com) was used to analyze data using the *survey* method, which considers the effects of the sampling plan.

Ethical aspects

The PNS followed all recommendations set forth in *Resolution n. 466/2012*, which defines the directives and regulating norms for surveys involving human beings. The data from the PNS is available for access and public use, and both surveys were approved by the Brazilian National Ethics Research Committe (CONEP) from the Brazilian Ministry of Health, logged under protocol n. 328,159 for the 2013 edition and protocol n. 3,529,376 for the 2019 edition.
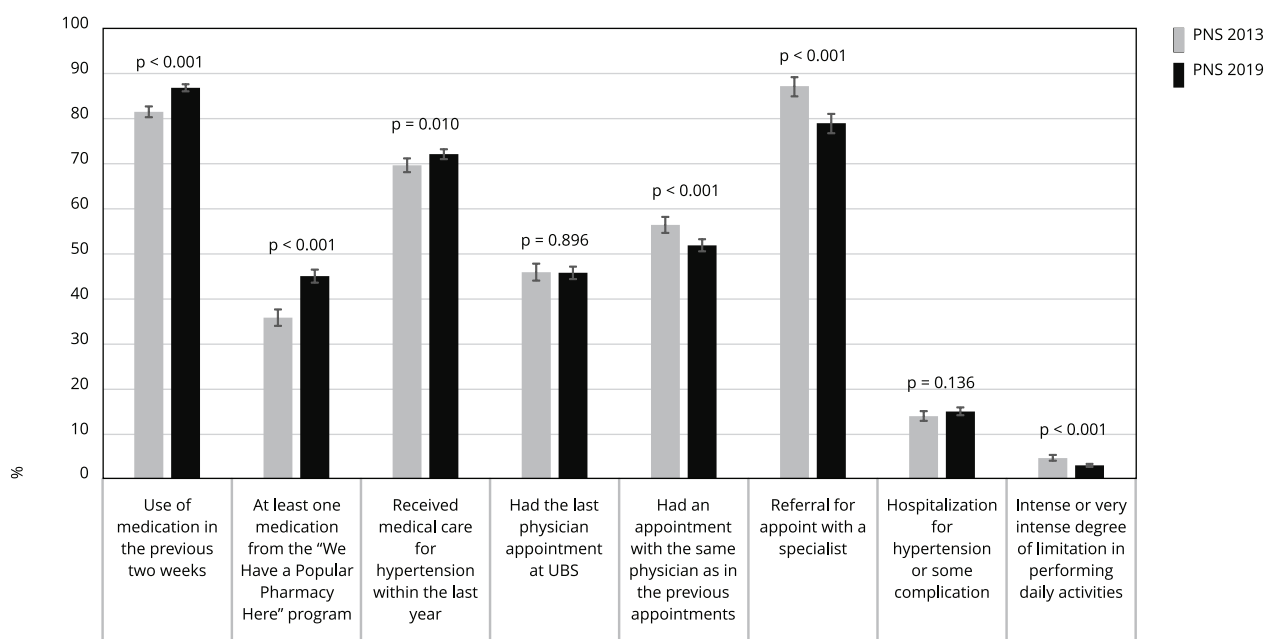
Results

In 2013, 60,202 individuals were evaluated and in 2019 88,531. Out of these, 21.4% (95%CI: 20.8; 22.0) of the adults reported arterial hypertension in 2013, while in 2019, the number had increased to 23.9% (95%CI: 23.5; 24.4). In 2013, 3% (95%CI: 2.7; 3.2) of the adult population reported never having had their blood pressure checked, while in 2019, the percentage had decreased to 1.6% (95%CI: 1.4; 1.8) (data not shown).

Figure 1 compares the health care indicators for arterial hypertension from the two surveys. In 2013, among the adults who reported hypertension, 81.6% (95%CI: 80.1; 82.7) mentioned that they were taking medication, while in 2019 the proportion increased to 86.9% (95%CI: 86.2; 87.7). In 2013, 35.8% (95%CI: 34.1; 37.7) of the hypertensive adults who took some type of medication to control hypertension had obtained at least one medication from the program "We Have a Popular Pharmacy Here", and the proportion reduced to 45.1% (95%CI: 43.7; 46.5), in 2019. In 2013, 69.7%; (95%CI: 68.2; 71.2) of the adults with self-reported arterial hypertension had received medical care in the 12 months prior to the survey, and 46% (95%CI: 44.0; 47.7) had their last appointment at a basic health unit (UBS); in 2019, that proportion was 72.2% (95%CI: 71.1; 73.3) and 45.8% (95%CI: 44.5; 47.2), respectively. This study also investigated if the physician – with whom they had their appointment – was the same one as in previous appointments, and 56.5% (95%CI: 54.7; 58.1) of the interviewees responded affirmatively in 2013; in 2019, that proportion declined to 51.9% (95%CI: 50.6; 53.3). As regards being referred to a specialist, 87.1% (95%CI: 84.9; 89.4) mentioned that they had all of their appointments with specialists in 2013, while in 2019, the proportion was reduced to 79.1% (95%CI: 76.9; 81.2). From

Figure 1

Comparison of healthcare indicators for adults with arterial hypertension. *Brazilian National Health Survey* (PNS), 2013 and 2019.

UBS: basic health units.

the total number of adults with self-reported arterial hypertension, 14% (95%CI: 12.9; 15.1) mentioned hospitalization due to the condition or complications related to it in 2013, whereas in 2019 that proportion was 15% (95%CI: 14.1; 15.9). Regarding the limitations, 4.7% (95%CI: 4.0; 5.4) of the hypertensive adults reported having an intense or very intense degree of limitation due to hypertension or to its complications, and that proportion decreased to 3% (95%CI: 2.7; 3.4) in 2019 (Figure 1).

Table 1 shows the care indicators for arterial hypertension in 2019, according to the interviewees' gender. Women showed more reports of prescription (96.5%; 95%CI: 95.9; 97.0) and use of medications for arterial hypertension (89.6%; 95%CI: 88.6; 90.6). The proportion of adults who received medical care for arterial hypertension in the last 12 months (74.5%; 95%CI: 73.1; 75.8), who had their last consultation at a UBS (48.5%; 95%CI: 46.9; 50.2) and who were hospitalized for arterial hypertension or complications was also higher among women (15.9%; 95%CI: 14.8; 17.1). The other indicators showed similar proportions for all genders (Table 1).

Table 2 shows the differences in the care indicators for arterial hypertension, according to age group. In 2019, compared to young people aged 18-29 years, the older adults over 60 years reported more often having medication prescribed for arterial hypertension (98.8%; 95%CI: 98.4; 99.0) and making use of that medication (94.3%; 95%CI: 93.5; 94.9), greater access to the program "We Have a Popular Pharmacy Here" (45.1%; 95%CI: 43.5; 46.7), attendance by the same physician as in previous consultations (54.9%; 95%CI: 53.2; 56.7), referral to specialist physician (83.4; 95%CI: 80.6; 85.9) and all consultations with specialist physician (52.1%; 95%CI: 50.4; 53.9). The rest of the indicators showed similar proportions among the studied age groups (Table 2).

Table 1

Healthcare indicators and access to health services in adults with arterial hypertension according to gender. *Brazilian National Health Survey* (PNS), 2019.

Indicators	Total		Gender				Adjusted PR	95%CI
			Male (A)		Female (B)		(B/A)	
	%	95%CI	%	95%CI	%	95%CI		
Prescribed medication	95.4	94.9; 95.8	938	92.9; 94.5	96.5	95.9; 97.0	1.02	1.01; 1.03
Use of medication in the previous two weeks	86.9	86.1; 87.7	831	81.7; 84.5	89.6	88.6; 90.5	1.06	1.04; 1.08
At least one medication from the "We Have a Popular Pharmacy Here" program	45.1	43.6; 46.5	437	41.7; 45.7	46.0	44.3; 47.7	1.03	0.98; 1.08
Received medical care for hypertension within the last year	72.2	71.1; 73.3	68.9	67.3; 70.5	74.5	73.1; 75.8	1.07	1.04; 1.11
Had the last physician appointment at an UBS	45.8	44.4; 47.2	41.8	39.7; 43.9	48.5	46.9; 50.2	1.11	1.05; 1.17
Had an appointment with the same physician as in the previous appointments	51.9	50.6; 53.3	52.3	50.3; 54.3	51.7	49.8; 53.5	0.99	0.94; 1.05
Appointments with a specialist	49.0	47.6; 50.4	49.5	47.4; 51.5	48.6	46.8; 50.5	1.01	0.96; 1.07
Referral for appoint with a specialist	79.1	76.8; 81.1	78.6	75.0; 81.8	79.3	76.5; 82.0	1.01	0.96; 1.06
Hospitalization for hypertension or some complication	15.0	14.2; 15.9	13.6	12.4; 15.0	15.9	14.8; 17.1	1.14	1.01; 1.28
Intense or very intense degree of limitation in performing daily activities	3.0	2.7; 3.4	3.1	2.5; 3.7	3.0	2.6; 3.5	0.93	0.73; 1.17

95%CI: 95% confidence interval; PR: prevalence ratio; UBS: basic health units.
Note: the reference category used was male.

Table 2

Healthcare indicators for adults with arterial hypertension according to age group. *Brazilian National Health Survey* (PNS), 2019.

Indicator	Age Group (years)						Adjusted PR B/A	95%CI	Adjusted PR (C/A)	95%CI
	18-29 (A)		30-59 (B)		≥ 60 (C)					
	%	95%CI	%	95%CI	%	95%CI				
Prescribed medication	68.4	61.6; 74.5	93.3	92.4; 94.1	98.8	98.4; 99.0	1.35	1.23; 1.49	1.43	1.30; 1.57
Use of medication in the previous two weeks	39.3	31.9; 47.2	81.9	80.6; 83.2	94.3	93.6; 94.9	2.05	1.69; 2.49	2.34	1.93; 2.85
At least one medication from the program "We Have a Popular Pharmacy Here"	21.1	14.0; 30.6	45.7	43.3; 48.0	45.1	43.5; 46.7	2.16	1.46; 3.20	2.08	1.41; 3.08
Received medical care for hypertension within the last year	62.9	54.9; 70.3	71.1	69.5; 72.8	73.7	72.3; 75.0	1.11	0.98; 1.25	1.13	1.00; 1.27
Had the last physician appointment at UBS	47.1	38.6; 55.7	45.5	43.6; 47.4	46.0	44.3; 47.8	0.95	0.80; 1.14	0.92	0.76; 1.10
Had appointment with the same physician as in the previous appointments	37.6	29.4; 46.6	49.6	47.6; 51.5	54.9	53.2; 56.7	1.29	1.02; 1.62	1.42	1.13; 1.79
Appointments with a specialist	64.2	48.3; 77.8	75.4	71.7; 78.8	83.4	80.6; 85.9	1.17	0.93; 1.47	1.31	1.04; 1.64
Referral for appointment with a specialist	35.8	28.0; 44.5	46.4	44.3; 48.5	52.1	50.4; 53.9	1.27	1.02; 1.58	1.47	1.18; 1.83
Hospitalization for hypertension or some complication	13.0	8.3; 19.9	14.1	12.9; 15.5	16.0	14.8; 17.2	1.02	0.65; 1.58	1.07	0.69; 1.68
Intense or very intense degree of limitation in performing daily activities	2.9	1.2; 6.8	3.1	2.6; 3.8	2.9	2.5; 3.4	0.92	0.37; 2.26	0.70	0.29; 1.72

95%CI: 95% confidence interval; PR: prevalence ratio.
Note: the reference category used was 18-29 years.

Table 3 describes the differences among arterial hypertension care indicators according to schooling level. The 2019 results show that individuals with complete higher education had less access to the "We Have a Popular Pharmacy Here" program. In individuals with complete high school/incomplete and complete higher education less medical assistance in the last year, having an intense or very intense limitation in performing daily activities and hospitalization for arterial hypertension

Table 3

Healthcare indicators for adults with arterial hypertension according to education. *Brazilian National Health Survey* (PNS), 2019.

Indicators	No education or incomplete primary school (A)		Complete primary school and incomplete high school (B)		Complete high school and incomplete higher education (C)		Complete higher education (D)		Adjusted PR (B/A)	95%CI	Adjusted PR (C/A)	95%CI	Adjusted PR (D/A)	95%CI
	%	95%CI	%	95%CI	%	95%CI	%	95%CI						
Prescribed medication	96.4	95.8; 96.8	93.3	91.5; 94.7	93.4	92.0; 94.5	96.8	95.7; 97.7	0.99	0.97; 1.01	0.99	0.98; 1.01	1.01	1.00; 1.02
Use of medication in the previous two weeks	89.2	88.2; 90.1	84.4	81.8; 86.8	82.2	80.0; 84.2	88.4	86.4; 90.2	1.00	0.97; 1.02	0.97	0.94; 1.00	1.01	0.98; 1.03
At least one medication from the "We Have a Popular Pharmacy Here" program	47.9	46.1; 49.7	50.4	46.7; 54.1	43.0	40.2; 45.9	30.9	27.8; 34.2	1.07	0.99; 1.16	0.93	0.86; 1.00	0.70	0.62; 0.79
Received medical care for hypertension within the last year	73.7	72.3; 75.1	73.0	69.7; 76.1	69.6	67.3; 71.9	69.2	66.1; 72.1	0.99	0.95; 1.04	0.94	0.91; 0.98	0.91	0.87; 0.96
Had the last physician's appointment at UBS	57.2	55.5; 58.9	44.4	40.8; 48.1	35.1	32.3; 38.0	15.4	12.9; 18.4	0.86	0.80; 0.93	0.77	0.72; 0.84	0.52	0.44; 0.62
Had an appointment with the same physician as in the previous appointments	49.9	48.2; 51.7	51.0	47.4; 54.6	52.1	49.3; 54.8	61.9	58.4; 65.2	1.01	0.94; 1.09	0.99	0.93; 1.06	1.06	0.98; 1.14
Appointments with a specialist	42.7	40.9; 44.5	48.6	45.0; 52.2	53.4	50.7; 56.0	70.1	66.7; 73.2	1.00	0.92; 1.10	1.03	0.97; 1.10	1.09	1.00; 1.18
Referral for appointment with a specialist	78.1	75.2; 80.8	75.8	69.4; 81.3	79.9	75.2; 83.9	87.1	81.2; 91.3	1.11	1.02; 1.20	1.14	1.07; 1.23	1.27	1.18; 1.37
Hospitalization for hypertension or some complication	17.2	16.0; 18.5	13.9	11.7; 16.6	12.4	10.8; 14.3	11.0	9.0; 13.4	0.83	0.69; 1.00	0.77	0.64; 0.91	0.71	0.56; 0.89
Intense or very intense degree of limitation in performing daily activities	4.1	3.6; 4.7	3.0	2.1; 4.2	1.6	1.2; 2.1	1.0	0.5; 1.8	0.69	0.47; 1.03	0.38	0.26; 0.54	0.25	0.13; 0.48

95%CI: 95% confidence interval; PR: prevalence ratio; UBS: basic health units.

Note: the reference category used was "no education or incomplete primary school".

or complications. On the other hand, the higher the schooling level, the greater the report of having performed all consultations with a specialist physician. Other indicators showed no statistically significant difference (Table 3).

Table 4 shows the differences in health care for arterial hypertension, according to ethnicity. The 2019 results show that black people had higher reports of hospitalization and intense or very intense limitation of daily activities. Besides, when we observe the proportion of individuals who declared that the last appointment occurred with the same physician as in the previous appointments, and who were referred to specialists, the proportion was lower among black people. Mixed-race individuals had a higher proportion of medical assistance in the last year. Black individuals reported less appointments with the same physician as the previous appointment. Other indicators showed similar proportions (Table 4).

Discussion

This study compares the care indicators and access to health services by people with arterial hypertension in 2013/2019 and analyzes the results of the PNS 2019. The prevalence of arterial hypertension was, approximately, one fourth of the adult population, and women showed a greater prevalence than men. When comparing the studied years, most care indicators changed during the period. We observed an increase in the following indicators: use of medication; acquisition of at least one medication from the "We Have a Popular Pharmacy Here" program; and medical care in the year before 2019. On the other hand, the results showed a reduction in follow-up by the same physician, in the referral or appointment with a specialist, and in reports of intense or very intense degrees of limitation in performing daily activities due to hypertension or related complications. In 2019 care indicators showed inequalities with worse results for men, younger population, those with low schooling level, and black individuals.

Based on these results, we can note that the SBC and the WHO protocols have been followed in most cases. The vast majority of the population had their blood pressure checked previously. Individuals are considered hypertensive when their systolic blood pressure is ≥ 140mmHg and/or their diastolic blood pressure is ≥ 90mmHg, and the SBC recommends in order to diagnose arterial hypertension [1]. Other auxiliary measures which can be used to diagnose arterial hypertension are the ambulatory monitoring of blood pressure and home monitoring of blood pressure, as long as these measures are both logistically and economically feasible.

In 2019, the proportion of arterial hypertension diagnosis was higher than 2013, probably for population aging [4]. From 2013 to 2019, we found a reduction in the reports of follow-up by the same physician , which may indicate a concern for longitudinal follow-up – an essential measure in PHC to ensure continuity and integrity of medical care [15,16,17]. There was also a reduction in referrals to specialists, which may have been caused by the higher resoluteness of PHC, as well as by measures of fiscal austerity [18,19]. On the other hand, we observed an increase in the use of medication by the patients, use of "We Have a Popular Pharmacy Here", program and receiving medical care in the previous year. A study conducted in 2016 showed that about one third of the hypertensive patients had already obtained at least one medicine in the "We Have a Popular Pharmacy Here" program. Note that, this strategy is an accessible source mainly for the most disadvantaged population since it contributes to health equity [20].

Our study showed a higher prevalence of arterial hypertension among women, perhaps indicating a limitation of the self-report method of the PNS. Studies using blood pressure measurement show higher blood pressures in men [1,21]. In general, the care indicators show that women seek services more often, have their blood pressure checked more often, and show better healthcare indicators [21,22,23]. Other studies described this same trend that can be understood in terms of the feelings of masculinity and a perception of needing less health care, since men feel stronger and less susceptible to illnesses [24].

The analysis of ethnicity reveals inequalities in health care. Brazil is an unequal country, with countless examples of structural racism [25], regarding access to jobs, lower wages for black and mixed-race people, higher mortality of young black people, and different approach by security agents

Table 4

Healthcare indicators for adults with systemic arterial hypertension according to ethnicity. *Brazilian National Health Survey* (PNS), 2019.

Indicator					Ethnicity						
	White (A)		Black (B)		Mixed-race (C)		Adjusted PR	95%IC	Adjusted PR	95%CI
	%	95%CI	%	95%CI	%	95%CI	(B/A)		(C/A)	
Prescribed medication	96.2	95.5; 96.8	95.0	93.5; 96.2	94.5	93.7; 95.2	1.00	0.98; 1.01	1.00	0.98; 1.01
Use of medication in the previous two weeks	88.5	87.2; 89.6	86.7	84.6; 88.6	85.3	84.1; 86.5	0.99	0.97; 1.01	1.00	0.98; 1.03
At least one medication from the "We Have a Popular Pharmacy Here" program	44.8	42.9; 46.8	46.3	43.0; 49.7	44.8	42.8; 46.9	0.94	0.89; 1.00	0.97	0.89; 1.06
Received medical care for hypertension within the last year	71.5	69.9; 73.1	74.7	71.9; 77.3	72.1	70.5; 73.7	1.01	0.98; 1.04	1.05	1.01; 1.09
Had the last physician appointment at UBS	39.4	37.3; 41.6	51.9	48.6; 55.2	50.7	48.9; 52.5	1.01	0.96; 1.07	1.06	0.98; 1.14
Had appointment with the same physician as in the previous appointments	56.7	54.6; 58.7	48.8	45.4; 52.2	48.2	46.3; 50.2	0.92	0.87; 0.97	0.93	0.85; 1.00
Appointments with a specialist	54.6	52.5; 56.6	47.9	44.6; 51.3	43.4	41.5; 45.3	0.96	0.91; 1.01	0.94	0.87; 1.02
Referral for appointment with a specialist	82.9	79.7; 85.7	75.4	68.9; 80.9	76.7	73.3; 79.7	0.92	0.88; 0.97	1.02	0.94; 1.09
Hospitalization for hypertension or some complication	13.2	11.9; 14.6	15.7	13.5; 18.2	16.8	15.4; 18.3	1.20	1.05; 1.38	1.14	0.95; 1.36
Intense or very intense degree of limitation in performing daily activities	2.2	1.8; 2.7	3.5	2.7; 4.6	3.6	3.1; 4.3	1.37	1.06; 1.76	1.38	0.99; 1.94

95%CI: 95% confidence interval; PR: prevalence ratio; UBS: basic health unit.

Note: the reference category used was white.

(whether public or private) towards blacks [26]. Our study showed inequalities related to ethnicity revealed by less access to specialists and by a continuity of health care.

Some results show the significance of the SUS and universal access to health to reduce these inequalities, since we did not find difference in the prescription and use of medicines for arterial hypertension, as well as for better access to basic health services, which are a gateway to health access for the Brazilian population. The SUS, in its 30 years of existence, has provided important advances to reduce morbidity, mortality, and health inequalities [19,27].

The populations with lower education show higher prevalence of arterial hypertension hospitalization, limitations caused by this condition, and less access to specialized services. Other studies [28,29] also described those iniquities, and they are a result of social inequalities and socioeconomic disadvantages that affect those vulnerable populations, resulting in worse performance, as well as in more disabilities. We observed no difference in relation to medication prescription and access to medication. Moreover, population with low income and schooling level used more frequently the UBS, showing how important SUS is in the promotion of health equity [30]. SUS reduces inequalities in health and allows those populations to have access to diagnosis, services, and treatment.

Notably, a significant portion of adults with arterial hypertension had the last appointment at a UBS, along with free access to medication, to treatment inputs, to health promotion actions, and to health care. The UBS is the front door to SUS, coordinating the care for people with NCDs [15,16,17,31]. The care provided to individuals with NCDs must be provided in an integral and articulated manner, and health promotion must be prioritized. Moreover, protection, surveillance, disease prevention, and medical care, together with individual specificities, should also be considered [15,16,17,31].

Therefore, considering access to care for hypertension, lower education and ethnical profile are factors of inequity. This fact increases the demand for affirmative public policies to fight the social inequalities in Brazil [28,32,33,34]. Aging causes progressive hardening and loss of complacency of the main arteries, explaining the higher prevalence of such problems for older adults [1]. However, the older adults tend to seek health services more often [35], and this study identified that, in general, the healthcare indicators were better for the people aged 60 years and over, including those who more often search for services, and medical care, medications, as well as a higher proportion of hospitalizations and disabilities.

After 2016, Brazil underwent a deep economic crisis and has resorted to fiscal austerity measures, which resulted in a worse performance in the field of health and an increase in the indicators of morbimortality [18,36,37]. The Gross Domestic Product (GDP) has declined, and consequently, the investments in health, at the Federal level, as well as at the state and municipal levels [18]. In 2019, SUS lost BRL 20 billion in investments due to *Constitutional Amendment n. 95/2016* [38]. The PNS shows that a great majority of the population depends on, and uses SUS; therefore, these budget cuts and austerity policies may have terrible consequences upon the performance of SUS. However, the PNS 2019 shows that most of the indicators of PHC in dealing with hypertension have changed. Moreover, it indicated that, especially those with lower schooling level and black depending most on public services are more affected. Thus, it is essential to rebuild the budget and increase the investments in SUS.

Although the arterial hypertension is associated with genetic conditions, we must consider the relationship between the arterial hypertension and socioeconomic factors, such as low schooling level, low family income, and inadequate housing conditions [39,40]. The importance of metabolic risk factors and hypertension should also be mentioned: dyslipidemia, abdominal obesity, and intolerance to glucose and diabetes mellitus; however, the behavioral risk factors, such as inadequate nutrition, lack of physical activity, abusive alcohol consumption, and smoking, are modifiable and can change even the intermediate risk factors (metabolic) [1,41,42].

The most important limitations of the cross-sectional study are the impossibility of identifying if the exposure precedes or is a consequence of the health-related disease, that is, a cause-and-effect relationship. Regarding the data, the arterial hypertension diagnosis was self-reported by the adult and registered by an interviewer, being, therefore, subject to information bias. This type of bias may over or underestimate the results. However, studies comparing reported information and measurements have good reproducibility [12]. Moreover, our study did not evaluate the quality of medical care, which might affect the increase or decrease in demand to health services. Our study advances in adjusting the presence of a health plan, since it expresses the better reality of how population with arterial hypertension use health services.

Conclusion

This study identified an increase in prevalence of arterial hypertension. By contrast, we noticed that even when faced with threats to SUS, medical care, especially primary care, was still provided, with detection and early follow-up for adults with arterial hypertension. However, there are great inequalities when socioeconomic data is considered, mainly among males, black, low educated, and young age.

Considering this scenario, it becomes even more essential to invest in SUS and in public policies to reduce inequalities, as well as propose actions to raise awareness of antihypertensive use, guidance, and appointments with specialists and diagnostic support. The need to progress in regulatory policies and health actions which guide health promotion for the entire population is evident, for instance, the reduction of sodium in foods, the encouragement of physical activities practicing, the prevention of smoking and alcohol consumption, as well as medical care when necessary.

Contributors

Additional informations

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Resumo

Este estudo comparou indicadores de cuidados e acesso aos serviços de saúde por adultos que se autodeclararam hipertensos em 2013 e 2019, analisando esses indicadores de acordo com o sexo, grupo etário, nível de escolaridade, e rala/cor. Estudo analítico com dados da Pesquisa Nacional de Saúde *(PNS), realizado em 2013 e 2019 no Brasil. Os indicadores de cuidados e acesso aos serviços de saúde por indivíduos com hipertensão arterial em ambos os inquéritos foram comparados. Para 2019, esses indicadores foram analisados de acordo com características sociodemográficas. Este estudo estimou as proporções, as razões de prevalência (RP), e os respectivos intervalos de 95% de confiança (IC95%). No total, 60.202 indivíduos foram avaliados em 2013 e 88.531 em 2019, destes 24,4% referiram hipertensão arterial em 2013 e 23,9% em 2019. As mulheres receberam mais cuidados médicos para hipertensão no último ano (RP = 1,07; IC95%: 1,04; 1,11) e a última consulta médica na unidade básica de saúde (RP = 1,11; IC95%: 1,05; 1,17) que homens. Sobre raça/cor, os negros tiveram mais hospitalização por hipertensão ou alguma complicação (RP = 1,2; IC95%: 1,05; 1,38) e grau de limitação intenso ou muito intenso na realização de atividades diárias (RP = 1,37; IC95%: 1,06; 1,76). Em 2019, foram evidenciadas desigualdades e piores indicadores foram observados em homens, negros, com baixa escolaridade e idade jovem. Investimentos no Sistema Único de Saúde brasileiro, bem como políticas públicas e ações são essenciais para reduzir as desigualdades, promover os cuidados de saúde.*

Hipertensão; Disparidades nos Níveis de Saúde; Doenças Crônicas; Fatores de Risco; Atenção Primária à Saúde

Resumen

Este estudio comparó indicadores de atención y acceso a servicios de salud por parte de los adultos que se autodeclararon hipertensos en 2013 y 2019, analizando estos indicadores según género, grupo de edad, nivel de educación y raza/color. Estudio analítico con datos de la Encuesta Nacional de Salud *(PNS) realizada en 2013 y 2019 en Brasil. Se compararon indicadores de atención y acceso a los servicios sanitarios de los individuos con hipertensión en ambas encuestas. Para 2019, estos indicadores se analizaron según características sociodemográficas. Este estudio estimó las proporciones, la razón de prevalencia (RP) y los respectivos intervalos de 95% de confianza (IC95%). En total, 60.202 individuos fueron evaluados en 2013 y 88.531 en 2019, de los cuales 24,4% declaró ser hipertenso en 2013 y 23,9% en 2019. Las mujeres recibieron mas atención médica por hipertensión en el último año (RP = 1,07; IC95%: 1,04; 1,11) y la última consulta médica en unidad básica de salud (RP = 1,11; IC95%: 1,05; 1,17) que los hombres. En cuanto raza/color, los negros tuvieron más hospitalizaciones por hipertensión o alguna complicación (RP = 1,2; IC95%: 1,05; 1,38) y un grado intenso o muy intenso de limitación para realizar actividades diarias (RP = 1,37; IC95%: 1,06; 1,76). En 2019, se evidenciaron desigualdades y se observaron peores indicadores en hombres, los negros, con baja educación y la edad joven. Las inversiones en el Sistema Único de Salud brasileño, así como políticas públicas y acciones son esenciales para reducir las desigualdades, promover la atención sanitaria.*

Hipertensión; Disparidades en el Estado de Salud; Enfermedad Crónica; Factores de Riesgo; Aténcion Primaria de Salud