

# Health care in adults with self-reported hypertension in Brazil according to the National Health Survey, 2013

*Cuidado em saúde em adultos com hipertensão arterial autorreferida no Brasil segundo dados da Pesquisa Nacional de Saúde, 2013*

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**ABSTRACT:** *Objective:* To describe health care indicators in adults with self-reported hypertension in Brazil, according to socio-demographic characteristics. *Methods:* Data from the National Health Survey 2013, a cross-sectional population-based study, about health care of self-reported hypertension and health services were used. Prevalence and 95% confidence intervals (95%CI) were calculated for sex, age, race/color skin and schooling levels, representing Brazil and major regions. *Results:* Hypertension was reported by 21.4% (95%CI 20.8 – 22.0) of respondents, being higher in women and in people without instruction and incomplete middle school. Among these, 45.9% (95%CI 44.0 – 47.7) reported having received medical care for the last time in a basic health unit; 81.4% (95%CI 80.1 – 82.7) reported taking medication for high blood pressure; and 92.0% (95%CI 91.2 – 92.8) reported having taken all requested complementary examinations. *Conclusion:* It is important to know the coverage and access to health services for the care of patients with hypertension, in order to improve care quality and reduce identified inequalities.

**Keywords:** Chronic disease. Hypertension. Health surveys. Health Services. Delivery of health care. Epidemiology, descriptive.

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**Conflict of interests:** nothing to declare – **Financial support:** none.

**RESUMO:** *Objetivo:* Descrever indicadores de cuidado em saúde em adultos com hipertensão arterial autorreferida no Brasil, segundo características sociodemográficas. *Métodos:* Foram utilizados dados da Pesquisa Nacional de Saúde 2013, estudo transversal de base populacional, referentes ao cuidado em saúde com a hipertensão arterial autorreferida quanto ao uso de serviços de saúde. As prevalências e seus intervalos de confiança de 95% (IC95%) foram calculados segundo sexo, idade, raça/cor e escolaridade, representativos para Brasil e grandes regiões. *Resultados:* A hipertensão arterial foi referida por 21,4% (IC95% 20,8 – 22,0) dos entrevistados, sendo maior em mulheres e em pessoas sem instrução e com ensino fundamental incompleto. Dentre estes, 45,9% (IC95% 44,0 – 47,7) referiram ter recebido assistência médica pela última vez em uma Unidade Básica de Saúde; 81,4% (IC95% 80,1 – 82,7) referiram tomar medicamentos para a hipertensão; e 92,0% (IC95% 91,2 – 92,8) referiram ter realizado todos os exames complementares que foram solicitados. *Conclusão:* É importante conhecer a cobertura e o acesso aos serviços de saúde para o cuidado aos indivíduos com hipertensão arterial, de modo a avançar na qualidade da assistência prestada e reduzir as desigualdades identificadas.

**Palavras-chave:** Doença crônica. Hipertensão. Inquéritos epidemiológicos. Serviços de saúde. Assistência à saúde. Epidemiologia descritiva.

## INTRODUCTION

In Brazil the circulatory system diseases (CSD) correspond to the main cause of death, despite having a tendency to reduction<sup>1</sup>. Studies show that 7.6 million deaths worldwide were attributed to high blood pressure (BP), being 54% of them by stroke and 47% by ischemic heart disease (IHD)<sup>2,3</sup>.

The arterial hypertension (AH) has high prevalence, being considered one of the main changeable risk factors (RF) for CSD and one of the most important public health problems<sup>4</sup>. Clinical studies show that the detection, treatment and control of AH are essential for the reduction of cardiovascular events<sup>4</sup>. Therefore, to early diagnose and to maintain adherence to the treatment are cost-effective measures in public health.

The changes in lifestyle are recommended in the primary prevention of AH, especially in adults with borderline BP (130 to 139/85 to 89 mmHg). Changes in lifestyle may control the AH, as well as the cardiovascular mortality<sup>4,7</sup>. Healthy lifestyles should be adopted since the childhood and adolescence, with the main non-pharmacological recommendations: a healthy diet, practicing physical activities, reducing the intake of sodium and alcohol, not consuming tobacco<sup>4,6,8,9</sup>. Some authors argue that the BP  $\geq$  140/90 mmHg alone does not necessarily characterize this population as a priority target for pharmacological treatments, considering people at cardiovascular risk should be prioritized for treatment<sup>6,10</sup>. While other authors point out the efficacy and safety of medication in patients with slightly high blood pressure (pre-hypertension) in the prevention of cerebrovascular diseases, and show that drugs are well indicated and prevent the development of severe outcomes in populations with pre-hypertension, which indicated the need to advance in the evidences about the implementation of the treatment<sup>11</sup>.

In order to provide appropriate care to hypertensive patients, the health care services, specially the primary care, should establish different strategies. Within the factors of service

organization, the access to the entrance door and in patient's referral should be ensured, as well as performing a full comprehensive, continued and responsible approach, establishing appropriate lines of care to each user. The protocols used in primary care should ensure the linkage of professionals and services, the knowledge of the patients on the disease, its risk factors and the measures implemented, for the adherence to the chosen therapy, including the adoption of healthy life styles, family and community support, in short, empowering users<sup>12-14</sup>.

For the monitoring of the AH and other non-communicable chronic disease, the monitoring of indicators on the flow of users, access and effectiveness of the care spent<sup>13</sup> is very important in order to support decision making and to define priorities. Besides knowing the quality of the care given to users, in order to obtain better results, such as the AH control, the reduction of morbidities and more severe outcomes<sup>3,4</sup>.

The household surveys using questions on self-reported hypertension with previous medical diagnosis have been widely used as a reference for the planning of public health<sup>15-18</sup>. In 2013, The National Health Survey (NHS) approached the theme of self-reported and measured HA. The analysis of these informations are a great advance for the country and this is the first study to analyze these national results about the health assistance given out to hypertensive patients. In the future, physical measures also measured by the NHS will be available and allow even more accurate analysis<sup>19</sup>.

The objective of this study was to describe indicators of health care among adults with self-reported AH in Brazil, according to sociodemographic characteristics.

## METHODS

It is a descriptive study, with data from the NHS 2013. The NHS is a populational based survey, whose sampling process was clustered in three stages: census sectors or set of sectors (primary units), households (secondary units) and adult residents ( $\geq 18$  years of age) (tertiary units). The randomly chosen sample consisted of 81,357 households, 69,994 occupied ones and therefore eligible for the research. With a no-response rate of 8.1%, information were collected in 64,348 households<sup>20</sup>, where an adult resident ( $\geq 18$  years of age) was selected to answer to the questionnaire. The NHS was the result of the partnership between the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE) and the Ministry of Health; further details on the methodology may be found in specific publications<sup>19,20</sup>.

The following indicators regarding the health care of adults with self-reported AH were analyzed in the current study as well as the access to the services, among others, the proportion (%) of adults who have never gotten their blood pressure measured; and the proportion (%) of self-reported hypertensive adults. Such information was built based on the previous medical diagnosis of arterial hypertension. The following indicators were investigated.

Among the self-reported hypertensive adults, it was also investigated, the proportion (%) of self-reported hypertensive adults and who took antihypertensive drugs within the two week prior to the date of the research; proportion (%) of self-reported hypertensive adults and who received medical attention for hypertension within the last 12 months; proportion (%) of self-reported

hypertensive adults who had their last medical appointment in a Basic Health Unit (*Básica de Saúde* – UBS); proportion (%) of self-reported hypertensive adults and the doctors from their last appointment were the same from the previous ones; proportion (%) of self-reported hypertensive adults, to which additional tests were requested and who were able to do all the required examinations; proportion (%) of self-reported hypertensive adults, who were referred to a medical appointment with a specialist and got all appointments with the specialist; proportion (%) of self-reported hypertensive adults who hospitalized themselves because of hypertension or any other complication; proportion (%) of self-reported hypertensive adults who have a severe or very severe degree in daily activities due to hypertension or any other complications.

The calculation of the prevalences and their respective confidence intervals of 95% (95%CI) was made according to: gender (male and female); age (18 to 29 years of age; 30 to 59 years of age; 60 to 64 years of age; 65 to 74 years of age; 75 years of age or more); race/color (White/Caucasian, black, brown), the remaining race/color categories were added in total, not being individualized due to a small number of observations; and school education (with no instruction and incomplete elementary school; complete elementary school and incomplete high school; complete high school and incomplete college degree; complete college degree), being representative for Brazil and five great regions. The comparison of the prevalences and their 95%CI was performed, and the difference was considered significant when there was no overlap of confidence intervals. The data were analyzed in the Stata version 11.0 software, through the survey module, which considers effects on the complex sampling.

The NHS was approved in the Research Ethics Committee, under the number 328.159, in June 26<sup>th</sup> 2013. All individuals were consulted, informed and agreed to take part in the research through the Informed Consent.

## RESULTS

Among the respondents, 3.0% of them reported not having measured the BP, meaning, 4.3 million adults. Men had the highest proportion (4.3%) among the individuals who have never had their pressure measured. The AH diagnosis was reported by 21.4% of the adults (31.3 million) and the proportion was higher among women 24.2% (Table 1).

Among the adults who reported hypertension, 81.4% of them mentioned taking medication and 69.7% of the adults with self-reported AH received medical assistance within the last 12 months, and 45.9% (12.8 million) had their last appointment in a UBS. It was also investigated whether the doctor in this appointment was the same one from the previous consultations and 56.4% of the respondents stated yes; 92.0% claimed having been able to perform all the examinations required. Regarding being referred to an specialist, 87.1% of the reported being able to take all the appointments with specialist. From the total adults with self-reported AH, 14.0% (4.3 million) mentioned hospitalization due to hypertension or to complications due to the disease. They reported severe/very severe limitation degree 4.7% (1.4 million) of adults with self-reported AH (Table 1).

The proportion of women who claimed taking medication for AH was 84.6%. The proportion of individuals who received medical assistance for AH within the last 12 months

Table 1. Health care indicators in adults with hypertension by gender. National Health Survey, Brazil, 2013.

Indicators	Expanded number 1000 inhabitants	Total		Gender			
				Male		Female	
		%	95%CI	%	95%CI	%	95%CI
Never measured their blood pressure	4,325	3.0	2.7 – 3.2	4.3	3.9 – 4.8	1.7	1.5 – 2.0
Self-reported hypertension	31,315	21.4	20.8 – 22.0	18.3	17.5 – 19.1	24.2	23.4 – 24.9
Among self-reported hypertensive people, the percentage of those who:							
...took medication within the last two weeks	25,489	81.4	80.1 – 82.7	76.1	74.5 – 78.8	84.6	83.2 – 86.0
...received medical assistance for hypertension within the last 12 months	21,823	69.7	68.2 – 71.2	65.6	63.2 – 68.1	72.4	70.6 – 74.2
...had their last medical appointment in a Primary Care unit (Unidade Básica de Saúde)	12,778	45.9	44.0 – 47.7	40.7	37.9 – 43.6	49.2	47.1 – 51.4
...the doctor in the last appointment was the same from the previous appointments	15,694	56.4	54.7 – 58.1	54.8	52.0 – 57.5	57.4	55.4 – 59.4
...had complementary exams required and were able to take all of them	21,822	92.0	91.2 – 92.8	92.3	91.0 – 93.6	91.8	90.8 – 92.9
... were referred to a medical appointment with a specialist doctor, and were able to take all appointments with the specialist	5,981	87.1	84.9 – 89.4	86.5	82.8 – 90.1	87.6	84.9 – 90.3
...were hospitalized due to hypertension or some complication	4,394	14.0	12.9 – 15.1	12.5	10.8 – 14.3	15.0	13.6 – 16.5
...have severe/very severe degree of limitations, daily activities due or complications	1,474	4.7	4.0 – 5.4	4.1	3.0 – 5.2	5.1	4.2 – 6.0

95%CI: confidence interval of 95%.

Source: National Health Survey (IBGE, 2013).

was higher among women (72.4%). Also, the proportion of individuals who had their last appointment in the UBS was also higher among women (49.2%). The remaining indicators presented similar proportions among genders (Table 1).

Among the respondents who claimed never having measured the BP, the greater proportion was in the North region (7.0%) and the smaller one in Southeast (1.9%). The diagnosis of hypertension was reported by 21.4% of adults, most of them in the Southeast (23.3%) and South (22.9%) (Table 2). As for being taken care of by the same doctor in the previous appointments, the greater proportion was in the Southeast (61.3%) and the smallest one in the North (44.3%). Regarding the complementary tests required, 92.0% of patients reported having been able to perform all of the requested tests, with higher proportion in the South region (94.1%). The Northeast region had higher proportion of hospitalization, with 16.0%. Severe/very severe degree of limitation was reported by 4.7% of the adults with self-reported hypertension, most of it in the Northeast region, with 5.4% (Table 2).

The proportion of individuals who have never measured their BP was higher among the ones from 18 to 29 years of age (6.9%). On the other hand, for the adults who reported having been diagnosed with hypertension, the highest proportion was among the ones with 75 years of age or more (55.0%), as well as the proportion of those who reported taking medication for hypertension (92.2%). Among the adults with self-reported hypertension who mentioned hospitalization due to the disease or some complication, the proportion was higher in the age range from 75 years of age or more (17.7%). The proportion of adults with self-reported hypertension who mentioned a severe/very severe degree of limitation was lower among individuals from 18 to 29 years of age. The remaining indicators showed similar proportions among the age ranges studied (Table 3).

Individuals with complete elementary school to incomplete high school had the highest proportion among the ones who reported having never measured their BP (4.8%). The proportion of medical diagnosis for hypertension was higher among the individuals without education (31.1%). Individuals with complete high school and incomplete college degree had less medication. The proportion of adults with self-reported hypertension who had their last medical appointment in a UBS was higher among individuals without education (56.1%), while for complete college degree ones the proportion was 17.9%. As for the individuals who reported, in their last appointment, having been taken care of by the same doctors from the previous appointments, the highest proportion (69.2%) was found among individuals with complete college degree. The proportion of adults with self-reported hypertension who indicated severe/very severe limitation degree was 4.7% and it was lower among the individuals with complete college degree (0.7%). The other indicators had similar proportions among the school education ranges studied (Table 4).

Caucasian/white individuals had the lowest proportion among the ones who reported having never measured their BP (1.8%). Among the adults with self-reported hypertension who had their last medical appointment in a UBS, the proportion was higher among Brown people (50.8%). Regarding the individuals who reported having their last appointment with the same doctor from the previous ones, the proportion was higher among Caucasian/White people (62.1%). For adults with self-reported hypertension who had complementary tests required and managed to take all of them, the proportion was lower among Black people (86.3%). The other indicators had similar proportions among the school education age ranges studied (Table 5).

Table 2. Health care indicators in adults with hypertension, according Brazil and major regions, National Health Survey, Brazil, 2013.

Indicators	Brazil		North		Northeast		Southeast		South		Middle-West	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Never measured their blood pressure	3.0	2.7 – 3.2	7.0	5.9 – 8.2	4.2	3.7 – 4.7	1.9	1.5 – 2.2	2.2	1.6 – 2.8	2.3	1.8 – 2.9
Self-reported hypertension	21.4	20.8 – 22.0	14.5	13.6 – 15.5	19.4	18.5 – 20.4	23.3	22.3 – 24.3	22.9	21.5 – 24.3	21.2	20.0 – 22.4
Among self-reported hypertension, the percentage of those who:												
...took medication within the last two weeks	81.4	80.1 – 82.7	71.4	67.6 – 75.1	78.5	76.0 – 80.9	83.4	81.4 – 85.4	83.6	80.8 – 86.4	80.3	77.5 – 83.0
...received medical assistance for hypertension within the last 12 months	69.7	68.2 – 71.2	72.6	69.2 – 76.0	67.8	64.9 – 70.6	71.7	69.1 – 74.2	68.0	64.8 – 71.3	64.8	61.2 – 68.3
...had their last medical appointment in a Primary Care unit (Unidade Básica de Saúde)	45.9	44.0 – 47.7	49.0	44.4 – 53.7	45.3	42.3 – 48.3	44.9	41.7 – 48.1	48.4	44.3 – 52.6	46.9	43.4 – 50.3
...the doctor in the last appointment was the same from the previous appointments	56.4	54.7 – 58.1	44.3	39.9 – 48.8	46.8	44.0 – 49.7	61.3	58.5 – 64.2	59.7	55.8 – 63.6	55.8	52.5 – 59.1
...had complementary exams required and were able to take all of them	92.0	91.2 – 92.8	89.0	86.1 – 91.9	87.1	85.3 – 88.9	93.7	92.5 – 95.0	94.1	92.4 – 95.9	92.5	90.6 – 94.4
... were referred to a medical appointment with a specialist doctor, and were able to tak all appointments with the specialist	87.1	84.9 – 89.4	88.2	84.0 – 92.3	81.4	75.9 – 86.8	87.9	84.4 – 91.3	92.1	88.0 – 96.2	87.2	81.9 – 92.4
...were hospitalized due to hypertension or some complication	14.0	12.9 – 15.1	14.6	12.0 – 17.3	16.0	13.8 – 18.2	13.0	11.2 – 14.7	14.3	11.8 – 16.8	13.5	11.4 – 15.5
...have severe/very severe degree of limitations, daily activities due or complications	4.7	4.0 – 5.4	4.8	2.8 – 6.8	5.4	4.1 – 6.6	4.3	3.2 – 5.4	5.0	3.5 – 6.4	4.5	3.1 – 5.9

95%CI: confidence interval of 95%.

Source: National Health Survey (IBGE, 2013).

Table 3. Health care indicators in adults with hypertension by age groups. National Health Survey, Brazil, 2013.

Indicators	Total		Age groups									
			From 18 to 29 years		From 30 to 59 years		From 60 to 64 years		From 65 to 74 years		75 years of age or more	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Never measured their blood pressure	3.0	2.7 – 3.2	6.9	6.1 – 7.6	1.8	1.5 – 2.0	1.0	0.5 – 1.5	0.9	0.5 – 1.3	0.7	0.3 – 1.1
Self-reported hypertension	21.4	20.8 – 22.0	2.8	2.4 – 3.3	20.6	19.8 – 21.4	44.4	41.4 – 47.4	52.7	50.1 – 55.4	55.0	51.8 – 58.3
Among self-reported hypertension, the percentage of those who:												
...took medication within the last two weeks	81.4	80.1 – 82.7	35.2	27.4 – 42.9	76.8	74.9 – 78.7	88.9	86.0 – 91.7	91.5	89.8 – 93.2	92.2	89.7 – 94.6
...received medical assistance for hypertension within the last 12 months	69.7	68.2 – 71.2	60.8	52.9 – 68.8	68.3	66.1 – 70.4	72.7	69.1 – 76.4	72.7	69.6 – 75.9	70.8	66.7 – 74.9
...had their last medical appointment in a Primary Care unit (Unidade Básica de Saúde)	45.9	44.0 – 47.7	36.3	28.7 – 43.9	46.7	44.3 – 49.0	45.2	40.3 – 50.1	47.5	43.5 – 51.5	43.1	38.3 – 47.9
...the doctor in the last appointment was the same from the previous appointments	56.4	54.7 – 58.1	39.0	30.7 – 47.3	55.0	52.7 – 57.3	54.7	49.9 – 59.4	60.2	56.6 – 63.7	63.0	58.3 – 67.8
...had complementary exams required and were able to take all of them	92.0	91.2 – 92.8	89.0	83.6 – 94.5	90.0	88.7 – 91.3	91.9	89.6 – 94.3	95.2	94.0 – 96.4	96.4	94.9 – 97.9
... were referred to a medical appointment with a specialist doctor, and were able to tak all appointments with the specialist	87.1	84.9 – 89.4	66.8	47.8 – 85.9	84.3	81.1 – 87.5	92.9	88.9 – 96.9	93.0	88.9 – 97.1	89.6	82.6 – 96.6
...were hospitalized due to hypertension or some complication	14.0	12.9 – 15.1	6.9	3.3 – 10.4	12.8	11.3 – 14.2	14.9	11.8 – 18.1	16.1	13.5 – 18.7	17.7	14.1 – 21.2
...have severe/very severe degree of limitations, daily activities due or complications	4.7	4.0 – 5.4	2.1	0.6 – 3.6	4.8	3.9 – 5.8	4.2	2.5 – 5.8	4.1	2.7 – 5.5	6.3	3.9 – 8.7

95%CI: confidence interval of 95%.

Source: National Health Survey (IBGE, 2013).



Table 4. Health care indicators in adults with hypertension by school education. National Health Survey, Brazil, 2013.

Indicators	Total		Education level							
			Without education and incomplete elementary school		Complete elementary School and incomplete High School		Complete High School and incomplete College degree		Complete College degree	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Never measured their blood pressure	3.0	2.7 – 3.2	3.4	3.0 – 3.8	4.8	4.0 – 5.5	2.5	2.1 – 2.8	0.7	0.4 – 1.0
Self-reported hypertension	21.4	20.8 – 22.0	31.1	30.1 – 32.2	16.7	15.3 – 18.0	13.4	12.5 – 14.2	18.2	16.5 – 19.8
Among self-reported hypertension, the percentage of those who:										
...took medication within the last two weeks	81.4	80.1 – 82.7	83.9	82.3 – 85.5	79.6	76.3 – 83.0	75.4	72.4 – 78.4	81.6	77.7 – 85.5
...received medical assistance for hypertension within the last 12 months	69.7	68.2 – 71.2	72.1	70.1 – 74.1	67.5	63.0 – 72.0	66.6	63.3 – 70.0	65.4	60.1 – 70.6
...had their last medical appointment in a Primary Care unit (Unidade Básica de Saúde)	45.9	44.0 – 47.7	56.1	53.8 – 58.4	42.9	38.3 – 47.4	33.5	30.1 – 36.9	17.9	13.2 – 22.7
...the doctor in the last appointment was the same from the previous appointments	56.4	54.7 – 58.1	55.0	52.7 – 57.2	54.1	49.8 – 58.3	55.0	51.3 – 58.7	69.2	63.7 – 74.7
...had complementary exams required and were able to take all of them	92.0	91.2 – 92.8	91.9	90.8 – 92.9	89.7	86.8 – 92.7	92.6	90.8 – 94.4	94.1	91.8 – 96.4
... were referred to a medical appointment with a specialist doctor, and were able to tak all apointments with the specialist	87.1	84.9 – 89.4	86.9	83.9 – 89.9	85.2	79.1 – 91.4	86.6	81.7 – 91.5	92.7	87.3 – 98.0
...were hospitalized due to hypertension or some complication	14.0	12.9 – 15.1	15.8	14.3 – 17.3	13.1	10.1 – 16.1	12.0	9.5 – 14.4	9.6	6.6 – 12.6
...have severe/very severe degree of limitations, daily activities due or complications	4.7	4.0 – 5.4	6.1	5.1 – 7.0	4.5	2.5 – 6.5	3.2	2.0 – 4.5	0.7	0.2 – 1.1

95%CI: confidence interval of 95%.

Source: National Health Survey (IBGE, 2013).

Table 5. Health care indicators in adults with hypertension by race/color. National Health Survey, Brazil , 2013.

Indicators	Total		Color or race					
			White/Caucasian		Black		Brown	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Never measured their blood pressure	3.0	2.7 – 3.2	1.8	1.6 – 2.1	3.5	2.7 – 4.4	4.1	3.7 – 4.5
Self-reported hypertension	21.4	20.8 – 22.0	22.1	21.3 – 23.0	24.2	22.2 – 26.3	20.0	19.2 – 20.8
Among self-reported hypertension, the percentage of those who:								
...took medication within the last two weeks	81.4	80.1 – 82.7	84.5	82.9 – 86.0	79.6	75.6 – 83.7	78.2	76.1 – 80.3
...received medical assistance for hypertension within the last 12 months	69.7	68.2 – 71.2	70.1	67.9 – 72.3	70.7	65.6 – 75.9	69.1	66.9 – 71.4
...had their last medical appointment in a Primary Care unit (Unidade Básica de Saúde)	45.9	44.0 – 47.7	41.3	38.6 – 44.0	50.1	45.2 – 55.1	50.8	48.2 – 53.3
...the doctor in the last appointment was the same from the previous appointments	56.4	54.7 – 58.1	62.1	59.7 – 64.5	51.2	45.9 – 56.5	50.4	47.9 – 52.9
...had complementary exams required and were able to take all of them	92.0	91.2 – 92.8	94.1	93.0 – 95.1	86.3	82.8 – 89.8	90.8	89.5 – 92.1
... were referred to a medical appointment with a specialist doctor, and were able to tak all appointments with the specialist	87.1	84.9 – 89.4	90.7	88.0 – 93.4	80.4	71.2 – 89.5	84.4	80.7 – 88.1
...were hospitalized due to hypertension or some complication	14.0	12.9 – 15.1	13.2	11.7 – 14.8	15.7	12.3 – 19.2	14.6	12.9 – 16.3
...have severe/very severe degree of limitations, daily activities due or complications	4.7	4.0 – 5.4	4.5	3.5 – 5.5	4.2	2.3 – 6.1	5.2	4.1 – 6.2

95%CI: confidence interval of 95%.

Source: National Health Survey (IBGE, 2013).

## DISCUSSION

The main results show that nearly the whole adult population have already had their BP measured at any time in their lives and that hypertension has affected over a fifth of the adult Brazilian population (about 31.3 million adults). Over four-fifths of adults with self-reported hypertension took medication within the last 2 weeks and almost 70% of those with self-reported hypertension received medical assistance for this health condition within the last 12 months. Approximately half the adults with self-reported hypertension was assisted by a UBS; the doctor who assisted the last medical appointment was the same from the previous appointments in more than half the cases; complementary tests were requested and almost all adults with self-reported hypertension were able to take all the tests; they were also referred to an appointment with a specialist doctor and almost the universe of individuals with self-reported hypertension managed to have all the appointments with a medical specialist. About 14% of them were hospitalized due to hypertension or some sort of complications at some point in their lives and 4.7% reported having limitations, due to hypertension.

In general, women were more often diagnosed and received more medical assistance, medication and medical appointments, as well as the population with higher school education, living in the South and Southeast regions and the Caucasian/White people. According to the data from the NHS, small parts of the adult Brazilian population have never had their BP measured, especially men. The percentage of individuals who received medical assistance within the last year was high, and the regular attendance of hypertensive people to medical appointments is essential for the adherence to the treatment and the continuity of the care<sup>21</sup>. The NHS confirmed that women have greater opportunity of being diagnosed, received more medical assistance for hypertension within the last 12 months, had medical appointments in UBS more often and took more medications. Which is consistent with the findings of other studies, pointing out that women seek more often for assistance, which leads to greater opportunities for diagnosis and treatment<sup>16</sup>.

The Ministry of Health has been performing the expansion of the population's access to primary health care, especially the expansion of the Family Health program (*Programa Saúde da Família*), together with states and municipalities<sup>22</sup>. In addition to that, the protocols of the Primary Care Guidelines (*Cadernos de Atenção Básica*) have oriented the Family Health teams in the care of hypertension, diabetes mellitus and other prevalent diseases<sup>22,23</sup>. The expansion of service care offers and the greater access to the assistance network may explain the increased percentage of access to services and diagnostics. The search for care is still uneven between men and women<sup>16,21</sup>. Women have greater opportunity of diagnosis since they more often seek for health care<sup>16</sup>. Besides that, most hypertension cases did not display symptoms for this condition<sup>24</sup>, a fact which may also contribute for not searching for the diagnosis.

Age was an important factor both for the diagnosis and for the use of medication and medical appointments. After 50 years of age, more than half the population claims being hypertensive. There are evidence that the prevalence of hypertension and their complications and limitations increase with age<sup>25</sup>. Other factors such as female gender, health perception

as bad/very bad and more than one medical appointment within the last 12 months<sup>16</sup> were associated to the knowledge of the condition of hypertensive people.

When pointing out that more than half of the doctors were the same from the previous appointments, the respondents confirmed the importance of continued care, indicating that the best results come from the relation between user and their caregiver<sup>13</sup>. It is noteworthy that the data in the NHS suggest that one of the aspects for the solution of health care services<sup>26</sup> was contemplated, once that there were increased frequencies of those who could take the requested exams and were assisted by the specialist.

The prevalences of hypertension, the hospitalization and limitations due to this condition were lower in the population with higher school education, as well as the hospitalization in life were also lower. The percentage of hypertensive people using medication for hypertension was increased, and there no differences according to education, showing the importance of the SUS in the promotion of health equity<sup>22</sup>. The frequency of follow-up by the same doctor/caregiver was higher among individuals with higher education. The prevalence of hypertension and their complications and limitations is unevenly distributed between the levels of school education, affecting more often individuals with less years of education<sup>27</sup>. The Northeast region, which has the lowest education rates<sup>28</sup>, was also the one presenting higher percentage of adults with self-reported hypertension, hospitalization and severe or very severe degree of limitations on daily activities.

As for the race/color, Brown people less often reported hypertension, and there was no difference between Black and Caucasian/White people. The NHS indicated inequalities, lower frequency of medication use, less access to appointments with specialists, lower frequency of treatment continuity with the same doctor and lower frequency of medical exams in the Black population. However, the UBS access was higher by the Black the access of the Black population to the services.

Therefore, both the lowest school education and the race/color Black are iniquity factors in the access to care practices of hypertensive people<sup>29</sup>, demanding more and more affirmative public policies in fighting inequalities<sup>27-30</sup>.

The Surveillance system for risk and protective factors for chronic diseases by telephone survey (*Sistema de Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico – Vigitel*), carried out with adults in capitals and in the Federal District, showed a prevalence of hypertension of 24.1% (95%CI 23.4 – 24.8) in 2013, slightly above the NHS. Still according to the Vigitel, the highest prevalences of hypertension were observed among women, elderly and adults with lower education, similarly to what was described by the NHS. It is noteworthy that the NHS has nationwide coverage. The morbidity and mortality by non-communicable chronic diseases in general and specifically by hypertension, and also the exposure to their risk factors, tend to focus on individuals with low income; also, the most unfavorable outcomes with the worst socioeconomic conditions<sup>9</sup>.

The NHS showed that a significant amount of adults with self-reported hypertension had their last medical appointment in a UBS, a very appropriate environment for the development of actions for the promotion of health, as well as free access to drugs and medical supplies, once that the UBS is the main gateway of the health system, ordering and guiding

the care of people with non-communicable Chronic diseases (NCD)<sup>13,22</sup>. The attention given to individuals with NCD should be carried out in full, with the integration and articulation of actions of protection, promotion, surveillance, prevention and assistance in all levels of the system, directed to the specificities of groups or individual needs<sup>13</sup>.

As limitations of this study, we may list the non-evaluation of the quality of health assistance, a fact which implies the access and use of health services; not having been explored, at this moment, the possible differences between users of the SUS and users of private health insurance<sup>31</sup>. Also, it is a self-reported diagnosis, subject to information bias.

## CONCLUSION

The NHS is the first national inquiry approaching in details the prevalence of hypertension and the attention received by adults with self-reported hypertension, making it possible to have data on the access to health care services, analyzing the care given, the use of medication, exams, among others. Positive aspects were observed when identifying increased coverage mentioned by the adults with self-reported hypertension as for the use of medication, exams, medical appointments with specialists, among others. It is extremely important this knowledge in order to advance in the quality of assistance given to people with hypertension in the country and establishing policies in order to reduce the inequalities according to race/color and school education identified here.

The reduction of the NCD and the hypertension constitute a global goal, and knowing their distribution is essential for the planning of health actions and guidance of public policies of health promotion in populational coverage level, such as the reduction of salt in food, practicing physical activities, prevention of tobacco and also assistential care, use of medication, guidance, access to specialist, support in the diagnosis and others, when necessary<sup>6,32</sup>.

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Received on: 04/08/2015

Final version presented on: 07/18/2015

Accepted on: 10/19/2015