



HIGH BLOOD PRESSURE LEVELS IN A QUILOMBO COMMUNITY

Elevação de níveis pressóricos em uma comunidade quilombola

Elevación de los niveles de presión de una comunidad quilombola

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ABSTRACT

Objective: To assess the prevalence of high blood pressure levels in a quilombo community. **Methods:** Quantitative descriptive cross-sectional study with a nonprobability sample in the Boca da Mata Quilombo Community (Maranhão) from December 2013 to April 2014 with 67 families. Sociodemographic and health/disease data were collected and blood pressure, weight and height were measured. The Chi-Squared test was used to check for associations between variables with $p \leq 0.05$. **Results:** The sample consisted of 74 individuals with a mean age of 43 (± 19.17) years – 63.51% ($n=47$) were women and 36.49% ($n=27$) were men. In all, 36.49% ($n=27$) of the participants had high blood pressure levels, and 17.57% ($n=13$) of these had a previous diagnosis of hypertension and reported using antihypertensive drugs. Of the participants previously diagnosed with hypertension, 38.4% ($n=5$) did not present with controlled blood pressure (greater than 140/90 mmHg). Of the participants with altered blood pressure, 42.55% ($n=20$) were women. As for the anthropometric data, the mean body mass index was 23.43 Kg/m², with 22.22% ($n=18$) of the sample with excess weight. **Conclusion:** The community presents a high prevalence of Quilombolas with high blood pressure levels.

Descriptors: Hypertension; Primary Health Care; Public Health.

RESUMO

Objetivo: Verificar a prevalência da elevação dos níveis de pressão arterial em uma comunidade remanescente de quilombo. **Métodos:** Estudo transversal descritivo, quantitativo, com amostra não probabilística, desenvolvido na Comunidade Quilombola Boca da Mata (Maranhão), no período de dezembro de 2013 a abril de 2014, com 67 famílias, por meio de coleta de dados sócio-demográficos e de saúde/doença, além da aferição da pressão arterial e da medida do peso e da altura. Para verificar a relação entre variáveis, aplicou-se o teste do Qui-Quadrado com $p \leq 0,05$. **Resultados:** Amostra composta de 74 indivíduos com média de idade de 43 anos ($\pm 19,17$), sendo 63,51% ($n=47$) mulheres e 36,49% ($n=27$) homens. Observou-se que 36,49% ($n=27$) dos participantes apresentaram elevação dos níveis pressóricos e, desses, 17,57% ($n=13$) possuíam diagnóstico prévio de hipertensão arterial, bem como referiram uso de medicação anti-hipertensiva. Os participantes previamente diagnosticados como hipertensos, 38,4% ($n=5$), não apresentaram pressão arterial controlada (maior que 140/90 mmHg). Dentre os participantes com pressão arterial alterada, 42,55% ($n=20$) eram do sexo feminino. Em relação aos dados antropométricos, o índice de massa corporal apresentou média de 23,43 Kg/m², onde 22,22% ($n=18$) apresentavam excesso de peso. **Conclusão:** Existe nesta comunidade uma alta prevalência de quilombolas com níveis pressóricos elevados.

Descritores: Hipertensão; Atenção Primária à Saúde; Saúde Pública.



RESUMEN

Objetivo: Verificar la prevalencia de la elevación de los niveles de presión arterial en una comunidad remanente de quilombo. **Métodos:** Estudio transversal descriptivo y cuantitativo con muestra no probabilística desarrollado en la Comunidad Quilombola Boca de la Mata (Maranhão) en el periodo entre diciembre de 2013 y abril de 2014 con 67 familias a través de la recogida de datos sociodemográficos y de salud/enfermedad, además de la medición de la presión arterial y de la medida del peso y de la altura. Se aplicó la prueba de Chi-cuadrado con el $p \leq 0,05$ para verificar la relación entre las variables. **Resultados:** Muestra de 74 individuos con media de edad de 43 años ($\pm 19,17$) siendo el 63,51% ($n=47$) mujeres y el 36,49% ($n=27$) hombres. Se observó que el 36,49% ($n=27$) de los participantes presentaron elevación de los niveles de presión y de esos, el 17,57% ($n=13$) tenían el diagnóstico previo de hipertensión arterial así como relataron el uso de medicación anti-hipertensiva. De los participantes ya con el diagnóstico de hipertensión, el 38,4% ($n=5$) no presentaron la presión arterial controlada (mayor que 140/90 mmHg). De entre los participantes con alteración de la presión arterial, el 42,55% ($n=20$) eran del sexo femenino. Respecto los datos antropométricos, el índice de masa corporal presentó la media de 23,43 Kg/m² de los cuales el 22,22% ($n=18$) presentaron exceso de peso. **Conclusión:** En esa comunidad hay alta prevalencia de quilombolas con los niveles elevados de presión.

Descriptor: Hipertensión; Atención Primaria de Salud; Salud Pública.

INTRODUCTION

Hypertension is a noncommunicable disease (NCD) of multifactorial etiology that has a genetic component accounting from 25 to 60% of cases. It is a public health problem that affects approximately 25% of the world's population, and this figure is likely to increase to 29% by 2025⁽¹⁾. The highest prevalence rates are found in developing countries (37.3% versus 22.9% in developed countries), and out of every three adults worldwide is estimated to have hypertension, as reported by the World Health Organization (WHO)⁽²⁾.

The prevalence, incidence and severity of hypertension may be related to ethnic, genetic, environmental and also socioeconomic factors⁽³⁾. In addition, chronic elevation of blood pressure (BP) is recognized as an independent, linear and continuous risk factor for cardiovascular disease (CVD), being directly or indirectly related to approximately 12 to 14% of all causes of death in Brazil⁽⁴⁾.

Hypertension affects approximately 32.5% (36 million) of the adult population and over 60% of the older population in Brazil and contributes directly or indirectly to approximately 50% of CVD deaths⁽⁵⁾. In addition, it is associated with high hospitalization rates and socioeconomic expenditures. The association of hypertension with diabetes mellitus (DM) has a major impact on the loss of labor productivity and family income⁽⁶⁾.

With regard to skin color, hypertension reportedly affects twice as many non-white individuals than white ones⁽⁵⁾. Brazilian studies addressing gender and skin color demonstrated a predominance of hypertension in black women compared with white women⁽⁷⁾. One possible explanation for the higher rate of hypertension among black people is the theory that they would present a gene that promotes sodium retention, which would lead to sodium influx and calcium efflux, facilitating organic changes that lead to elevated blood pressure^(8,9).

Brazil is known as the second largest black nation in the world, behind only Nigeria, with a population of blacks and *pardos* (mixed-race Brazilians) corresponding to approximately 50.7% of its inhabitants⁽¹⁰⁾. Hypertension is one of the diseases that affect this population and is strongly associated with lower socioeconomic status. Thus, the contextualization of the health status of the black population – more specifically the Quilombo Community population – should take into consideration the special conditions of vulnerability experienced by this population group^(8,11).

The Quilombo communities in Brazil are an inestimable cultural and territorial heritage that is still widely unknown by the Brazilian society⁽¹²⁾. It is a group in a situation of social vulnerability resulting from its historical process of formation, which has been marked by cultural expropriation and loss of rights which have impacted on its socioeconomic and health indicators^(8,12).

It is estimated that there are 527 Quilombo communities distributed in 134 municipalities in Maranhão. The state is one of the five Brazilian states where the constitution provides Quilombo communities with the right to property. This right is the result of the black people movement, which succeeded in including article 229 in the Constitution of the State of Maranhão promulgated in 1989⁽¹⁰⁾.

In the literature, particularly with regard to the state of Maranhão, there is little epidemiological evidence to characterize the health status of Quilombo community populations in order to allow the design and implementation of adequate health policies for this population, mainly because hypertension is a modifiable cardiovascular risk factor.

In this regard, the importance of the management and care of noncommunicable diseases in the black population and the association of hypertension with metabolic and cardiovascular disorders should be highlighted. Thus, the present study aimed to assess the prevalence of high blood pressure levels in a quilombo community.

METHODS

This is a quantitative descriptive cross-sectional study carried out using a nonprobability sample of 74 participants. Inclusion criteria were: individuals belonging to the Boca da Mata Quilombo Community (Maranhão, Brazil) aged over 18 years, regardless of gender. Exclusion criteria were: pregnant or breastfeeding women, bedridden individuals, people with difficulties to understand the study procedures and people who had undergone surgical procedures up to 30 days prior to data collection.

The Boca da Mata community is a Quilombo community located in the municipality of Icatu (Maranhão). According to the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística – IBGE*), the municipality has 38 Quilombo communities relying mostly on fishing, planting vegetables and the *Bolsa Família* program – a cash handout – for survival⁽¹⁰⁾.

Data were collected between December 2013 and April 2014 in the community. Sociodemographic, behavioral and health/disease data were collected.

The measurement and classification of blood pressure levels followed the protocol of the VII Brazilian Hypertension Guidelines (*Diretriz Brasileira de Hipertensão Arterial*)⁽⁵⁾. BP was measured in the participant's right arm using the indirect method and the auscultatory technique with an aneroid sphygmomanometer (BD®) after five to ten minutes of rest. BP levels were checked twice with an interval of 2 to 5 minutes between measurements, as recommended by the Brazilian Society of Cardiology (*Sociedade Brasileira de Cardiologia – SBC*)⁽⁵⁾. BP levels of less than 140/90 mmHg were considered normal⁽⁵⁾.

Weight was measured using a calibrated digital scale (Seca® 803, Hamburg, Germany) with an accuracy of 0.1 kilograms and a maximum capacity of 180 kilograms. Height was measured using a portable vertical stadiometer (Seca® 213, Hamburg, Germany) with an accuracy of 1 millimeter. Participants wore light clothing to facilitate the observation of the contours of the body and weight measurement. During height measurement, the participants turned their backs to the equipment and kept their feet together with arms at sides standing upright against the apparatus with their heels touching the stadiometer and looking straight in a 90° angle to the floor^(13,14). Objects, ornaments and footwear that might interfere with weight and height measurements were removed.

Body mass index (BMI) was determined using weight (w) and height (h) measurements and dividing the weight by the square of height ($BMI = w/h^2$). The results were categorized according to the WHO criteria adopted by the Ministry of Health into: underweight ($BMI < 18.5 \text{ Kg/m}^2$), adequate or normal weight ($BMI 18.5$ to 24.9 Kg/m^2), overweight ($BMI \geq 25$ to $< 30 \text{ Kg/m}^2$), and obesity ($BMI \geq 30.0 \text{ Kg/m}^2$)⁽¹⁴⁾.

Trained researchers carried out the measurement of all variables using standardized techniques and calibrated and exclusive equipment for the research. Measurements were performed in duplicate and the mean results were considered for analysis. The data were described as frequency (absolute and relative) for categorical variables.

The Chi-squared test was used to check for associations of high blood pressure with gender, age and BMI. Stata® statistical software (version 12) was used. For the statistical interpretation of the results in all tables and tests, the level of significance was set at $p \leq 0.05$.

The research was approved by the Research Ethics Committee of the President Dutra University Hospital (*Hospital Universitário Presidente Dutra – HUUFMA*) under Approval No. 180.964 of 2012. The research complied with all the ethical principles of research involving human beings.

RESULTS

The present study analyzed the blood pressure levels of 74 people from a Quilombo community. The participants' mean age was 43 years (± 19.17). In all, 63.5% (n=47) of the participants were women and 36.4% (n=27) were men. The 18-29 age group predominated: 40.7% (n=11) of men and 29.7% (n=14) of women. With regard to skin color, 100% of the participants were self-declared black people (Table I).

Regarding marital status, 62.9% (n=17) of the men and 70.2% (n=33) of the women were married and/or lived with their partners. The most common occupation among men was farming, which was found in 85.1% (n=23) of them. As for women, most of them were homemakers, which corresponded to 44.6% (n=21) of them, followed by farmers, which corresponded to 31.9% (n=15) of the female participants.

Table I - Distribution of data by age, marital status and occupation of the Quilombo community-dwellers. Icatu, Maranhão, Brazil, 2014.

Age	Men		Women	
	n	%	n	%
18-29	11	40.7	14	29.7
30-41	02	7.40	11	23.4
42-53	04	14.8	11	23.4
54-65	06	22.2	03	6.38
>65	04	14.8	08	17
Total	27	100	47	100
Marital Status	n	%	n	%
Married/Living with partner	17	62.9	33	70.2
Single	05	18.5	08	17
Widowed	05	18.5	06	12.7
Total	27	100	47	100
Occupation	n	%	n	%
Student	04	14.8	07	14.8
Farmer	23	85.1	15	31.9
Housekeeper	0	0	04	8.51
Homemaker	0	0	21	44.6
Total	27	100	47	100

It should be noted that 36.4% (n=27) of the participants presented with high blood pressure levels, i.e., BP \geq 140/90 mmHg (Table II). Of these, 17.5% (n=13) had a previous diagnosis of hypertension and used antihypertensive medication. Of those previously diagnosed with hypertension, 38.4% (n=5) did not present with controlled BP (higher than 140/90 mmHg), even though they reported the use of antihypertensive medication. Of the participants with altered BP levels, 25.9% (n=7) were men and 42.5% (n=20) were women. There were no statistically significant differences between the genders with regard to high blood pressure levels (Table II).

Table II - High blood pressure levels by gender of the Quilombo Community-dwellers. Icatu, Maranhão, Brazil, 2014.

Variable	High Blood Pressure				p value
	Yes*		No**		
Gender	n	%	n	%	0.153
Men	7	25.9	20	42.5	
Women	20	42.5	27	57.4	
Total	27	36.4	47	63.6	

* Yes: Participant presented with high blood pressure ** No: Participant did not present with high blood pressure.

Regarding the age groups, 33.3% (n=9) of the participants aged 18-29 years had altered blood pressure levels, followed by 29.6% (n=8) of the participants aged 42-53 years. There were no statistically significant differences between the age groups with regard to high blood pressure levels (Table III).

Table III - High blood pressure levels by age of the people from the Boca da Mata Quilombo Community. Icatu, Maranhão, Brazil, 2014.

Variable	High Blood Pressure				p value
	Yes*		No**		
Age	n	%	n	%	
18-29 years	9	33.3	15	31.9	
30-41 years	5	18.5	8	17	
42-53 years	8	29.6	8	17	
54-65 years	1	3.7	8	17	0.092
Over 65 years	4	14.8	8	17	
Total	27	36.4	47		

* Yes: Participant presented with high blood pressure ** No: Participant did not present with high blood pressure.

The analysis of the body mass index (BMI), presented in Table IV, showed that 59.2% (n=16) of the participants with high BP levels were at normal weight. Additionally, 22.2% (n=6) of the participants with high BP presented with excess weight (overweight and obesity). There were no statistically significant differences in the distribution of body mass index (Table IV).

Table IV - High blood pressure by body mass index of the Quilombo Community-dwellers. Icatu, Maranhão, Brazil, 2014.

Variable	High Blood Pressure				p value
	Yes*		No**		
BMI	n	%	n	%	
Underweight	5	18.5	4	8.51	0.205
Normal weight	16	59.2	25	53.1	0.613
Overweight	3	11.1	15	31.9	0.055
Obesity	3	11.1	3	6.38	0.473
Total	27		47		

* Yes: Participant presented with high blood pressure ** No: Participant did not present with high blood pressure.

DISCUSSION

In the present study, there is a high prevalence of individuals with high blood pressure levels. These data highlight the importance of tracking health problems in this population. In this regard, the Brazilian Society of Cardiology⁽⁵⁾ and the study conducted by the Heart Institute of Brazil (*Instituto Corações do Brasil*) emphasize that hypertension is twice more prevalent in individuals with a non-white skin color and with severe lesions in target organs such as heart, brain and kidneys, which may lead to the occurrence of more serious complications⁽¹⁵⁾.

Importantly, 38% of those who had been previously diagnosed with hypertension had uncontrolled BP levels despite the continuous use of medicines. Vulnerability conditions in Quilombo communities^(8,16,17) may hinder access to the health system and treatment, since awareness of the diagnosis of hypertension and the daily use of the medication alone do not guarantee the control of the disease. It is necessary to associate measures to foster changes in eating habits and lifestyle⁽⁵⁾ and encourage self-care.

Although uncontrolled BP levels have been associated with multiple causes, such as unfavorable socioeconomic conditions, low levels of education, difficulties in the access to and use of health services, among others^(5,17), Brazilian studies have demonstrated that the knowledge and control of hypertension is better in municipalities where there is a larger coverage of the Family Health Program (*Programa Saúde da Família – PSF*), thus emphasizing the importance of an active system with actions designed to minimize the health problems of the population⁽⁷⁾.

Different from previous studies^(8,11,18), the data from the present study showed that the prevalence rate of BP alterations tends to decrease with increasing age (33.3% in people aged 18-29 years and 29.6% in people aged 42-53 years). This finding is of great concern because it has a negative impact on labor productivity. Hypertension can compromise workers' concentration and performance. It is also a cardiovascular risk factor and a major cause of premature death^(5,19,20). In Africa, 25% of deaths before the age of 60 are caused by hypertension. Therefore, early diagnosis and equality in treatment are important to reduce the risks of morbidity and mortality caused by hypertension and its sequels⁽¹⁹⁾.

The analysis of the body mass index revealed that 22.2% of the participants with altered BP levels presented with excess weight (overweight and obesity). Despite not being able to identify fat and lean mass in relation to the total body composition, the BMI is the most used measure of obesity due to its practicality and good benefit-cost ratio.

Epidemiological studies emphasize that excess weight and altered blood pressure levels combined considerably increase the risk of morbidity and mortality due to cardiovascular diseases^(11,21,22) because the accumulation of adipose tissue is known to be associated with dyslipidemia and insulin resistance^(11,22,23). Excess weight has been associated with a higher prevalence of hypertension in young ages^(7,23). In adult life, the increase of 2.4 Kg/m² in BMI represents higher risk of developing hypertension, even in physically active individuals⁽²³⁾.

A study carried out in a Brazilian capital showed that the change in the Brazilian dietary pattern is predominant in young women (15-24 years old) and in self-declared black individuals⁽²⁴⁾. As for activities, studies have reported a predominance of women in household chores. As for black individuals, different cultural heritages and patterns of consumption passed from generation to generation are reported to influence food consumption^(24,25).

The rapid rise of obesity worldwide is of great concern because of its relationship to the onset of several comorbidities⁽²⁶⁾. It is a cardiovascular risk factor that tends to be associated with other problems that put the individual at risk⁽²³⁾.

Thus, although the present study presented a low percentage of excess weight individuals, the great economic and social vulnerability experienced by this population group emphasizes the need for adequate nutritional guidelines/interventions because these data probably reflect a poor quality of the diet. This finding is in line with the national trend of the nutritional profile transition, in which traditional dietary patterns, such as consumption of cereals, roots and tubers, are being progressively replaced by a diet rich in fats and sugars^(23,24).

The type of study design used in present study limits causal inferences and generalizations of the results found. However, this is one of the studies carried out with isolated ethnic groups at a local and national level. The high prevalence of altered blood pressure levels in the Boca da Mata Quilombo Community is a factor that determines the planning of public policies and early diagnosis.

Knowledge of a population's sociodemographic and cultural characteristics as well as their beliefs and health status is essential for the planning of actions to promote health and prevent disease and for the interventions targeted at the control of the disease.

CONCLUSION

There was a prevalence of high blood pressure levels in the Quilombo community population analyzed.

ACKNOWLEDGEMENTS

To the Boca da Mata Quilombo Community, located in the municipality of Icatu (Maranhão, Brazil), and to the Foundation for Scientific Research and Development of Maranhão (*Fundação de Amparo à Pesquisa e Desenvolvimento Científico do Maranhão – FAPEMA*) for the financial support.

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