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Original article

ANTHROPOMETRIC PATTERNS OF HYPERTENSIVE INDIVIDUALS

PADRÕES ANTROPOMÉTRICOS DE PESSOAS HIPERTENSAS

PADRONES ANTROPOMÉTRICOS DE PERSONAS HIPERTENSAS

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Objective: to describe the anthropometric patterns of hypertensive adults and characterize the participants according to socioeconomic variables. Method: a descriptive study with a quantitative approach was carried out in a health multicenter in the city of Salvador, Bahia, Brazil, in 2017. Descriptive analyses were carried out with the use of tables containing absolute and relative frequencies. Results: the sample was made up of 220 participants with a hypertension diagnosis. There was a prevalence of women (78.6%) aged 60 years or older (53.6%) with black and brown skin color (91.4%), living with their partners (77.7%), with a monthly family income of one to two minimum wages (48.6%), and with education level up to complete high school (55.5%). Obesity and overweight (40.1%), and waist circumference (WC) and waist-hip ratio (WHR) over recommended levels stood out in the sample. Conclusion: there was a prevalence of overweight and obesity I and II and waist circumference and waist-hip ratio over recommended levels.

Descriptors: Obesity. Anthropometry. Hypertension.

Objetivo: descrever os padrões antropométricos de adultos hipertensos e caracterizar os participantes segundo as variáveis socioeconômicas. Método: estudo descritivo, de natureza quantitativa, desenvolvido num Multicentro de Saúde de Salvador, Bahia, Brasil, em 2017. Realizou-se análises descritivas, utilizando tabelas contendo frequências absolutas e relativas. Resultados: a amostra foi constituída por 220 participantes com diagnóstico de hipertensão arterial, predomínio de mulheres (78,6%), com idade maior ou igual a 60 anos (53,6%), de cor preta e parda (91,4%), com companheiro (77,7%), renda familiar mensal de um a dois salários mínimos (48,6%) e escolaridade até o ensino médio completo (55,5%). Destacaram-se, na amostra, obesidade e sobrepeso (40,1%) e circunferência da cintura (CC) e relação cintura-quadril (RCQ) não recomendados. Conclusão: houve predomínio de sobrepeso e obesidade I e II, circunferência de cintura e razão cintura/quadril não recomendadas.

Descritores: Obesidade. Antropometria. Hipertensão.

Objetivo: describir los patrones antropométricos de adultos hipertensos y caracterizar a los participantes según las variables socioeconómicas. Método: estudio descriptivo, de naturaleza cuantitativa, desarrollado en un Multicentro

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de Salud de Salvador, Bahía, Brasil, en 2017. Resultados: muestra constituida por 220 participantes con diagnóstico de hipertensión arterial, predominio de mujeres (78,6%), con edad mayor o igual a 60 años (53,6%), de color negro y parda (91,4%), con un compañero (77,7%), renta familiar mensual de uno a dos salarios mínimos (48,6%) y escolaridad hasta la enseñanza media completa (55,5%). Se destacaron, en la muestra, obesidad y sobrepeso (40,1%) y circunferencia de la cintura (CC) y relación cintura-cadera (RCQ) no recomendados. Conclusión: predominio de sobrepeso y obesidad I y II, circunferencia de cintura y razón cintura cadera no recomendadas.

Descriptors: Obesity. Anthropometry. Hypertension.

Introduction

Hypertension is responsible for at least 45% of deaths due to heart diseases and 51% of deaths due to cerebrovascular accidents. Most deaths occur in developing countries[1-2]. The highest incidence of cardiovascular diseases (CVDs), such as dyslipidemias, hypertension, type 2 diabetes, and bleeding disorders, has an association with overweight as one of its aggravating factors[3-5].

The association between CVDs and obesity results in a significant increase in mortality rates. Anthropometric measurements – abdominal circumference (AC), hip circumference (HC), and waist-hip ratio (WHR) – are instruments that assist in determining the association between overweight and cardiovascular risk factors (CRF)[3-5].

Anthropometric assessments are carried out by means of the measurement of human body's size, weight, and proportions. They provide objective data and make use of simple low-cost non-invasive techniques, with no risk for individuals. They also provide comparable data, since the normal pattern for the population was established[6].

The AC measurement, considered the most significant anthropometric index of intra-abdominal fat and the most simple and reproducible measurement, is obtained by measuring the central region, between the iliac crest and the lower costal margin. However, the largest diameter between the greater trochanters is used for HC measurement[3,7-8].

The combination of body mass and fat distribution is probably the best option to fulfill the need for clinical assessment. For WHR calculation, dividing the AC by the HC is recommended. The undertaking of anthropometric measurements by nurses assists in the correlation among obesity, metabolic disorders, and CVDs[3,7-8].

The increase in obesity has become a great public health issue in most parts of developed and developing countries. The body mass index (BMI) is one of the best body fat indicators. However, this index does not distinguish fat mass from lean mass and does not reflect the distribution of body fat. Therefore, ideally, the BMI should be used together with other body fat assessment methods. The cut-off point for adults is based on the association between BMI and chronic diseases or mortality[3].

For this, a BMI from 25 to 29.9 kg/m^2 may indicate overweight and a BMI of 30 kg/m^2 or over may suggest obesity. The cut-off points of <16 kg/m^2 (severe underweight), 16.0-16.9 (moderate underweight), and 17.0-18.4 (low underweight) are also part of the international classification. The association of AC measurement with BMI may provide a combined risk assessment form and assist in reducing the limitations of each isolated assessments[3-8].

When carrying out the search in databases of the Virtual Health Library, using the health descriptors obesity "and" anthropometry "and" hypertension "and" prevention "and" control, in Portuguese, English, and Spanish, twenty articles were found. However, a large gap of studies reporting investigations with adults was observed. Studies with elderly people and students as participants were found, and none were carried out in the northeastern region of Brazil.

The present study may contribute to the dissemination of knowledge and reflection on the importance in the measurement of anthropometric data and blood pressure levels appropriately and accurately, subsidized by national and international guidelines, with the aim of minimizing social grievances and reducing the impacts caused by lack of control of hypertension on individuals affected by the disease.

Therefore, the objective of the present study was to describe the anthropometric patterns (body mass index, waist circumference, hip circumference, and waist-hip ratio) of hypertensive adults and characterize the participants according to socioeconomic variables.

Method

This was a descriptive study with a quantitative approach carried out in 2017 in the health multicenter of a neighborhood considered one of most populous in the city of Salvador, Bahia, Brazil, and which has a strong Afro-descendant influence. The target population of the study was made up of individuals from both genders, with a systemic arterial hypertension (SAH) medical diagnosis (ICD: I10), and who were users of the abovementioned health multicenter. The simple random sample without replacement was calculated with the purpose of finding the proportion of individuals older than 18 years with an SAH diagnosis who were users of the service. The STATA 11 software was used.

A prevalence of SAH in individuals older than 18 years of 25.7% was adopted, which was obtained based on the results from surveys carried out by the Brazilian Ministry of Health by means of telephone interviews with the purpose of monitoring risk factors regarding chronic diseases (Vigitel 2014, as per its acronym in Portuguese). A 5% sample error was accepted (d=0.05) under a 95% confidence level. In the denominator, the total of patients registered in the Brazilian Registration and Monitoring System for Hypertensive and Diabetic Patients (HIPERDIA, as per its acronym in Portuguese) was used. According to the calculation, the sample was made up of 220 individuals with an SAH medical diagnosis.

The inclusion criteria adopted were individuals with an SAH medical diagnosis aged 18 years or older who made use of the abovementioned health multicenter during the data collection period (July to December 2017) for consultations and dispensation of medications by means of nominal prescriptions. The following exclusion criterion was adopted: individuals affected by cognitive or mental disorders.

The data collection instrument consisted of closed questions regarding the following socioeconomic data: age in years, gender, monthly family income in number of minimum wages, self-reported skin color/race, marital status, education level, and anthropometric data records (current weight, height, waist circumference, waist-hip ratio, and body mass index).

Parameters of the World Health Organization[9] were adopted for measurement of anthropometric data and definition of BMI. For determination of the waist circumference (WC), criteria established by one study carried out on risk factors for heart diseases[10] in accordance with the International Diabetes Federation[11] were applied. The users were asked to stand up with their arms next to their bodies and feet together, in orthostatic position. The measurement region was in the midpoint between the last fluctuation rib and iliac crest, which was marked with a pencil or pen. Subsequently, a non-elastic measuring tape with 1.50 m was placed in the midpoint, surrounding the abdomen according to a horizontal plan (without using the navel as a reference point); the measurement was made at the end of a normal expiration.

For waist-hip ratio parameters, recommendations established were adopted[8], carrying out the measurement in the highest circumference point of the gluteal region with the measuring tape, surrounding the most salient part between the waist and thigh. The measurements were made with the least possible

amount of clothes, as previously described. The waist-hip ratio was determined through by dividing the waist circumference (cm) by the hip circumference (cm).

The anthropometric data were measured by two scholarship holders of scientific initiation duly trained to undertake the procedure. The participants in the study were randomly invited while they waited for consultations or dispensation of medications. At this time, they were explained about the objective of the study. In case of acceptance, the participants were taken to a private place, with the purpose of respecting their privacy at the time of the interviews. After the reading and signing of the informed consent form, data collection initiated with the filling in of the instruments and undertaking of measurements. At the end of the interviews, the participants in the study were thanked and informed that the results would be divulged in the service for professionals and users at the end of the study.

The data were codified, stored, and analyzed in the Statistical Package for the Social Sciences 21 (SPSS) software for Windows. Initially, descriptive and exploratory analyses were carried out to characterize the population of the study. The variables studied were descriptively presented in a table containing absolute (n) and relative (%) frequencies, mean, and standard deviation for age.

The development of the present study met national and international ethical principles on research involving human beings.

Results

The sample was made up of 220 hypertensive individuals. The mean age was 59.4 years and standard deviation was 11.3. There was a prevalence of women (78.6%) with a monthly income of one to two minimum wages (48.6%), black skin color (91.4%), living with partners (77.7%), and with education level up to high school (55.0%).

As shown in Table 1, there was a prevalence of obese individuals in the study (77.7%), among which 37.7% presented overweight and 40.0% presented obesity level I and II. In 90.0% of the participants, the WC was not within recommended levels (greater or equal to 90 for men and greater or equal to 80 for women) and 93.2% were at high risk as per their WHR (greater or equal to 0.9 cm for men and greater or equal to 0.8 cm for women).

Table 1 – Proportion of individuals with hypertension according to anthropometric patterns. Salvador, Bahia, Brazil – 2017 (N=220)

Anthropometric patterns	n	%
Body mass index (BMI)		
Normal (18.5 – 24.9)	49	22.3
Overweight ((≥25 – 29.9)	83	37.7
Obesity I (30 – 34.9) and II (35 – 39.9)	88	40.0
Waist circumference (IDF) in cm		
Recommended (< 90-M/<80-F)	22	10.0
Not recommended (≥90-M/≥ 80-F)	198	90.0
Waist/hip ratio (cm/cm)		
Recommended (< 0.9-M/<0.8-F)	15	6.8
Not recommended (≥0.9-M/≥ 0.8-F)	205	93.2

Source: Created by the authors.

Note: M – Male gender; F – Female gender.

Discussion

In the sample of this study, there was a prevalence of women aged 60 years or older. This scenario may be justified by the fact that women and elderly people more often seek for health preventive services for control and treatment of hypertension, and express a greater perception of signs and symptoms indicators of the disease. In the case of elderly people, changes, such as hardening of the arteries due to the aging process, contribute to the development of hypertension[12-13].

Regarding self-reported race/skin color, the most prevalent was black (black and brown skin color), reflecting one of the characteristics of the neighborhood where the study was carried out, with a strong influence from the black culture, in which African roots are cultivated and social work is developed with the aim of rescuing the self-esteem of black people.

With regard to monthly family income, education level, and marital status, there was a prevalence of one to two minimum wages, up to high school, and living with partners, respectively. The results of this study are similar to those found in other studies[10,12]. Family income and education level are considered factors indicators of population life quality because they influence access to education, adoption of healthy behaviors, and adherence to treatments for chronic conditions such as SAH[12].

Regarding anthropometric patterns of the sample, most of the participants were overweight, and their WC and WHR were not within recommended levels. The results of the present study corroborate other studies that show the relationship between overweight and hypertension[6,13].

The present study presented limitations, such as the fact that data collection was carried out in only one health multicenter located in a neighborhood with the greatest concentration of Afro-descendants in the city, with specific characteristics of the local culture, and due to scientific evidence risk to hypertension. Because this was a cross-sectional study, in which outcomes are visualized at a single time, not establishing a relationship between cause and effect, the generalization of the results requires caution.

Conclusion

The present study enabled to identify the characteristics of the hypertensive adult population, with a prevalence of older women who were obese, black, lived with their partners, had an education level up to high school, low monthly income, and high risk to develop CVDs.

In anthropometric parameters, there was a prevalence of overweight, obesity I and II and waist circumference and waist-hip ratio over recommended levels.

This result indicates the importance of developing public policies to improve this population's quality of life.

Therefore, further studies with a focus on other services of the city's primary care network must be carried out, with the purpose of appropriately monitoring the treatment and prevention of these comorbidities (hypertension and obesity) in primary health care.

Collaboration

1. conception, design, analysis and interpretation of data: Cláudia Geovana da Silva Pires;

2. writing of the article and relevant critical review of the intellectual content: Cláudia Geovana da Silva Pires, Maiara da Silva Brandão Rodrigues, Alana de Souza Reis Carneiro, and Igor Fenando Lopes Assis;

3. final approval of the version to be published: Cláudia Geovana da Silva Pires.

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