Self-care in arterial hypertension according level of dietary advice and medical attendance in primary health care

Autocuidado na hipertensão arterial segundo o nível de orientação para a dieta e acompanhamento médico na atenção primária à saúde

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Abstract

Introduction: Inappropriate lifestyle, unhealthy eating habits and genetic factors are considered risk factors for the poor control of hypertension. **Objectives:** To evaluate the consumption of food markers, nutritional status and living and health conditions among hypertensive patients, according to medical and dietary guidance received. **Materials and Methods:** This study was performed with 109 hypertensive patients (≥40 years old) included in Family Health Strategy units. A questionnaire was applied to collect data on personal, socioeconomic, health information and the occurrence of medical attendance, in addition to a 24-hour recall to verify the consumption of food markers. The nutritional status was classified by body mass index. $P < 0.05$ was adopted as significant. **Results:** The sample was predominantly female, older adults, with low income and education, living with a partner, who had a reasonable/good perception of their own health, performed physical activities, did not have smoking habits and did not consume alcoholic beverages. The presence of one or more previously diagnosed diseases, high use of medications and being overweight were observed. There was a higher occurrence of healthy eating markers, mainly beans, than unhealthy foods, in which sweetened beverages predominated. A total of 94.5% received some medical or diet advice. Female gender, being overweight and use of medications were associated with medical advice, and with medical and diet advice, while consumption of vegetables was only associated with medical and diet advice. **Conclusion:** Despite being associated with conditions of greater self-care and risk monitoring in the population, medical and dietary guidance were still considered unsatisfactory.

Keywords: health education; treatment adherence; arterial pressure.

Resumo

Introdução: Estilo de vida inadequado, hábitos alimentares não saudáveis e fatores genéticos são considerados fatores de risco para o mau controle da hipertensão. **Objetivos**: Avaliar o consumo dos marcadores da alimentação, estado nutricional e condições de vida e de saúde entre hipertensos, segundo orientação médica e alimentar recebida**. Materiais e Métodos:** Estudo realizado com 109 indivíduos (≥40 anos) hipertensos, adscritos na Estratégia de Saúde da Família. Aplicou-se questionário sobre informações pessoais, socioeconômicas, de saúde e ocorrência de orientação médica,

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além do recordatório de 24 horas para verificar o consumo dos marcadores da alimentação. O estado nutricional foi classificado por meio do índice de massa corporal. Adotou-se como significante p<0,05. **Resultados:** A amostra era predominantemente feminina, idosa, com baixo nível de renda e escolaridade, vivendo com companheiro, que apresentavam percepção razoável/boa da própria saúde, realizavam atividades físicas, não possuíam hábitos de tabagismo e consumo de bebidas alcoólicas. Observou-se a presença de uma ou mais doenças diagnosticadas previamente, elevado uso de medicamentos e excesso de peso. Houve maior ocorrência de consumo de marcadores da alimentação saudável, principalmente feijão, do que alimentos não saudáveis, onde predominaram bebidas adoçadas. 94,5% receberam alguma orientação médica ou alimentar. Sexo feminino, excesso de peso e uso de medicamentos se associaram à orientação médica e médica e alimentar, enquanto consumo de verduras e legumes se associou apenas à orientação médica e alimentar. **Conclusão:** Apesar de associadas às condições de maior autocuidado e acompanhamento de risco na população, as orientações médicas e alimentar ainda assim foram consideradas insatisfatórias. **Palavras-chave**: educação em saúde; adesão ao tratamento; pressão arterial.

Introduction

The current population scenario in Brazil is characterized by a sharp increase in life expectancy, population aging and changes in the dietary and nutritional patterns of individuals[1,2]. Changes in these are above all marked by increased consumption of processed and ultra-processed foods, reduced intake of minimally processed and *in natura* foods, as well as changes in lifestyle. Such factors strongly contribute to worsening of nutritional status and the emergence of cardiovascular diseases, especially systemic arterial hypertension (SAH)[3,4].

SAH is a non-communicable chronic disease, being an insidious multifactorial condition, oligo/asymptomatic evolution and characterized by sustained elevation of blood pressure levels $\geq$ 140 and/or 90mmHg[4]. In addition to age, race, gender and genetic predisposition, body weight, unhealthy lifestyle habits, smoking and excessive salt consumption are also considered risk factors or predictors of complications from SAH[1,4,5,6,7]. In addition, the disease occurrence is often associated with metabolic disorders, constituting a risk factor for cardiovascular diseases, in addition to being an important cause of premature death and loss of quality of life in the population, since it has been responsible for large demands for healthcare[8]. The World Health Organization estimates that around 600 million people worldwide have SAH and the disease affects around 32.5% (36 million) of adults in Brazil[9,10]. Also, according to the 2019 edition of the annual survey carried out by the Surveillance of Risk and Protection Factors for Chronic Diseases by Telephone Survey (*VIGITEL*) in the set of 27 Brazilian cities studied, the medical diagnosis frequency of arterial hypertension was 24.5%[11].

The inclusion of regular physical activity and healthy eating practices linked to drug treatment have precise indications for controlling SAH and are strongly associated with improvement in the condition[1,6,7]. This context reinforces the need for actions that include food and nutrition, as they are determining and conditioning factors for health. The Brazilian Ministry of Health proposes the use of forms for evaluating food consumption markers as instruments for evaluating and implementing food and nutrition education in Primary Healthcare[12].

Given that environmental and behavioral factors favor the incidence of SAH and also influence non-adherence to its treatment, medical follow-up

associated with health education and nutritional education prove to be essential allies for controlling the disease, as they help to improve the prognosis and contribute to reduce morbidity and mortality[1,4,10]. Thus, the present study aimed to evaluate the consumption of healthy and unhealthy food markers, nutritional status and living and health conditions among hypertensive patients, according to medical and dietary guidance received.

Materials and Methods
Sample and study type

This is an exploratory cross-sectional epidemiological study that was conducted with hypertensive adults and older adults treated at the Family Health Strategy (FHS) (*Estratégia de Saúde da Família - ESF*) in the municipality of Governador Valadares in the state of Minas Gerais, Brazil. The municipality is located in the eastern region of the state of Minas Gerais and 324 km from the capital Belo Horizonte. Its main economic activities are processing regional products and extractive activities of wood, mica and semi-precious stones, with an average per capita income of the population equal to BRL R$678.74. The population of the municipality is 281,046 inhabitants[13], of which 15.05% are older adults (60 years and over)[14].

A confidence level of 95% was considered, a sampling error of 5%, with a variance in the sample proportion of 8% for the sample calculation, based on the hypertensive population in this age group enrolled in the entire FHS in the urban area of the municipality (N= 18,046). The final sample of the study consisted of 109 adults and older adult individuals, registered in one of the 10 FHS units selected for this work, with at least 1 unit per health district, in order to cover the entire urban territory and allow obtaining a sample of adult and older adult individuals which represents the

diversity of the studied variables from 2017 to 2020. The sampling process was probabilistic and the selection of participants was carried out through a simple drawing of the registration number in their respective unit. In case of refusal to participate, new draws were carried out until the sample size was completely filled.

This article was built from data collected in the project "Health indicators and active aging in the adult and older adult population of Governador Valadares-MG", which was approved by the Ethics Committee in Research with Human Beings of the Federal University of Juiz de Fora (Opinion No. 1,249,770), with all the requirements expressed in resolution 466/2012 being respected.

Research design

Data collection was carried out at the participant's home on pre-scheduled days and times by scholarship holders and university interns from the Nutrition, Dentistry, Pharmacy and Physical Education courses of the Federal University of Juiz de Fora - Governador Valadares Campus, duly trained and under the supervision of the responsible researchers.

Inclusion and exclusion criteria

Individuals with self-reported arterial hypertension, aged ≥40 years, registered in the selected FHS were included in this study. Individuals who did not answer any question on the questionnaire or who refused to take the measurements were excluded.

Procedures

A structured questionnaire was used for the interview to obtain personal (gender and age), socioeconomic (marital status, education, source of income, individual monthly income and number of income dependents) and

health information (self-perception of one's health, self-perception of food quality, self-reported presence of diseases, e.g., infectious diseases, depression, respiratory diseases, osteoporosis, arthrosis, cancer, and diabetes), consumption of alcoholic beverages and smoking, use of medications and characteristics of this use, physical activity (physical activity for 150 minutes or more per week).

The nutritional status of the participating individuals was evaluated through anthropometric assessment. Weight was measured using a Líder P150M® portable digital electronic scale with a capacity of 200 kg and accuracy of 50g. Height was measured using an Alturaexata® portable stadiometer with a capacity of 2 meters, divided into centimeters and subdivided into millimeters. The techniques used were recommended by the World Health Organization[15]. The body mass index (BMI) was calculated from the weight and height measurements, representing the kg/m^2 ratio[15]. The cut-off point used for classifying adults was that proposed by the World Health Organization[15], while the classification proposed by the Nutrition Screening Initiative[16] and Lipschitz[17] was adopted for classifying older adult individuals.

The evaluation of the occurrence of medical advice was evaluated based on the question: "Have you had consultations with doctors in the last 12 months?", with the respondent answering yes or no. The evaluation of the previous receipt of guidance for diet was based on the question: "Regarding your food/diet in the last 12 months, have you..." being presented as answer options: (1) been advised to restrict some foods and followed the recommendations; (2) been instructed to restrict some foods and NOT followed the recommendations; or (3) not been instructed on food restriction. Answers 1 and 2 were considered positive.

A 24-hour recall (24hrR) during the week from Tuesday to Friday was exclusively applied to evaluate healthy and unhealthy eating markers by undergraduate nutrition students previously trained and supervised by a professional nutritionist. Based on the instrument, the consumption occurrence of healthy eating markers (beans, fresh fruits, vegetables and legumes) and unhealthy eating markers (hamburgers and/or sausages, sweetened beverages, instant noodles, packaged snacks, salty crackers, stuffed cookies, or sweets or treats) was verified[13].

Statistical analysis

The data obtained were tabulated in an Excel® software program spreadsheet with double entry to minimize errors. Statistical analysis of the data obtained was performed using the Stata® version 13.0 statistical package (Stata Corp., College Station, United States). Data normality analysis was performed using the asymmetry coefficient (skewness). Categorical data were presented in their absolute (n) and relative (%) frequency values, while quantitative data were described as median and minimum and maximum values. The association between the type of guidance received (no guidance, medical guidance, dietary guidance or medical and dietary guidance) and the life, health and food variables was estimated using the Odds Ratio (OR) and 95% Confidence Intervals (95%CI), considering the absence of guidance as a reference category. The association between guidance type and food markers was adjusted for gender, income, education and nutritional status.

Results

The sociodemographic and lifestyle characteristics of the sample are described in Table 1. The group was

mainly composed of older adult women with low income and schooling levels and living with a partner, with a reasonable or good perception of their own health and performing physical activities. They did not smoke or consume alcoholic beverages. Most individuals reported that they had at least one other previously diagnosed disease in addition to hypertension, and a high prevalence of medication use and levels of overweight and obesity were also noted.

Table 1. Sociodemographic characteristics and lifestyle of the hypertensive population attended in the FHS of Governador Valadares, MG, Brazil.

Variables	Distribution
Female gender - % (n)	75.7 (84)
Age in years – median (min-max)	67 (40-107)
Age range - % (n)	
Adult	23.4 (26)
Older adult	76.6 (85)
Live with companion - % (n)	53.6 (59)
Income source - % (n)	
No income	18.2 (20)
Salary/retired/pension	78.2 (86)
Social benefits	3.6 (4)
Monthly income - % (n)	
Up to 1 Monthly salary (MS)	32.3 (30)
1 to 3 MS	61.3 (57)
$\geq$ 3 MS	6.4 (5)
Number of dependents on the income - median (min-max)	2 (0-7)
Education - % (n)	
Illiterate	16.2 (18)
Read and write	9.9 (11)
$\leq$ 8 years	46.9 (52)
> 8 years	27.0 (30)
Smoking - % (n)	
Never	58.6 (65)
Ex-smoker	7.2 (8)
Current smoker	34.2 (38)
Consume alcohol - % (n)	23.6 (23)
Self-perception of health - % (n)	
Very bad	8.4 (9)
Bad	12.2 (13)
Reasonable / OK	43.9 (47)
Good	32.7 (35)
Very good	2.8 (3)
Practice physical activity - % (n)	26.1 (29)
Number of diseases – median (min-max)	4 (1-10)
Medication use - % (n)	97.3 (107)
Number of medications	3 (0-10)
Weight in Kg – mean (SD)	73.3 (41.6-136.5)
Height in m – mean (SD)	1.53 (1.33-1.8)
Body Mass Index in Kg/m² – median (min-max)	30.6 (19.0-47.1)
Classification of Nutritional Status - % (n)	
Eutrophic	24.0 (43)

Low weight	7.8 (14)
Overweight	49.2 (88)
Obese	19.0 (34)

*MS = Minimum monthly salary in place at the time of data collection.

Food data are described in Table 2. There was a higher occurrence of consumption of healthy eating markers when compared to unhealthy eating markers; but only 30.3% consumed the 3 healthy eating markers the day before, and 8.3% did not consume any of them. On the other hand, 42.3% of respondents reported not having consumed any unhealthy eating markers the day before, while only one individual consumed all of them. The healthy eating marker with the highest consumption was beans, followed by vegetables. The unhealthy diet marker with the highest occurrence of consumption was sweetened beverages, followed by instant noodles, packaged snacks and salty crackers.

Table 2. Self-evaluation of food quality and the occurrence of healthy and unhealthy eating markers in the hypertensive population attended at the FHS of Governador Valadares, MG, Brazil.

Variables	Distribution % (n)
Healthy eating markers consumed	
None	8.3 (9)
One	22.0 (24)
Two	39.5 (43)
Three	30.3 (33)
Beans	77.5 (86)
Fruit	42.7 (47)
Vegetables and legumes	70.0 (77)
Unhealthy eating markers consumed	
Nonee	42.3 (47)
One	36.9 (41)
Two	19.8 (22)
Three	0.9 (1)
Hamburger/sausage	9.9 (11)
Sweet/sugary beverages	36.9 (41)
Instant noodles/packaged snacks/salty crackers	18.0 (20)
Stuffed cookies/sweets/treats	14.4 (16)

Regarding the healthcare level received in the last year (Table 3), 94.5% of the population received some guidance, whether medical or diet, and it was observed that the first was given in greater quantity than the second. Only 50.5% of respondents received both guidelines.

Table 3. Healthcare and nutrition level in the hypertensive population attended in the FHS of Governador Valadares, MG, Brazil.

Variáveis	Distribution % (n)
No guidance	5.5 (6)
Only medical guidance	37.6 (41)
Only dietary guidance	6.4 (7)

Medical + dietary guidance	50.5 (55)

The analysis of living, health and nutrition conditions associated with medical and diet advice in the hypertensive population showed that the older adult age group, income below 1 minimum monthly salary, schooling < 8 years and physical activity practice were not associated with any type of guidance received. However, it was observed that females were positively associated with receiving guidance, whether only medical (OR:9.7; 95%CI:1.5-63.8) or medical and diet (OR:7.2; 95%CI:1.2-43.9), as well as the use of medication (OR:8.6; 95%CI:2.4-30.0 and OR:13.9; 95%CI:3.7- 51.6; respectively). In addition, the occurrence of excess weight (overweight and obesity) was significantly associated with receiving medical advice (OR:9.7; 95%CI:1.5-63.8) and medical and dietary advice (OR:9.0; 95%CI:1.4-56.1) (Table 4).

In analyzing healthy eating markers, the consumption of vegetables was associated with medical and dietary advice (OR:16.3; 95%CI: 1.4-185.2), while no differences were identified regarding unhealthy eating markers in consumption according to the health guidance received (Table 4).

Table 4. Bivariate analysis of conditions associated with medical advice and diet in the hypertensive population treated at FHS of Governador Valadares, MG, Brazil.

Variables	Guidance			
	No guidance	Medical guidance	Dietary guidance	Medical + dietary guidance
Female gender - % (n)	33.3 (2)	82.9 (34)	71.4 (5)	78.2 (43)
OR (95%CI) (p)	reference	9.7 (1.5-63.8) (0.018*)	4.5 (0.5-52.9) (0.181)	7.2 (1.2-43.9) (0.03*)
Age range older adult - % (n)	83.3 (5)	80.5 (33)	57.1 (4)	76.4 (42)
OR (95%CI) (p)	reference	0.8 (0.1-8.1) (0.869)	0.3 (0.02-3.7) (0.322)	0.6 (0.1-6.0) (0.702)
Monthly income < 1 MS - % (n)	33.3 (2)	22.5 (9)	14.3 (1)	14.6 (8)
OR (95%CI) (p)	reference	0.6 (0.1-3.7) (0.565)	0.3 (0.02-5.0) (0.427)	0.3 (0.1-2.2) (0.287)
Education < 8 years - % (n)	83.3 (5)	73.2 (30)	71.4 (5)	72.7 (40)
OR (95%CI) (p)	reference	0.5 (0.1-5.2) (0.615)	0.5 (0.03-7.5) (0.615)	0.5 (0.1-4.9) (0.615)
Practice physical activity - % (n)	16.7(1)	29.3 (12)	42.9 (3)	21.8 (12)
OR (95%CI) (p)	reference	1.58 (0.4-6.2) (0.512)	1.5 (0.2-9.4) (0.665)	1.5 (0.4-5.8) (0.564)
Medication use - % (n)	66.7 (4)	97.6 (40)	71.4 (5)	100 (54)
OR (95%CI) (p)	reference	8.6 (2.4-30.0) (0.001*)	2.0 (0.4-9.8) (0.394)	13.9 (3.7-51.6) (0.001*)
Excess weight* - % (n)	33.3 (2)	82.9 (34)	57.1 (4)	81.8 (45)
OR (95%CI) (p)	reference	9.7 (1.5-63.8) (0.01*)	2.7 (0.3-25.6) (0.396)	9.0 (1.4-56.1) (0.01*)
Consumption of 3 healthy eating markers - % (n)	16.7 (1)	38.8 (26)	27.3 (3)	18.2 (2)
OR** (95%CI) (p)	reference	7.8 (1.1-67.0) (0.04*)	3.7 (0.3-45.0) (0.310)	4.2 (0.5-36.5) (0.198)
Beans - % (n)	83.3 (5)	78.1 (32)	85.7 (6)	74.6 (41)
OR** (95%CI) (p)	reference	1.1 (0.1-12.5) (0.969)	1.6 (0.1-35.6) (0.776)	0.9 (0.1-9.6) (0.900)
Fruit - % (n)	50.0 (3)	53.7 (22)	28.6 (2)	37.0 (20)
OR** (95%CI) (p)	reference	0.8 (0.1-5.3) (0.815)	0.3 (0.03-3.4) (0.336)	0.4 (0.1-2.8) (0.388)
Vegetables and legumes - % (n)	16.7 (1)	70.0 (28)	71.4 (5)	74.6 (41)
OR** (95%CI) (p)	reference	11.2 (0.9-129.1) (0.05*)	13.8 (0.8-233.8) (0.06)	16.3 (1.4-185.2) (0.02*)
Consumption of no unhealthy eating markers - % (n)	66.7 (4)	41.5 (17)	28.6 (2)	43.6 (24)
OR** (95%CI) (p)	reference	0.4 (0.1-3.1) (0.416)	0.2 (0.02-2.5) (0.220)	0.5 (0.1-3.1) (0.428)
Hamburger/sausage - % (n)	16.7 (1)	2.4 (1)	28.6 (2)	14.6 (8)

OR** (95%CI) (p)	reference	0.6 (0.1-6.7) (0.714)	3.1 (0.2-39.5) (0.382)	2.2 (0.3-18.4)
Sweet/sugary drinks - %(n)	33.3 (2)	39.0 (16)	57.1 (4)	32.7 (18)
OR** (95%CI) (p)	reference	0.9 (0.1-6.9) (0.977)	2.4 (0.2-24.5) (0.463)	0.8 (0.1-5.5) (0.810)
Instant noodles/packaged snacks/salty crackers - % (n)	16.7 (1)	19.5 (8)	14.3 (1)	18.2 (10)
OR** (95%CI) (p)	reference	1.2 (0.1-11.9) (0.869)	0.8 (0.04-17.0) (0.906)	1.1 (0.1-10.6) (0.927)
Stuffed cookies/sweets/treats % (n)	16.7 (1)	17.1 (7)	28.6 (2)	9.1 (5)
OR** (95%CI) (p)	reference	1.03 (0.1-10.2) (0.980)	2.0 (0.1-29.8) (0.615)	0.5 (0.05-5.2) (0.561)

* Excess weight = overweight and obese. ** Adjusted for gender, income, education and excess weight.

Discussion

The results of the present study generally demonstrate that the hypertensive patients treated in primary care of the municipality were mostly older adult women, with low income and education, and diagnosed with other diseases, which is similar to the Brazilian population. The 2019 edition of the annual survey carried out through *VIGITEL* showed that the disease has a higher frequency of medical diagnosis among women than among men[11]. This fact has also been demonstrated in several studies[8,10,19,20], which point out that the diagnosis of SAH can predominantly occur in women due to the greater demand for healthcare by this gender and women's greater perception of physical signs and symptoms, thus allowing greater opportunities for diagnosing the disease[21].

The high prevalence of SAH associated with aging was also observed by Bento et al.[22], who demonstrated high hypertension prevalence among older Brazilian adults, and by Lobo et al.[23], who found a direct linear trend between an increase in the age groups of the population and higher arterial hypertension prevalence. Such results can be attributed to the increase in the older adult population, increased life expectancy and longevity, emotional stressors and exposure to risky behaviors throughout life, in addition to biological changes typical of aging, such as aortic artery stiffening and greater peripheral vascular resistance[10,23].

The predominance of low economic income among the hypertensive patients in the study can be explained by the fact that the use of services provided in primary healthcare in Brazil is still mistakenly mostly performed by the low-income population, as observed in the study by Guibu et al.[24], which showed that 55% of the Brazilian population that used these services belonged to the C economic class. Above all, the low economic income of this public does not favor access to health services and information, thus leading to less healthy behavioral and health practices[22].

The hypertensive patients studied generally had a higher consumption of healthy eating markers than unhealthy eating markers. The latter comprise ultra-processed foods, rich in sugar, sodium and fat, with high caloric density and low amount of micronutrients[10]. There was a high consumption of sweetened beverages (36.9%), which added to the consumption of stuffed cookies, sweets and candies (14.4%), represent consumption of foods rich in sugar by more than half of hypertensive patients (51.3%). The data observed in the Brazilian population monitored in 2019 by the Food and Nutrition Surveillance System (*Sistema de Vigilância Alimentar e Nutricional - SISVAN*[25]) showed the consumption of such foods in 89% of the population,

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which is too high, and in the long term could lead to worsening in the general health situation of the population, thus leading to higher health expenditures and worse prognosis. In addition, considering that the population studied is affected by a multifactorial chronic disease, the consumption of ultra-processed foods and foods rich in sugars, which characterize an unhealthy diet, can favor the occurrence of excess weight and worsen the general condition of the disease, as well as an increased risk of mortality[26].

Another alarming finding is the consumption of foods rich in sodium and saturated fats by approximately one third of the hypertensive patients evaluated (27.9%), either through eating hamburgers or sausages, or through instant noodles, packaged snacks and/or salty crackers. A systematic analysis study carried out by Afshin et al.[27] with data from 195 countries showed that the global daily sodium intake in 2017 was 86% above the recommended ideal amount and in the same year also highlighted that more than half of the diet-related deaths and two-thirds of diet-related DALYs (mortality and disability-adjusted life years) were attributable to high sodium intake, low whole grain intake, and low fruit intake, with sodium ranking first in mortality among men. Excessive consumption of this nutrient is one of the main risk factors for arterial hypertension, being recognized as one of the main causes of cardiovascular morbidity and mortality, and food processing impacts the nutritional quality of the diet and human health[28], emphasizing the importance of evaluating and monitoring food consumption in this population.

The fact that hypertensive individuals have a higher consumption of healthy markers is probably due to changes in consciousness and the adoption of healthier lifestyle habits and better food choices due to the presence of other associated diseases, thus leading to greater health awareness[29]. Despite this, its consumption was still irregular in this population, considering that although 91.8% had consumed 1 or more foods from this group, only 30.3% consumed the 3 foods, and strategies and interventions to increase regular consumption are still necessary.

Respondents reported consuming vegetables or fruits on the previous day, with vegetables being more present in the diet (70.0%), while only 42.7% had consumption of fruits on the previous day. The consumption of beans on the previous day was also reported by the vast majority of respondents (77.5%). The low consumption of fruits observed differed from the national data from *SISVAN*, which showed a more expressive consumption in the Brazilian population (78%), while consumption in relation to the intake of beans (86%) and vegetables (76%) was similar[25]. The high consumption of beans can be justified, since the 2017-2018 Family Budget Survey[30] showed that the dietary pattern of the Brazilian population is characterized by higher frequencies of consumption of coffee (78.1%), rice (76.1%) and beans (60.0%), followed by bread with salt (50.9%) and oils and fats (46.8%), given that it is the habit of Brazilians to associate consumption of rice and beans, and also considering that beans is a healthy food since it has a high fiber content in addition to its relatively low energy density, and so high consumption can be justified.

Low fruit consumption was also reported by Santos et al.[31], who evaluated individuals (n=877) aged 44 years or older residing in the urban area of the city of Cambé-PR, and described that the main barriers to consuming fruits and vegetables observed are related to cost, lack of habit of consumption, lack of time to go to the market/fair frequently to buy fresh fruit, need for preparation (peeling, cutting, etc.), and

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not liking the taste. Anjos *et al.* [32] carried out a literature review on the DASH diet (Dietary Approaches to stop hypertension) in treating SAH and concluded that the dietary pattern is composed of fruits, vegetables and grains, including skimmed milk derivatives, fish, vegetables, and lean meats, with reduced content of sweets and drinks rich in sugar, which may favorably affect the blood pressure of hypertensive adults. In addition, in a multicenter randomized and controlled study carried out with hypertensive adults (n=133), Conlin *et al.*[33] showed that a diet rich in fruits and vegetables significantly reduced blood pressure levels when compared to the control diet. Factors such as these highlight the importance of dietary guidance associated with strategies to promote healthy, adequate and varied food through food and nutrition education actions.

It was observed that 94.5% of hypertensive patients received at least one health guideline. Medical advice, with or without dietary advice, was received by 88.1% of respondents, while dietary advice, with or without medical advice, was received by a smaller portion (56.9%). Still, the offer of the two guidelines was low (50.5%). It is known that the therapeutic approach for controlling SAH must take into account risk factors and clinical aspects of the patients, and the non-pharmacological treatment of the disease involves weight control, dietary changes, physical activity, smoking cessation and stress control[4]. Thus, in order for adherence to disease treatment to occur satisfactorily, health guidelines are needed which involve both treatments in order to ensure greater support for change.

The interviewees' reports indicate that the occurrence of health and nutrition guidelines for hypertensive patients treated in primary care was low. Possible hypotheses for this result include the lack of training of professionals based on national protocols and guidelines, which means that care is being provided in disagreement with the recommendations. In addition, there is an excess of activities, work overload and inadequate physical structure, which make it impossible for them to offer adequate health care or because they do not give due importance to scheduling appointments with people with chronic conditions, since there is a high demand for outpatient care consultations in these services[34], which is reflected in limited explanation to patients about the need for treatment and individual and systematic monitoring of SAH[35].

The Hiperdia program was created through Ordinance no. 371/GM on March 4, 2002, with the aim of systematizing and expanding the space for education and monitoring of hypertensive patients in the FHS and is intended for registering and monitoring patients with arterial hypertension and/or diabetes mellitus treated in the outpatient network of the Unified Health System (*Sistema Único de Saúde – SUS*[36]). This system guides public managers in adopting intervention strategies, generates information for the acquisition, dispensing and distribution of medicines and (among other functions) the system registers and monitors the situation of carriers of both diseases in the country[36,37]. In this sense, if the health teams plan the actions that will be implemented in the unit based on the guidelines proposed by the program, they will be able to guarantee greater care coverage, as well as prevention and health promotion of the patients treated.

The low supply of guidance may also be associated with reduced interest and demand for care whose focus is not medical/medication with a predominantly curative vision. Such factors were observed by De Arruda-Barbosa et al.[38] who evaluated the main

reasons that lead the population to seek services in the Family Health Strategies in the city of Crato, located in the south of the state of Ceará. The authors observed that the evaluated users (n=25) mainly sought health units for morbidity reasons, or when they needed some medication or exam, thus demonstrating that the population's aspirations are still based on medicalization. The authors described that this search also occurs due to the fact that the individual is apparently ill; thus, if we consider that SAH is an insidious disease[4], the search can be even more impaired, thus reducing access to care and health guidelines.

Rocha et al.[39] described in their study that 50.4% (204) of the hypertensive population studied believed that they did not need to change their lifestyle. Lima et al. (2016)[40] describe that the asymptomaticity of the disease for many hypertensive patients means that SAH is not considered as something that requires continuous care. The importance of an active search for hypertensive patients in order to promote actions for health monitoring and guidance is thus perceived. This procedure is of paramount importance in the set of actions in epidemiological surveillance of field investigation, aiming at early identification of suspected cases, seeking to ensure rapid confirmation to adequately guide applying control measures[41]. In addition, permanent training practices of health professionals with the ability to work are shown to be necessary to develop actions for preventing and controlling SAH in adequately and systematically in the population.[42].

Gomes et al.[43] reported the guidelines on nutrition offered by professionals to users with hypertension and/or diabetes mellitus during consultations at FHS units in Recife and found that these professionals provided dietary advice in a directive and prohibitive way to control salt consumption and sugar, with the other necessary food instructions not being explained. The authors also highlighted that all of the FHS in the study had an Expanded Family Health Center with the presence of a nutritionist, but that this had activities only linked to providing lectures on health and nutrition education for the general population. The specific attributes of the nutritionist, added to the overload of this professional for monitoring around 4 or more FHS teams and their entire enrolled population, as in the municipality studied herein, potentially make it impossible to provide individualized care with a focus on dietary specificities for the population with chronic diseases. These factors reinforce the importance of the nutritionist in providing care for users with SAH, since shared care associated with adequate therapy can provide a greater coverage of care in relation to diet, leading to better disease control results.

The offer of medical guidance increased the chance of using medication to control the disease by 8.6 times. As an example of the importance of the greater impact of shared monitoring, it was evidenced in the present study that the occurrence of medical and dietary guidance in the last year increased the chance of medication use by hypertensive patients and the consumption of vegetables in this group by 13.9 and 16.3 times, respectively. This demonstrates that medical care associated with food education is essential for adopting behaviors which promote SAH control[1,35].

Finally, it was observed that overweight hypertensive individuals were 9.7 times more likely to receive medical advice and 9.0 times more likely to receive medical advice associated with dietary advice when compared to those who did not receive advice or who only received dietary guidance. Several

pathophysiological disorders are caused by obesity, such as cardiovascular disorders, endocrine disorders, respiratory disorders, obstructive sleep apnea, hypoventilation syndrome, restrictive lung disease, and may also generate gastrointestinal disorders, such as hiatal hernia and cholecystitis; dermatological disorders such as striae and papillomas; genitourinary disorders, such as anovulation and gestational problems[42]. Since overweight and obesity increase the risk of such disorders and also favor the risk of adverse events resulting from SAH, the greater receipt of guidance from this public is necessary because these individuals seek more services, as mentioned above, and combined with the fact that SAH is an insidious disease, the search for care mainly occurs when symptoms appear. In addition, the greater chance of medical and dietary guidance in overweight individuals may be related to the greater participation of these patients in health services due to the search for weight loss, which exposes them to the guidelines.

We highlight the performance of a cross-sectional study among the existing limitations in this study, making it impossible to verify causality between the factors. In addition, it is highlighted that the collection was carried out through a questionnaire, which allowed the occurrence of memory bias by the answers given, as well as the difficulty of evaluating the real physical activity level of those evaluated. However, the data obtained in the study contribute to understanding the life, health and diet profile of individuals with hypertension, in addition to the dynamics of health and diet guidelines in this group. Moreover, the study may contribute to advance knowledge about healthcare provided in primary care in the context of the *SUS*, in turn contributing to improve the planning and execution of services provided by health professionals.

Conclusion

From the results obtained in the study, it became evident that the occurrence of health and nutrition guidance for hypertensive patients treated in primary healthcare, although essential, has not been effective. The hypertensive patients studied showed higher consumption of healthy eating markers than unhealthy eating markers, however the consumption of sweetened beverages and foods rich in sodium was high. The combination of medical and nutrition guidance was associated with the female gender and conditions of greater self-care and risk monitoring in the population, such as medication use, consumption of vegetables and being overweight. Thus, it is recommended that health teams systematically plan actions and individualized care aimed at medical and dietary recommendations in order to guarantee greater care coverage, as well as prevention and health promotion of the patients treated, and generally create monitoring strategies to assess patient compliance.

References

1. Firmo JOA, Peixoto SV, Loyola FAI, Souza-Júnior PRB, Andrade FB, Lima-Costa M et al. Comportamentos em saúde e o controle da hipertensão arterial: resultados do ELSI-BRASIL. Cad. Saúde Pública. 2019; 35(7).

2. Oliveira AS. Transição demográfica, transição epidemiológica e envelhecimento populacional no Brasil. Hygeia. 1º de novembro de 2019 [citado 05 Mar 2021];15(32):69.

3. Santos FS, Dias MS, Mintem GC, Oliveira IO, Gigante DP. Processamento de alimentos e fatores de risco cardiometabólicos: revisão sistemática. Rev. Saúde Pública. 2020;54: 70.

4. Barroso WKS, Rodrigues CIS, Bortolotto LA, Mota-Gomes MA, Brandão AA, Feitosa ADM, Machado CA, et al. Diretrizes Brasileiras de Hipertensão Arterial – 2020.

5. Silva LM, Souza AC, Fhon JRS, Rodrigues RAP. Adesão ao tratamento e síndrome da fragilidade em idosos hipertensos. Rev. esc. enferm. USP. 2020; 1-8.

6. Teixeira JF, Goulart MR, Busnello FM, Pellanda LC. Conhecimento e Atitudes Sobre Alimentos Ricos em Sódio por Pacientes Hipertensos. Arq. Bras. Cardiol. Maio de 2016; 106(5):404-410.

7. Leitão VBG, Lemos VC, Francisco PMSB, Costa KS. Prevalência de uso e fontes de medicamentos anti-hipertensivos no Brasil: uma análise do inquérito telefônico VIGITEL. Rev. bras. epidemio. 2020;23.

8. Zangirolani LTO, Assumpção D, Medeiros MAT, Barros MBA. Hipertensão arterial autorreferida em adultos residentes em Campinas, São Paulo, Brasil: prevalência, fatores associados e práticas de controle em estudo de base populacional. Ciênc. saúde coletiva.2018; 23(4): 1221-1232.

9. Lavôr LCC, Sousa RR, Rodrigues LARL, Rodrigues FOS, Paiva AA, Frota KMG. Prevalence of arterial hypertension and associated factors: a population-based study. Rev. Assoc. Med. Bras. 2021; 66(5):630-636.

10. Malta DC, Bernal RTI, Andrade SSC de A, Silva MMA da, Velasquez-Melendez G. Prevalência e fatores associados com hipertensão arterial autorreferida em adultos brasileiros. Rev Saude Publica. 2017; 51:1-10.

11. Brasil. Ministério da Saúde. Vigitel Brasil 2019: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília, DF: Ministério da Saúde, 2020.

12. Brasil. Ministério Da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Orientações para avaliação de marcadores de consumo alimentar na atenção básica [recurso eletrônico] / Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Atenção Básica. – Brasília: Ministério da Saúde, 2015.

13. Instituto Brasileiro de Geografia e Estatística, Diretoria de Pesquisas, Coordenação de População e Indicadores Sociais, Estimativas da população residente com data de referência 1° de julho de 2019.

14. Brasil. Ministério Da Saúde. Estatísticas vitais ano base 2012. Disponível em http://www2.datasus.gov.br/DATASUS/. Acesso em 20 de fevereiro de 2021.

15. Organización Mundial de La Salud. El estado físico: uso e interpretación de la antropometría.Genebra: OMS; 1995. 452 p.

16. World health organization. Obesity: preventing and managing the global epidemic. Report of a WHO Consultation. WHO Technical Report Series 894. Geneva: World Health Organization, 2000.

17. Nutrition Screening Initiative. Incorporating nutrition screening and interventions into medical practice: a monograph for physicians. Washington DC: Nutrition Screening Initiative; 1994.

18. Lipschitz DA. Rastreio do estado nutricional em idosos. Atenção primária. Março de 1994; 21 (1): 55-67.

19. Mendes FDA, Silva MP da, Ferreira CRS. Diagnósticos de enfermagem em portadores de hipertensão arterial na atenção primária. Estação Científica (UNIFAP). 2018; 8(1):91.

20. Mendes L, Cebola M, Mendes D, Marinho A, Guerreiro AS. Intervenção nutricional no doente com COVID-19. Saúde Tecnol. 2020;23:11–18.

21. Rodrigues PDV, Dias MS de A, Brito MDCC, Moita MP, Silva LC das C, Moreira ACA. Autopercepção De Hipertensos Acompanhados Pela Estratégia Saúde Da Família Acerca Da Qualidade De Vida. SANARE - Rev Políticas Públicas. 2019;18(2):7–14.

22. Bento IC, Mambrini JV de M, Peixoto SV. Contextual and individual factors associated with arterial hypertension among brazilian older adults (National health survey – 2013). Rev Bras Epidemiol. 2020;23:1–13.

23. Lobo LAC, Canuto R, Dias-da-Costa JS, Pattussi MP. Tendência temporal da prevalência de hipertensão arterial sistêmica no Brasil. Cad Saude Publica. 2017; 33(6).

24. Guibu IA, de Moraes JC, Junior AAG, Costa EA, Acurcio F de A, Costa KS, et al. Características principais dos usuários dos serviços de atenção primária à saúde no Brasil. Rev Saude Publica. 2017[citado 05 Mar 2021];51(2:17):1-13.

25. Brasil. Ministério da Saúde. Sistema de Vigilância Alimentar e Nutricional. Relatórios de acesso público. Brasília, DF: MS, 2020.

26. Ribas BLP, Longo A, Dobke FV, Weber B, Bertoldi EG, Borges LR, et al. Consumption of sugar-sweetened beverages in patients with established atherosclerosis disease. Cienc e Saude Coletiva. 2020; 25(4):1499–1506.

27. Afshin A, Sur PJ, Fay KA, Cornaby L, Ferrara G, Salama JS, et al. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2019; 393(10184):1958–1972.

28. Andressa M, Barbosa G, Fontbonne A. Consumo alimentar de hipertensos e diabéticos na perspectiva do processamento industrial dos alimentos. 2020; 18:76–89.

29. Ferrari TK, Cesar CLG, Alves MCGP, De Azevedo Barros MB, Goldbaum M, Fisberg RM. Estilo de vida saudável em São Paulo, Brasil. Cad Saude Publica. 2017; 33(1):1–12.

30. Pesquisa de orçamentos familiares 2017-2018 : análise do consumo alimentar pessoal no Brasil / IBGE, Coordenação de Trabalho e Rendimento. - Rio de Janeiro : IBGE, 2020.

31. Dos Santos GMGC, Silva AMR, de Carvalho WO, Rech CR, Loch MR. Perceived barriers for the consumption of fruits and vegetables in Brazilian adults. Cienc e Saude Coletiva. 2019[citado 05 Mar 2021];24(7):2461–2470.

32. Anjos KDG dos, Olinto EO dos S, Feitosa GAM, Araújo RG, Maia LA, Lima EM de, et al. Dieta DASH no tratamento da hipertensão arterial sistêmica/DASH diet in the treatment of systemic arterial hypertension. Brazilian J Heal Rev. 2021;4(1):621–634.

33. Coutinho WF, Benchimol AK. Obesidade mórbida e afecções associadas. In: Garrido Junior AB, Ferraz EM, Barroso FL, Marchesini JB, Szego T. Cirurgia da obesidade. São Paulo: Atheneu; 2006; 13-17.

34. de Arruda-Barbosa L, Magalhães DT, Correia OC, Estratégia Saúde da Família: avaliação e motivos para busca de serviços de saúde pelos usuários. Revista Brasileira em Promoção da Saúde. 2011; 24 (4): 347-354.

35. Barreto M da S, Mendonça R de D, Pimenta AM, Vivar CG, Marcon SS. Não utilização de consultas de rotina na Atenção Básica por pessoas com hipertensão arterial. Cienc e Saude Coletiva. 2018; 23(3):795–804.

36. Brasil. Ministério da Saúde. Plano de reorganização da atenção à hipertensão arterial e ao diabetes mellitus. Manual de hipertensão arterial e diabetes mellitus. Brasília: Ministério da Saúde; 2002.

37. Gomes ET, Bezerra SMM da S. Níveis pressóricos de pacientes em acompanhamento pelo Programa Hiperdia. ABCS Heal Sci. 2018; 43(2):91–6.

38. Rocha MLF, Borges JW, Martins MFS. Adesão ao tratamento da hipertensão arterial entre usuários da estratégia saúde da família em um município do Piauí. 2017; 19(2):1–19. Lima DB da S, Moreira TMM, Borges JWP, Rodrigues MTP. Associação Entre Adesão Ao Tratamento E Tipos De Complicações Cardiovasculares Em Pessoas Com Hipertensão Arterial. Texto e Context Enferm. 2016; 25(3):9.

39. Secretaria de Vigilância em Saúde. Guia de vigilância epidemiológica. 6. ed. Brasília, DF, 2005b.

40. Gomes MF, Santos RS de AF dos, Fontbonne A, Cesse EÂP. Orientações Sobre Alimentação Ofertadas Por Profissionais Da Estratégia De Saúde Da Família Durante As Consultas Aos Hipertensos E Diabéticos. Recife, 2015[citado 05 Mar 2021]. Rev APS. 2018;20(2):203–211.

41. Mancini MC. Obstáculos diagnósticos e desafios terapêuticos no paciente obeso. Arq Bras Endocrinol Metab. 2001; 45 (6): 584-608.

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