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Maria Leticia Costa Reis[1]
Lauriany Lívia Costa[2]
Magnania Cristiane Pereira da Costa[1]
Fernanda Fraga Campos[1]
Gilvan Ramalho Guedes[3]
Carlos Alberto Dias[4]

[1] Universidade Federal dos Vales do Jequitinhonha e Mucuri, Faculdade de Medicina, Campus JK. Diamantina, MG, Brasil.

[2] Universidade Federal dos Vales do Jequitinhonha e Mucuri, Programa de Pós-Graduação Stricto Sensu em Ciências da Nutrição, Campus JK. Diamantina, MG, Brasil.

[3] Universidade Federal de Minas Gerais, Faculdade de Ciências Econômicas. Belo Horizonte, MG, Brasil.

[4] Universidade Federal dos Vales do Jequitinhonha e Mucuri, Faculdade de Ciências Sociais Aplicadas e Exatas, Programa de Pós-Graduação em Administração Pública. Teófilo Otoni, MG, Brasil.

Correspondênce
Maria Leticia Costa Reis
marialeticia.reis@ufvjm.edu.br

Influence of eating habits and sociodemographic aspects on systemic blood pressure control in older patients with hypertension classified by gender

Influência de hábitos alimentares e aspectos sociodemográficos no controle da pressão arterial sistêmica de idosos hipertensos, por gênero

Abstract

Introduction: Arterial hypertension affects 60.9% of the older Brazilian population. Some of the factors influencing blood pressure (BP) are excessive salt and fat intake, alcoholism, low intake of fruit and vegetables, and obesity. *Objective*: To evaluate the influence of eating habits and sociodemographic aspects on BP control in older adults with hypertension according to gender. These patients were registered in a Family Health Strategy program in Diamantina, Minas Gerais, Brazil. *Method*: The study included interviews with 327 older adults with hypertension aged ≥60 years, of both genderes, conducted between 2018 and 2020. Height, total body mass weight, and BP were measured. *Results*: The results showed predominance of women (62.1%), age group of 60–69 years (55.7%), mixed-race (56.0%), those who could read (85.9%), those with income of up to one minimum wage (56.0%), those with BP classified as prehypertension (39.8%), and overweight individuals (40.1%). There was a higher prevalence of older participants with high BP (63.0%) and those who did not have the habit of reading product labels. *Conclusion*: Most food habits evaluated showed no significant correlation with BP control in older adults with hypertension classified by gender. The results showed a correlation between the habit of reading product labels and the participants' gender. Sociodemographic aspects such as gender/income, gender/health, and body mass index have a significant correlation. Future research should aim at monitoring older adults with hypertension after the implementation of health education measures to assess and monitor their effectiveness in controlling BP in this population.

Keywords: Arterial hypertension. Eating habits. Gender. Older adults

Resumo

Introdução: A hipertensão arterial acomete 60,9% dos idosos brasileiros. Dentre os fatores que influenciam a pressão arterial, estão o uso abusivo de sal, alcoolismo, ingestão excessiva de alimentos gordurosos, baixa ingestão de frutas e verduras e a obesidade. *Objetivo*: Avaliar a influência de hábitos alimentares e aspectos sociodemográficos no controle da pressão arterial de idosos hipertensos, por gênero, cadastrados nas Estratégias de Saúde da Família do município de Diamantina-MG. *Método*: O estudo foi realizado através de entrevista com 327 idosos hipertensos, com idade 60 anos ou mais, de ambos os gêneros, entre 2018 e 2020. Foram aferidas altura, peso da massa corporal total e pressão arterial. *Resultados*: O predomínio foi do gênero feminino (62,1%), faixa etária de 60-69 anos (55,7%), cor parda (56,0%), que sabem ler (85,9%), com renda de até um salário-mínimo (56,0%), pressão arterial classificada como pré-hipertensão (39,8%) e sobrepeso (40,1%). Houve maior prevalência de idosos com pressão arterial elevada (63,0%) e que não possuem o hábito de ler rótulos dos produtos. ***Conclusão***: A maioria dos hábitos alimentares avaliados não apresentou relação significativa com o controle da PA dos idosos hipertensos, quanto ao gênero. Houve relação entre o hábito de ler os rótulos dos produtos e gênero. Os aspectos sociodemográficos, como gênero/renda, e gênero/saúde, como IMC, possuem relação significativa. Recomendam-se futuras pesquisas que visem ao acompanhamento dos idosos hipertensos, após implantação de medidas de educação em saúde, para avaliar e monitorar sua eficácia no controle da pressão arterial dessa população.

Palavras-chave: Hipertensão arterial. Hábitos alimentares. Gênero. Idosos.

INTRODUCTION

Arterial hypertension (AH) is a chronic non-communicable disease that affects 1.13 billion people worldwide. In recent decades, studies have shown that most people with hypertension live in low- and middle-income countries due to increased risk factors in these populations.[1] AH is a relevant comorbidity for other diseases and strongly influences the worsening of clinical conditions related to COVID-19, which has been the greatest challenge for public health services due to high hospitalization and lethality rates in the world.[2] Some studies showed that 23.7% of coronavirus disease 2019 (COVID-19) patients progressing to the severe form of the disease had hypertension.[3]

The Ministry of Health has registered an average of 388 deaths/day because of AH complications in Brazil. In addition to the high mortality associated with AH, the costs involved with hospitalizations, outpatient procedures, and medications attributed to patients with hypertension assisted by the Unified Health System (SUS) reached about 380 thousand dollars in 2018.[4,5]

Although it is a genetically inherited disease in 90% of cases, several factors influence blood pressure (BP), including dietary habits such as excessive salt and fat intake and alcoholism, which, associated with a low intake of fruit and vegetables, favor obesity.[4] In Brazil, overweight and obesity are important risk factors for hypertension. Data show that more than one-third of people with hypertension are obese and 74.4% are overweight.[6] The significantly increased incidence of overweight and obesity in the Brazilian population is partly due to the nutritional transition the country has been going through for years.[7] One of the explanations for this transition is the fact that women have entered the job market, especially after the 1970s, which has reduced the time available for preparing meals at home; thus, preference has been given to processed foods and even to eating out in restaurants, buffets, and snack bars. Certainly, this nutritional transition process is an important cause of the worsening of chronic diseases related to eating habits, such as renal failure, cardiovascular diseases, and hypertension.[7,8]

AH affects approximately 60.9% of the older population in Brazil.[4] Considering the current scenario, with a reduced number of births and an increased life expectancy, that is, factors that intensify the population aging process, and also that the older population in Brazil is projected to reach 25% in 2043, it becomes relevant to study the risk factors associated with AH and the influence of eating habits on the older population. New studies should aim at health promotion and prevention measures to reduce AH-related damages.[9,10] Therefore, the objective of this study was to evaluate the influence of eating habits and sociodemographic aspects on BP control in older patients with hypertension according to gender. These patients were registered in a Family Health Strategy (FHS) program in Diamantina, Minas Gerais (MG), Brazil.

METHODS

This cross-sectional study with a quantitative approach included older AH patients followed up in an FHS program in Diamantina, MG, Brazil. This city is located in the mesoregion of Vale do Jequitinhonha and has a population of 45,880 inhabitants, according to the 2010 census.[11]

A survey of patients with hypertension followed up at the FHS comprised the research sample, resulting in 6,608 participants. Of these, 619 participants were selected by random sampling without replacement and stratified by gender, age group, and registration strategies considering a 10% loss. Of the 619 participants, 352 were considered older participants. The research included 562 AH patients of both genderes, in the age groups 40–60 years (middle-aged adults) and ≥60 years (older-aged). The present study analyzed 327 older-aged participants. The inclusion criteria included having AH, use of antihypertensive medications for a period longer than 6 months, preserved cognitive functions, functional independence, acceptance to participate in the study, and the ability to sign the informed consent form (ICF).

At-home data collection was conducted by trained interviewers from November 2018 to January 2020. After the research objectives were presented to the participants and after signing the ICF, the interview was guided by a structured script on a tablet, with the answers recorded in the SphinxMobile application (Sphinx Group, Montaigu, France). The participants' height, total body mass, and BP were measured at scheduled times during the interview. As for BP, three measurements were performed according to the criteria established by the VII Brazilian Guidelines on Arterial Hypertension on patient preparation: verification of the absence of impediment to perform the procedure at the time of measurement, correct positioning, and compliance with the measurement steps.[12] The participants' total body mass and height were used to calculate their body mass index (BMI), defined as: BMI = weight in kilograms (kg) divided by height in square meters (m^2). Body mass was measured using an HBS 214 Omron digital scale (Omron Corporation, Kyoto, Japan). Height was measured using a Slim Fit Avanutri anthropometric tape measure (Avanutri, Três Rios, RJ). BP was classified by the mean value of the three measurements taken during the interview using an upper arm HEM-7320 Omron automatic BP monitor with digital display (Omron Corporation, Kyoto, Japan).

The questions contained in the structured interview script were organized according to the following groups of variables: (*i*) Sociodemographic, economic, and health data (age; color/ethnicity; knowing how to read; marital status; education; income; BP and BMI classification; physical activity); *(ii)* Dietary habits (use of alcoholic beverages; habit of reading product labels; what they consider important to read on product packaging or labels; foods they usually consume; spices they usually use in food preparation; plants or natural products they usually use as teas to help control BP).

BP was classified according to the VII Brazilian Guidelines on Arterial Hypertension: normal (Systolic blood pressure [SBP] ≤ 120 mmHg and diastolic blood pressure [DBP] ≤ 80 mmHg); prehypertension (SBP: 121–139 mmHg and DBP: 81–89 mmHg); and hypertension (SBP ≥ 140 mmHg and DBP ≥ 90 mmHg).[12] BMI was arranged into four categories, according to the World Health Organization classification: underweight (< 18.5 kg/m^2); normal weight (18.5–24.9 kg/m^2; overweight (25.0–29.9 kg/m^2); and obese (> 30.0 kg/m^2).[13]

The quantitative analysis of the study variables (age, ethnicity, reading, marital status, education, income, BP classification, BMI classification, and physical activity) was performed using the Sphinx IQ2 software (Sphinx Group, Montaigu, France), with results expressed as absolute and relative frequency, position/central tendency measures (mean), and dispersion/variability (standard deviations). The χ^2 test was used to establish the degree of dependence (relationship) between these variables.[14]

This study was authorized by the Municipal Health Secretariat of Diamantina, MG, and approved by the Research Ethics Committee of the Federal University of Vales do Jequitinhonha e Mucuri, in accordance with the Guidelines and Regulatory Standards for Human Research of the National Health Council, Resolution 466/2012,[15] under CAAE number 68052717.1.0000.5108.

RESULTS

Of the 562 AH patients followed up at the FHS in Diamantina, MG, 327 were aged >60 years (58.2%), 203 (62.1%) were women, and 124 (37.9%) were men. There was a predominance of the 60–69 age group (55.7%), with a mean age of 69.3 years (SD = 6.10) for women and 69.0 (SD = 5.98) for men. The participants were predominantly mixed-race (56.0%), knew how to read (85.9%), had a partner (60.6%), were illiterate or had incomplete elementary school education (31.8%), had an income of up to one minimum wage (56.0%), had BP classified as prehypertension (39.8%), BMI classified as overweight (40.1%), and were physically active (54.7%) (Table 1). The χ^2 test showed a significant relationship between the participant's gender and having a partner (χ^2 = 55.40; degree of freedom [DOF] = 1; p < 0.001) and gender and education (χ^2 = 27.20; DOF = 4; p = < 0.01). The relationship between gender and income (χ^2 = 10.04; DOF = 4; p = 0.04) and gender and BMI (χ^2 = 9.00; DOF = 3; p = 0.03) were significant.

Table 1. Sociodemographic and health data of older people with arterial hypertension stratified by gender and followed up by the Family Health Strategy of Diamantina, Minas Gerais, 2020.

Variables	Women		Men		Total	
	n	%	n	%	n	%
Age (years)						
60–69	113	55.7	69	55.6	182	55.7
≥70	90	44.3	55	44.4	145	44.3
Total	203	100.0	124	100.0	327	100.0
Color/ethnicity						
Mixed-race	117	57.6	66	53.2	183	56.0
White	49	24.1	24	19.4	73	22.3
Black	32	15.8	34	27.4	66	20.2
Yellow	5	2.5	0	0.0	5	1.5
Total	203	100.0	124	100.0	327	100.0
Knows how to read						
Yes	174	85.7	107	86.3	281	85.9
No	29	14.3	17	13.7	46	14.1
Total	203	100.0	124	100.0	327	100.0
Has a partner						
Yes	91	44.8	107	86.3	198	60.6
No	112	55.2	17	13.7	129	39.4
Total	203	100.0	124	100.0	327	100.0
Education						
Illiterate/incomplete elementary education	73	36.0	31	25.0	104	31.8
Elementary/incomplete middle education	48	23.6	43	34.7	91	27.8
Middle/incomplete high school education	24	11.8	14	11.3	38	11.6
High school/incomplete higher Education	24	11.8	32	25.8	56	17.1
Higher education	34	16.7	4	3.2	38	11.6
Total	203	100.0	124	100.0	327	99.9
Income						
≤1 minimum wage	123	60.6	60	48.4	183	56.0
1–2 minimum wages	35	17.2	21	16.9	56	17.1
2–3 minimum wages	17	8.4	18	14.5	35	10.7
3–4 minimum wages	12	5.9	5	4.0	17	5.2
>4 minimum wages	16	7.9	20	16.1	36	11.0
Total	203	100.0	124	100.0	327	100.0
BP classification						
Normal (SBP ≤ 120 and DBP ≤ 80)	49	24.1	29	23.4	78	23.9
Prehypertension (SBP: 121–139 and DBP: 81–89)	84	41.4	46	37.1	130	39.8
Hypertension (SBP ≥ 140 and DBP ≥ 90)	70	34.5	49	39.5	119	36.4

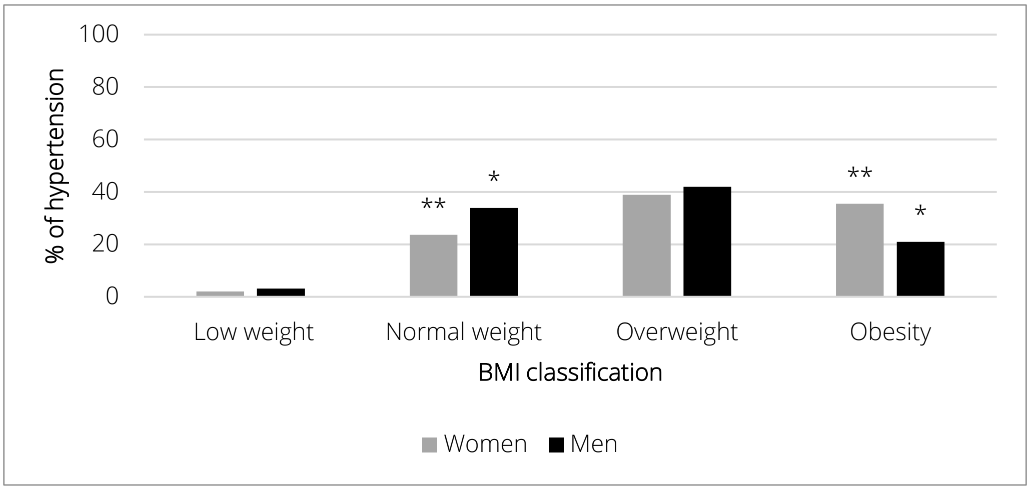
Table 1. Sociodemographic and health data of older people with arterial hypertension stratified by gender and followed up by the Family Health Strategy of Diamantina, Minas Gerais, 2020. .(Continues.)

Variables	Women		Men		Total	
	n	%	n	%	n	%
Total	203	100.0	124	100.0	327	100.1
BMI classification (kg/m^2)						
Low weight (< 18.5)	4	2.0	4	3.2	8	2.4
Normal weight (18.5–24.9)	48	23.6	42	33.9	90	27.5
Overweight (25.0–29.9)	79	38.9	52	41.9	131	40.1
Obesity (> 30.0)	72	35.5	26	21.0	98	30.0
Total	203	100.0	124	100.0	327	100.0
Physical activity						
Yes	114	56.2	65	52.4	179	54.7
No	89	43.8	59	47.6	148	45.3
Total	203	100.0	124	100.0	327	100.0

* BMI, body mass index, BP, blood pressure; DBP, diastolic blood pressure; SBP, systolic blood pressure. Interviewees: 327 older adults with hypertension. Source: Field research.

The study showed the prevalence of older women with hypertension classified as obese (35.5%) and as normal weight (33.9%) (Figure 1). The χ^2 test indicated a significant relationship between BMI classification and gender (χ^2= 9.00; DOF = 3; p = 0.03).

Figure 1. Body mass index classification of older adults with hypertension followed up at a Family Health Strategy program in Diamantina, Minas Gerais, Brazil, 2020.



(*) ≠ (**) Normal weight and (*) ≠ (**) obese; χ^2 test indicated a significant relationship between BMI classification and gender (χ^2 = 9.00; DOF = 3; p = 0.03). BMI, body mass index.

Regarding eating habits, participants with AH were predominantly abstinent from alcohol (66.7%), and men comprised the majority of those who were non-abstinent. Most participants (54.7%) reported not having the habit of reading product labels, with a prevalence in men. There was also a predominance of participants considering the expiration date as the most important information on labels (52.5%), habit of consuming sausages (22.9%), use of scallion and parsley seasoning (17.7%), and use of other plants or natural products, other than hypotensive drugs, in the form of tea (53.2%) (Table 2). The χ^2 test showed significant relationships between alcoholic beverage consumption and gender (χ^2= 22.61; DOF = 1; p = <0.01) and between the habit of reading product labels and gender (χ^2= 5.37; DOF = 1; p = 0.02).

Table 2. Data on eating habits of older patients with arterial hypertension stratified by gender and followed up at a Family Health Strategy program in Diamantina, Minas Gerais, Brazil, 2020.

Variables	Women		Men		Total	
	N	%	N	%	N	%
Use of alcoholic beverage						
Abstinent	155	76.4	63	50.8	218	66.7
Non-abstinent	48	23.6	61	49.2	109	33.3
Total	203	100.0	124	100.0	327	100.0
Has the habit of reading product labels						
Yes	102	50.2	46	37.1	148	45.3
No	101	49.8	78	62.9	179	54.7
Total	203	100.0	124	100.0	327	100.0
What do you consider important to be read on product packaging or labels (**)						
Expiration date	86	50.3	38	58.5	124	52.5
Food composition	33	19.3	9	13.8	42	17.8
Amount of sodium	21	12.3	8	12.3	29	12.3
Amount of fats	12	7.0	6	9.2	18	7.6
Number of calories	8	4.7	2	3.1	10	4.2
Presence of gluten	8	4.7	1	1.5	9	3.8
Usage instructions	3	1.8	1	1.5	4	1.7
Total	171	100.1	65	100.0	236	99.9
Food frequency variables *						
Sausages	467	21.6	373	24.6	840	22.9
Milk and dairy products	425	19.7	306	20.2	731	19.9
Fried foods and snacks	343	15.9	233	15.4	576	15.7
Canned foods	295	13.7	181	12.0	476	13.0
Sandwich cookies. sweets. and chocolate bars	127	5.9	92	6.1	219	6.0
Beans	125	5.8	80	5.3	205	5.6
Vegetables	120	5.6	70	4.6	190	5.2
Fruit	108	5.0	74	4.9	182	5.0
Crackers	101	4.7	69	4.6	170	4.6
Soft drinks	49	2.3	36	2.4	85	2.3
Total	2160	100.2	1514	100.1	3674	100.2

Table 2. Data on eating habits of older patients with arterial hypertension stratified by gender and followed up at a Family Health Strategy program in Diamantina, Minas Gerais, Brazil, 2020.(Continues.)

Variables	Women		Men		Total	
	N	%	N	%	N	%
Seasonings you usually use in food preparation (*)						
Green seasoning (scallion. parsley. basil)	282	17.6	176	17.8	458	17.7
Garlic	203	12.7	124	12.6	327	12.6
Salt	201	12.6	123	12.5	324	12.5
Onion	193	12.1	117	11.9	310	12.0
Other seasonings (color additive. ultra-processed spices. sugar. paprika. pepper. cinnamon. oregano)	722	49.9	447	45.2	1169	45.2
Total	1601	100.0	987	100.0	2588	100.0
Plants or natural products you usually use as teas to help control blood pressure***						
Other plants (lemon balm. chamomile. rosemary. mint. cotton leaf. *carqueja*. passion fruit. avocado leaf. boldo. *congonha de bugre*. stonebreaker. aloe. and grape wine leaf)	111	54.7	37	49.3	148	53.2
Hypotensive plants (orange blossom[1]. garlic[1]. lemon balm[1]. green tea[1]. chayote[1]. broadleaf plantain. fennel[1]. blue snakeweed[1]. and Surinam Cherry[1])	90	44.3	35	46.7	125	45.0
Contraindicated plants (licorice[2]. ginger[2]. ginkgo biloba[2])	2	1.0	3	4.0	5	1.8
Total	203	100.0	75	100.0	278	100.0

Interviewees: 327 older patients with hypertension; Source: Field research; (*) multiple responses; (**) multiple responses of 148 respondents who read labels; (***) multiple responses of 119 respondents who use plants and natural products such as teas to help control BP.

We observed a predominance of participants classified as overweight with BP classified as prehypertension and participants classified as obese with BP classified as hypertension, that is, among those who did not maintain an ideal weight and did not effectively control their BP (Table 3).

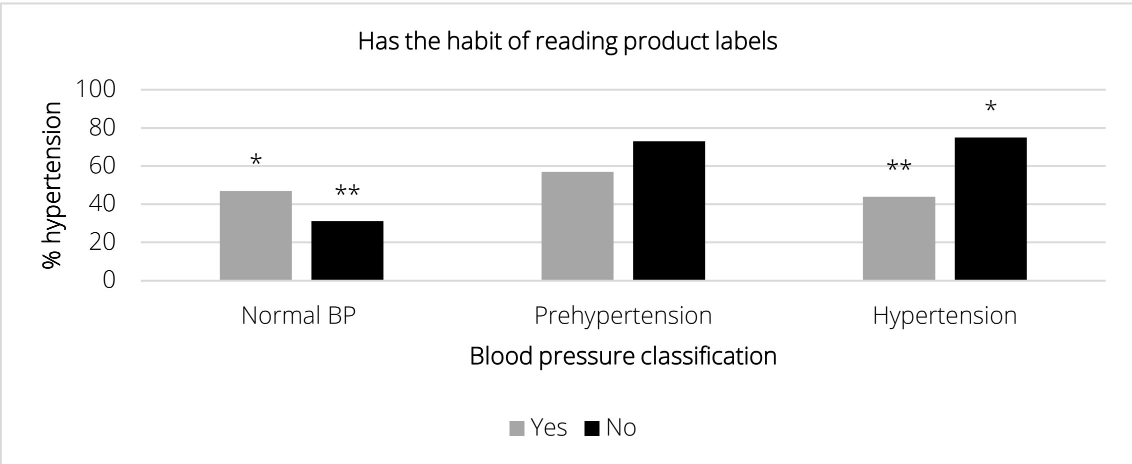
Table 3. Association of total body mass index with blood pressure classification in older patients with hypertension followed up at a Family Health Strategy program in Diamantina, Minas Gerais, Brazil, 2020.

Variables	Low weight (< 18.5)		Normal weight (18.5-24.9)		Overweight (25.0–29.9)		Obese (≥ 29.9)		Total	
	N	%	N	%	N	%	N	%	N	%
BP classification										
Normal (SBP ≤ 120 and DBP ≤ 80)	1	12.5	21	23.3	30	22.9	26	26.5	78	23.8
Prehypertension (SBP: 121–139 and DBP: 81–89)	3	37.5	33	36.7	61	46.6	33	33.7	130	39.8
Hypertension (SBP > 140 and DBP ≥ 90)	4	50.0	36	40.0	40	30.5	39	39.8	119	36.4
Total	8	100.0	90	100.0	131	100.0	98	100.0	327	100.0

BP, blood pressure; DBP, diastolic blood pressure; SBP, systolic blood pressure.

The study showed a prevalence of older participants with BP classified as hypertension (63.0%) who did not have the habit of reading product labels and with BP classified as normal who had the habit of reading product labels (60.3%) (Figure 2). The χ^2 test indicated a significant relationship between BP classification and the habit of reading product labels (χ^2 = 10.48; DOF = 2, p = 0.005).

Figure 2. Association of the habit of reading product labels with blood pressure classification in older patients with hypertension followed up at a Family Health Strategy program in Diamantina, Minas Gerais, Brazil, 2020.



(*) ≠ (**) Normal blood pressure (BP) and (*) ≠ (**) Hypertension - The χ^2 test indicated a significant relationship between blood pressure classification and the habit of reading product labels (χ2 = 10.48; DOF = 2, p = 0.005).

DISCUSSION

In Brazil, the percentage of people aged >60 years diagnosed with hypertension in 2019 and 2020 ranged between 55.2% and 60.9%.[4,6] Similar data was presented in a study conducted in Diamantina, MG in 2019, in which the percentage of older people affected by the disease was 57.5%.[16] In the present study, this percentage was 58.2%, demonstrating that, as in Brazil, more than half of the population aged >60 years is affected by AH in Diamantina, MG.

Although several studies reported that older people in the 70–79 age group present with a higher risk, up to 78.9%, of being diagnosed with AH than those in the 60–69 age group;[17-19] in this study, the 60–69 age group was predominant among AH patients, corroborating other studies. [20,21] These data are influenced by the age composition of each city, which might result in differences in the predominant age groups.

Older adults with hypertension who have no partners showed lower overall mean values of quality of life compared to those who are married/cohabiting. This fact tends to be considered an element capable of influencing life expectancy due to the importance of the necessary ability of care or self-care for health maintenance.[21] In the present study, 60.6% of the older AH patients declared having a partner, with a prevalence of men (86.3%) over women (44,8%). However, there was no difference in the percentages of older AH patients with uncontrolled BP classified as prehypertension and hypertension and classified by gender, indicating that the marital situation did not influence BP control.

Since 1950, gender has been considered a differential in the age of mortality of the Brazilian population. Women have a higher life expectancy at birth, that is, they live a higher number of years than men. In 1980, life expectancy was 59 years for men and 65 years for women, that is, women could live 6 years more than men. In 1991, this difference increased to 7 years, with a similar projection for year 2020.[22] This is a possible explanation for the predominance of women in the present study, besides the fact that men present a 33.8% lower risk of being diagnosed with AH than women.[17]

As for the association between years of education and AH, older people with less than 8 years of education present with a 74.2% higher risk of being diagnosed with AH than older people with eight or more years of education.[17] In the Northeast and Southeast regions of Brazil, the mean AH rate in people with 0–8 years of formal education was significantly higher than the mean in those with more than 9 years of education.[23] The present study showed that 59.6% of older patients with AH had less than 8 years of education, ranging from illiteracy to incomplete elementary education, and 85.9% knew how to read, but 54.7% did not have the habit of reading product labels. An interesting fact is that when the habit of reading product labels was compared according to gender, there was a prevalence of women (50.2%), and men without this habit totaled approximately 62.9%. When comparing the habit of reading product labels and BP classification, there was a prevalence of BP classified as normal in older patients who had the habit of reading labels; the prevalence of BP classified as hypertension was observed in the older patients who did not have this habit, suggesting that reading product labels helps AH patients control their BP, keeping it within the normal range.

Regarding income, 56.0% of the respondents received up to one minimum wage. However, there was a discrepancy when the income was analyzed by gender, with a prevalent income of up to one minimum wage for women and more than four minimum wages for men. A study conducted in this population group in the northern region of MG found an income predominance of one and two minimum wages.[21]

As for the anthropometric evaluation, BMI was predominantly classified as overweight (40.1%) in both genderes, but the comparison of normal weight and obesity by gender showed a prevalence of normal weight men and obese women. A prevalence of overweight was observed in older patients with hypertension in other studies.[18,24] Obesity is one of the main risk factors for AH, and a BMI between 25.0 kg/m^2 and 29.9 kg/m^2 (overweight) increases the risk for comorbidities.[25] Despite being extensively used to evaluate nutritional risk, BMI has limitations, especially in the older population, and may underestimate or overestimate the amount of fat mass since it does not evaluate body composition or its distribution.[26]

This study showed a predominance of people who were physically active. Controversially, the data showed a predominance of older people classified as overweight with BP classified as prehypertension and of older people classified as obese with BP classified as hypertension, that is, who did not maintain an ideal weight and did not effectively control BP. Fontenelle et al. (2018) demonstrated that older patients followed up at an FHS program in Teresina, Piauí who were classified as overweight showed AH prevalence.[27] Regular resistance exercise training can play an important role in controlling BP.[28] In the present study, the type and frequency of physical activity were not evaluated, which is a limiting factor for the results presented.

The consumption of alcoholic beverages is associated with several conditions, such as psychosocial and behavioral changes, hypertriglyceridemia, encephalopathy, hepatopathy, and hypertension.[29,30] Some studies showed that the prevalence of AH increases with increasing alcohol consumption levels. In the United States and Australia, alcohol consumption may be responsible for about 11% of hypertension cases (150–160/95 mmHg) in men; hypertension is lower in women due to their low alcohol consumption.[31] In the current study, despite the predominance of abstinent AH patients, no statistical difference was observed in BP classification (data not shown). Therefore, in this study, nonconsumption of alcoholic beverages did not interfere with the BP classification. However, being an abstinent woman (76.4%) is statistically significant compared to being an abstinent man (50.8%).

In the 52.5% of the group studied, the most important information contained on product labels is the expiration date. It is important to note that information about the sodium quantity present in foods was considered important by only 12.3% of the participants. A study conducted in Natal also reported that the expiration date is the most consulted item on product labels, with fiber and sodium contents being the least.[32] Thus, in general, people do not evaluate the information present in product labels in an integrated manner.

Sodium has been widely ingested by the population through the consumption of sausages and smoked foods owing to its use as a food preservative. In addition to high doses of sodium, these foods contain other substances that contribute to an increased BP, leading to the occurrence or worsening of non-communicable diseases, including hypertension.[33] The present study showed a higher percentage of processed (22.9%), fried (15.7%), and canned food consumption (13.0%) and a lower percentage of vegetable (5.2%) and fruit consumption (5.0%) among AH patients. Such occurrence corroborates another study that reported that adults with hypertension consumed high fried food and soft drinks and excessive fatty meat, added salt to ready-made foods, and had a low daily consumption of fruits, in addition to insufficient consumption of vegetables.[34]

People whose diet is characterized by reduced salt intake present with a lower prevalence of AH. Yanomami people, who have a low salt intake, presented no cases of AH. In an urban Brazilian population, higher salt intake was identified in lower socioeconomic levels.[35]

Study participants reported scallion and parsley seasoning as the most common in food preparation. Parsley belongs to the family *Apiaceae* (*Petroselinum crispum* (Mill.) Nym.). Some studies report that parsley contains phenolic compounds that are partly responsible for antioxidant activities.[36] In addition, an experimental study on rats showed that the consumption of parsley seed extract significantly increased the urinary volume of the animals, which confirms the diuretic effect of the plant, possibly influencing BP.[37]

Some plants are used by the older population to prevent or reduce AH, including shellflower (*Alpinia speciosa*), chayote (*Sechium edule),* and lemon grass (*Cymbopogon citratus*).[38] The present study showed a predominant report of the use of other plants (53.2.0%), other than those considered hypotensive, used as teas to help control BP, such as lemon balm, chamomile, rosemary, mint, cotton leaf, *carqueja*, passion fruit, avocado leaf, boldo, *congonha de bugre*, stonebreaker, aloe, and grape leaf. Although the use of plants and natural products considered hypotensive in the form of teas, including orange blossom, garlic, lemon balm, green tea, chayote, broadleaf plantain, fennel, blue snakeweed, and Surinam Cherry, were reported in 45% of cases, their use should be assessed by FHS professionals and encouraged as a dietary habit to help control BP.

One limitation of the study was the use of BMI as the only method for obesity assessment, which may have underestimated or overestimated the amount of fat mass since it did not assess body composition or fat distribution. In addition to BMI, complementary measurements such as waist circumference, waist-to-hip ratio, and other methods should be used.

CONCLUSION

In conclusion, most of the evaluated eating habits showed no significant relationship with BP control in older patients with hypertension considering their gender. However, the habit of reading product labels had a significant relationship with gender and was prevalent among women. Furthermore, patients with hypertension with normal BP had the habit of reading product labels.

As for sociodemographic and health aspects, there is a significant relationship between gender/having a partner, gender/income, and gender/BMI classification, which showed a predominance of obese older women with hypertension.

Health education actions should be implemented to help BP control, reflecting directly on the quality of life of the population studied, especially with respect to eating habits and sociodemographic and health conditions.

Further studies should aim at following up older patients with AH through FHS programs after the implementation of health education measures to evaluate and monitor their efficacy in controlling the BP of this population.

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