Association between eating and living habits of elderly hypertensive users of a municipal pharmacy

Associação entre hábitos alimentares e de vida de idosos hipertensos usuários de uma farmácia municipal

Letícia Lopes Vieira[1]
Orcid: https://orcid.org/0000-0001-9410-8044

Leuânia Arcanjo de Freitas[2]
Orcid: https://orcid.org/0000-0001-9259-2055

Luiza Veloso Dutra[3]
Orcid: https://orcid.org/0000-0002-8351-655X

Tânia Aparecida de Araujo[4]
Orcid: https://orcid.org/0000-0001-5894-8695

Isabela Martins Oliveira[5]
Orcid: https://orcid.org/0000-0001-5838-6944

Abstract

The nutritional status of the elderly plays an important role in characterizing the quality of life and health of those who are more prone to physiological and social changes, chronic diseases such as high blood pressure, use of medication, difficulties with eating, and depression. Objective: to analyze the association between eating habits and life habits of elderly hypertensive users of a municipal pharmacy. Methodology: Data were collected in a public pharmacy in Visconde do Rio Branco-MG, with a sample of 180 older adults. The food frequency questionnaire (FFQ) was applied to identify eating habits and the questionnaire to characterize age, sex, physical activity, smoking, and income. Data were registered in an electronic spreadsheet and submitted to statistical analysis in the Stata Software. Results: 73.8% (n=134) of the elderly were female, 55.6% (n=100) from 60 to 65 years of age, 88.3% (n=159) have a monthly income of one salary minimum and 64.4% (n=116) had never done physical activity. It was observed as to the frequency of food consumption that 50.3% are fresh food, 14.3% culinary ingredients, 7.1% processed, and 28.3% ultra-processed. Conclusions: the eating habits of the elderly are not healthy, as there was a predominance of foods that do not contribute to the improvement of hypertension. Furthermore, those who smoke consume less fresh and ultra-processed foods and take more medications than those who do not. It is suggested a nutritional follow-up surrounded by public policies that aim to improve the quality of life of this population.
Keywords: aging; physiological changes; arterial hypertension.

Resumo

O estado nutricional dos idosos tem um papel importante para caracterizar a qualidade de vida e a saúde destes que possuem maior tendência aàs alterações fisiológicas e sociais, doenças crônicas como hipertensão arterial, uso de medicamentos, dificuldades com a alimentação e depressão. **Objetivo**: analisar a associação entre hábitos alimentares e de vida de idosos hipertensos usuários de uma farmácia

[1] Graduanda do curso de Nutrição no Centro Universitário de Viçosa, Viçosa, Minas Gerais, Brasil. E-mail: leticia-lopesvieira@hotmail.com
[2] Graduanda do curso de Nutrição no Centro Universitário de Viçosa, Viçosa, Minas Gerais, Brasil. E-mail: leuaniarcanjodefreitas@gmail.com
[3] Docente no curso de Nutrição no Centro Universitário de Viçosa, Viçosa, Minas Gerais, Brasil. E-mail: luizavdutra@gmail.com
[4] Docente do curso de Nutrição da Universidade Federal de Uberlândia, Uberlândia, Minas Gerais, Brasil. E-mail: tanniaraujo@hotmail.com.br
[5] Doutoranda em Saúde Pública da Universidade São Paulo, USP, São Paulo, Brasil. E-mail: isabelamgo@gmail.com

municipal. **Metodologia**: Os dados foram coletados, em uma farmácia pública do município de Visconde do Rio Branco-MG, com uma amostra de 180 idosos. Foi aplicado o questionário de frequência alimentar (QFA) para identificar os hábitos alimentares e o questionário de caracterização da idade, sexo, atividade física, hábito de fumar e renda. Os dados foram registrados em planilha eletrônica e submetidos à análise estatística no Software Stata. **Resultados**: 73,8% (n=134) dos idosos eram do sexo feminino, 55,6 % (n=100) de 60 a 65 anos de idade, 88,3% (n=159) possuem renda mensal de um salário-mínimo e 64,4% (n=116) nunca fizeram atividade física. Observou-se quanto à frequência do consumo alimentar que 50,3% são alimentos in natura, 14,3% ingredientes culinários, 7,1% de processados e 28,3% de ultraprocessados. **Conclusões**: os hábitos alimentares dos idosos não estão saudáveis, pois foi verificado predomínio de alimentos que não contribuem para a melhora do quadro da hipertensão. Ademais, aqueles que fumam consomem menos alimentos in natura e mais ultraprocessados e tomam mais medicamentos do que aqueles que não fumam. Sugere-se um acompanhamento nutricional envolto por políticas públicas que visem melhorar a qualidade de vida dessa população.
Palavras-chave: Envelhecimento; Alterações fisiológicas; Hipertensão arterial.

Introduction

The aging of human beings is a natural process marked by progressive physiological changes[1]. These changes can be sensory – such as sight, touch, taste, and smell - and gastrointestinal. They also could be related to the liver and heart. In general, they lead to nutritional disorders (e.g., hypertension, obesity, and malnutrition), gradually compromising the quality of life of the elderly[2].

Quality of life is associated with personal satisfaction, values, and culture. The functional capacity, socioeconomic level, and emotional state are also noteworthy3. In this context, as in other phases of life, old age is related to health and is marked by perceptions that can positively or negatively impact older adults[3, 4].

The nutritional status of the older adults plays an essential role in characterizing the quality of life (QL) and health of this population[3]. In this context, malnutrition is a relevant factor, as it is related to the increase in functional incapacity, the rise in the number of hospitalizations, the incredible ease of acquiring infections, and the decrease in quality of life[5]. Obesity, on the other hand, is a chronic non-communicable disease (CNCD) that causes other pathologies, for example, cardiovascular diseases, cancer, diabetes mellitus, arterial hypertension, which will affect the morbidity and mortality profile of populations, and their use of medication[6].

Adopting healthy eating habits (such as reducing fats and sugars and eating fruits and vegetables) is part of the World Health Organization (WHO) recommendations in the non-pharmacological treatment of hypertension. The WHO also raises awareness about adopting healthy eating habits (higher consumption of fruits and vegetables and lower consumption of sodium, sugars, and saturated fats) as an essential means of controlling CNCDs and their secondary health complications[7].

The Food Guide for the Brazilian Population is a material created to present the official guidelines regarding food to Brazilians. This material gives the following food groups: a) in nature, b) minimally processed, c) culinary ingredients, d) processed and ultra-processed. In addition, it addresses healthy eating - which must go beyond the individual's biological and social aspects -, and they must be in line with the food culture and with the dimensions of gender, race, and ethnicity, being accessible in quantity and quality, and efficient in variety, balance, moderation, and pleasure[8].

It is crucial to point out that the investigation of the evaluation of the eating habits of hypertensive older adults, from the perspective of physiological changes, such as

hypertension, can support adjustments in public policies for prevention and health promotion, based on the understanding of these intervening factors in nutritional disorders. Therefore, this study aims to analyze the association between eating habits and life habits of elderly hypertensive users of a municipal pharmacy.

Methods

This article is a cross-sectional observational study carried out with the elderly population (60 years or older) diagnosed with hypertension and treated by the Municipal Pharmacy of Visconde do Rio Branco, Minas Gerais, Brazil. The exclusion criteria were: a) normotensive elderly, b) participants with any cognitive decline (or physical or cognitive limitations to answer the questionnaire), c) non-users of the Municipal Pharmacy, d) and non-residents in the city of Visconde do Rio Branco - MG.

The study used the number of elderly hypertensive individuals registered at the Municipal Pharmacy of Visconde do Rio Brando (n=800) and a tolerable error of 10% to calculate the sample - as proposed by Barbetta (2005)[9], which resulted in a selection of 160 seniors.

The project was approved by the Ethics Committee for Research with Human Beings Sylvio Miguel (ECR), in compliance with Resolution 466/2012 of the National Health Council, which regulates research involving human beings. Data collection only started after ECR approval (3,770,464). Data collection occurred from December to February, Monday to Friday, at the Municipal Pharmacy of Visconde do Rio Branco in 2019. Participants at the pharmacy in November and those who agreed to participate signed the Informed Consent Form (ICF), explaining all the risks and benefits of the research.

After agreeing to participate in the research, participants filled a questionnaire. After data collection, the elderly received an explanatory folder on the importance of prioritizing a diet rich in fruits and vegetables and lower sodium consumption (replacing salt with healthy seasonings), sugar, saturated fat to aid in the control of Systemic Arterial Hypertension (SAH).

Variables

This research surveyed eating habits using a qualitative food frequency questionnaire (QFF) containing 93 items with eight consumption options: 1) never, 2) rarely, 3) monthly, 4) biweekly, 5) once or twice a week, 6) three or four times a week, 7) five or six times a week, 8) once a day and twice or more times a day[10].

Dependent variables

The dependent variables were frequency of consumption, according to the food group, its processing degree, and amount of medication.

According to the Food Guide for the Brazilian population, the foods present in the food frequency questionnaire (FFQ) were classified into four groups: a) fresh and minimally processed foods, b) culinary ingredients, c) processed foods, and d) ultra-processed foods. This study used a Microsoft Office Excel spreadsheet to interpret the FFQ and classify the answers into eight consumption options.

This study also compared the food consumption of elderly hypertensive individuals based on the response to the food frequency questionnaire and the degree of food processing (organic, minimally processed, processed, and ultra-processed). This result was compared with other variables, checking whether there were relationships between food consumption and lifestyle habits, whether socioeconomic ones.

The antihypertensive drugs taken by the elderly are Atenolol, Anlonpidine, Lorsatana, Enalapril, Selozok, and Hydrochlorothiazide, which are provided free of

charge by the System Health Unit. Medications mentioned by the participants appear in this study in groups of one to three, four, five, and six.

Independent variables

The sociodemographic characteristics were: gender, age (60 to 65, 66 to 70, 71 to 75, and > 75 years old), monthly income (1, 2 to 3, > 4 minimum wages), the frequency of physical activity (never, 1 or 3 times a week), and smoking (yes or no).

Statistical analysis

Data were organized in a spreadsheet and later analyzed with Microsoft Office Excel, considering the quantitative data's relative and absolute frequencies and their descriptions. FFQ data were analyzed qualitatively by food groups and quantitatively by frequency of consumption.

Analyzing the normality of the variables by Kolmogorov Sirminov[11], they were non-parametric. After a descriptive analysis of the data by calculating the mean and standard deviation, the Mann–Whitney[12] and Anova[13] tests revealed the quantitative variables. Data were stored in Microsoft Excel and analyzed using Stata MP [13].0 software for Windows. The study considered significant differences when they pointed to $p<0.05$.

Results

180 older adults participated in this study, of which 73.8% (n=134) were female; 55.6% presented age from 60 to 65 (n=100); and 88.3% (n=159) had a monthly income of one minimum wage. 77.2% use Atenolol (n=139); 67.2% use Amlondipine (n=121); 95.5% use Losartan (n=172); 78.3% use Enalapril (n=141); 30% use Selozok (n=54); and 91.1% use Hydrochlorthiazide (n=164). In the instance of physical activity, 64.4% had never done it (n=116) and 18.8%, once a week (n=34). 71.1% (n=128) of respondents do not smoke (Table 1).

Table 1 - Sample characteristics of old hypertensive adult users of a municipal pharmacy (Visconde do Rio Branco, Minas Gerais, 2019).

Variables	n	%
Sex		
Feminine	133	73,8
Masculine	47	26,2
Age		
60 to 65	100	55,6
66 to 70	58	32,2
71 to 75	10	5,6
>75	12	6,7
Physical activity		
Never	116	64,4
1x week	34	18,8
3x or more a week	30	16,6
smoking habit		
Yes	52	28,8
No	128	71,1
Income		
One minimum wage	159	88,3
2 to 3 minimum wages	21	11,6
> 4 salaries	-	-
Medicines		

214

Atenolol	139	77,2
Amlodipine	121	67,2
Losartan	172	95,5
enalapril	141	78,3
Selozok	54	30,0
Hydrochlorothiazide	164	91,1

Regarding the frequency of food consumption of the older adults, 50.3% are organic food, 14.3% culinary ingredients, 7.1% processed food, and 28.3% ultra-processed food. According to the data in Table 2, when analyzing the association between age and the degree of food processing, the consumption of ultra-processed food was lower among the age groups 60 to 65 years and 71 to 75 years. Older adults who performed physical activity 1 to 3 times a week consumed more organic food than the others. On the other hand, those who never practiced physical activity consumed more ultra-processed products than others. When analyzing the association between the degree of food processing and the habit of smoking, older adults who smoke consume less fresh and more ultra-processed food.

Table 2 – Frequency of food consumption by the degree of processing, according to gender, age, physical activity, smoking, and older adults' income (Visconde do Rio Branco, Minas Gerais, 2019).

Variável	n (%)	Fresh and minimally processed foods	Culinary ingredients	Processed foods	Ultra-processed foods
Sex					
Feminine	159 (88,3)	49,8±0,4	14,5±0,1	7,0±0,2	28,7±0,4
Masculine	21 (11,6)	51,5±1,9	13,9±0,8	7,9±0,7	26,7±1,4
Age					
60 to 65	100 (55,5)	49,8±0,5	14,4 ± 0,1	6,8±0,2*	28,9±0,5
66 to 70	58 (32,2)	50,5±0,9	14,4±0,3	7,5±0,4	27,6±0,7
71 to 75	10 (5,6)	50,8±0,9	14,9±0,3	6,0±0,7*	28,3±1,2
>75	12 (6,7)	48,3±1,4	14,4±0,3	9,0±0,9	28,3±1,0
Physical activity					
Never	116 (64,4)	48,9±0,4*	14,6±0,1	7,3±0,3	29,2±0,4*
1x week	34 (18,8)	52,8±1,0	14,0±0,2	6,5±0,4	26,7± 0,8
3x or more a week	30 (16,6)	50,9±1,4	14,4±0,5	7,1±0,6	27,5±0,9
smoking habit					
Yes	52 (28,8)	48,4±0,7**	14,9±0,3**	7,1±0,41	29,6±0,7**
No	128 (71,1)	50,6±0,5	14,3±0,2	7,1±0,24	28,0±0,4
Income					
a minimum wage	159 (88,3)	49,8±0,4	14,5±0,11	7,0±0,21	28,7±0,4
2 to 3 minimum wages	21 (11,6)	51,5±1,9	13,9±0,78	7,9±0,74	26,7±1,4

"*" indicates a significant difference (p>0,05)

There was no significant association between sex and the number of medications. However, it is essential to point out that older women take, on average, more medicines than men. When analyzing physical activity and the amount of medication, those who most practice physical activity consume a smaller number (3.3% take one drug), and individuals who smoke take more medicines than those who do not smoke (19.2% take six medicines) (Table 3).

Table 3 - Number of medications consumed according to gender, age, physical activity, smoking, and older adults income (Visconde do Rio Branco, Minas Gerais, 2019)

Variável	n (%)	Number of antihypertensive drugs			
		1 to 3	4	5	6
Sex					
Feminine	134 (74,5)	23 (17,2%)	48 (35,8%)	53 (39,5%)	10 (7,5%)
Masculine	46 (25,5)	5 (10,9%)	17 (37,0%)	16 (34,8%)	8 (17,4)
Age					
60 to 65 years old	100 (55,5)	19 (19,0%)	34 (34,0%)	35 (35,0%)	12 (12,0%)
66 to 70 years old	58 (32,2)	8 (13,8%)	20 (34,5%)	25 (43,1%)	5 (8,6%)
71 to 75 years old	10 (5,6)	-	5 (50,0%)	4 (40,0%)	1 (10,0%)
>75 years old	12 (6,7)	1 (8,3%)	6 (50,0%)	5 (41,7%)	-
Physical activity					
Never	116 (64,4)	17 (14,7%)	47 (40,5%)	38 (32,8%)	14 (12,0%)
1x week	34 (18,8)	6 (17,65%)	7 (20,6%)	18 (52,9%)	3 (8,8%)
3x or more a week	30 (16,6)	5 (16,7%)	11 (36,7%)	13 (43,3%)	1 (3,3%)
smoking habit					
Yes	52 (28,8)	7 (13,5%)	17 (32,7%)	18 (34,6%)	10 (19,2%)
No	128 (71,1)	21 (16,41%)	48 (37,5%)	51 (39,8%)	8 (6,3%)
Income					
One minimum wage	159 (88,3)	23 (14,5%)	57 (35,9%)	61 (38,4%)	18 (11,3%)
2 to 3 minimum wages	21 (11,6)	5 (23,8%)	8 (38,1%)	8 (38,1%)	-
food group					
Fresh and minimally processed foods	67,9 ± 9,5	47,9 ± 5,6	49,5 ± 1,3	50,1 ± 0,5	49,8 ± 0,5
Culinary ingredients	6,1 ± 2,4	9,3 ± 5,7	7,2 ± 0,5	7,4 ± 0,4	6,7 ± 0,3
Processed foods	18,6 ± 7,0	30,1 ± 10,7	28,7 ± 1,0	28,3 ± 0,6	28,8 ± 05
Ultra-processed foods	7,5 ± 4,96	12, ± 0,6	14,7 ± 0,3	14,2 ± 0,2	14,6 ± 0,2

Discussions

Based on the municipal pharmacy users, results point out that their eating habits are not healthy. Fruits, vegetables, and legumes are not part of their usual diet. In general, it is about foods that do not contribute to improving hypertension. In addition, high consumption of foods rich in simple carbohydrates, sugars, and saturated fats is a common habit.

There was a higher prevalence of young elderly (60 to 65 years), female, with a monthly income of one minimum wage, who do not smoke and who never or rarely practice physical activities. Older women had more use of medications. Moreover, as

expected, the older adults (>75 years) of both sexes use more drugs and consume more ultra-processed foods. Thus, although few studies about this topic, the quality of the diet of the older adults, one identified several factors related to greater vulnerability to the consumption of a low-quality diet, highlighting less frequent meals and functional difficulties to buy or prepare food[14].

Studies investigating the knowledge, attitudes, and practices of individuals with arterial hypertension show that learning about arterial hypertension does not always cause behavioral changes[15]. With an increase in information about the disease, its form of control is related to creating a favorable environment for health at the socioeconomic, family, and community levels[16].

Studies also show that hypertension's silent evolution and its chronic nature are motives to justify behavioral changes. However, smoking and a sedentary lifestyle are potent impediments to adopting healthy behaviors[17].

Concerning the respondents who receive one minimum wage, it is possible to conclude that they use more medication than the older adults who receive 2 to 3 minimum wages. More than 60% of them do not practice physical activity. This study also indicates that medication use among older adults who smoke is frequent. In other words, it is challenging to control SAH, and it can lead to an increase in blood pressure. Therefore, more medications are used[18].

There are social and environmental determinants that justify the choices of older adults for non-adherence to the treatment of SAH. These determinants are difficulties accessing health services, illiteracy, memory disorders, difficulty remembering the medication, use of many medications simultaneously, and high cost when not available for free[14].

Habits of an individual or group come through socially determined conditions. However, in the same way, it is also dynamic, allowing adaptation to a new social reality when nutritional guidelines are available for food choices. Individuals have internally built structures that would enable them to externalize social coexistence practices and which are also guided by their aspirations and affections[17].

Brazil and other developing countries have gone through a nutritional transition. In this case, the dietary pattern based on the consumption of cereals, legumes, roots, and tubers takes place by a diet rich in fats and sugars. There is also an increase in the consumption of animal proteins and animal and vegetable lipids. These changes in consumption patterns associated with heredity, obesity, and physical inactivity have contributed to the prevalence of hypertension and diabetes in the population[19, 20].

Among the elderly studied, the practice of adequate food consumption goes far beyond wanting, reaching several relevant factors such as convenience, needs, emotional factors, lack of financial conditions, family issues, among others. Furthermore, it is possible to observe that these older adults have some eating habits that change during treatments. They have a high consumption of ultra-processed foods - a risk factor for CNCD[21], such as SAH.

Some studies show that the increase in the relationship between polyunsaturated and saturated fat in a diet containing approximately 25% of lipids is associated with decreased blood pressure. In contrast, others do not find a consistent relationship between the amount and type of ingested fat and this disease [20, 22].

On the other hand, the regular consumption of fresh foods, including fruits and vegetables, was highly prevalent among respondents. The increase in the consumption of fruits and vegetables is one of the goals of the Strategic Action Plan to fight NCDs in Brazil[7]. The importance of vegetables and fruits in older adults' context also found

evidence that the adequate intake of fruits and vegetables is associated with CVD prevention by the beneficial combination of micronutrients present in its composition[23].

Conclusions

This study shows that most hypertensive older adults do not have healthy eating and living habits and do not practice regular physical activity. Therefore, nutritional monitoring is a part of the public policy of drug delivery in the evaluated municipality, improving the quality of life of this portion of the population. This way, it is possible to prevent cardiovascular diseases and ensure what the Federal Constitution of Brazil of 1988 affirms: "the reduction of the risk of disease and other diseases and universal and equal access to actions and services for their promotion, protection, and recovery."

In addition, there is a need to provide food and nutrition education practices at all stages of life through workshops that encourage the adoption of healthy behaviors, such as care with food, stress control, and exercises. These practices can positively impact the quality of life of older adults.

References

1. Ferreira OGL, Maciel SC, Costa SMG, et al. Envelhecimento Ativo e Sua Relação Com a Independência Funcional. Texto e Context Enferm 2012; 21: 513–518.
2. Pereira R, Cotta R, Frabceschini S. Fatores associados ao estado nutricional no envelhecimento. Rev Médica Minas Gerais 2006; 16: 160–164.
3. Wachholz PA, Rodrigues SC, Yamane R. Estado nutricional e a qualidade de vida em homens idosos vivendo em instituição de longa permanência em Curitiba, PR. Rev Bras Geriatr e Gerontol 2011; 14: 625–635.
4. Fontes AP, Botelho MA, Fernandes AA. A funcionalidade dos mais idosos (≥75 anos): conceitos, perfis e oportunidades de um grupo heterogêneo. Rev. Bras. Geriatr. Gerontol., Rio de Janeiro, 2013; 16: 91-107.
5. Nascimento Costa F. Comparação do estado nutricional, qualidade de vida e capacidade funcional entre idosos institucionalizados e não institucionalizados. Univ Estadual Paul "Júlio Mesquita Filho"- Fac Med 2017; 1–22.
6. Mariath AB, Grillo LP, Da Silva RO, et al. Obesidade e fatores de risco para o desenvolvimento de doenças crônicas não transmissíveis entre usuários de unidade de alimentação e nutrição. Cad Saude Publica 2007; 23: 897–905.
7. Saúde M Da. Ministério da Saúde Brasília-DF 2011. 2011.
8. BRASIL. Guia alimentar para a população Brasileira. Brasília - DF, 2014. Epub ahead
9. of print 2014. DOI: 10.1007/978-3-540-72604-3_154.
10. Barbetta PA. Cap 03 - Técnicas de amostragem. Estatística Apl às ciências sociais.
11. Franco FS. Sintomas depressivos em idosos com síndrome metabólica na Estratégia Saúde da Família de Viçosa - MG. Diss Mestr em Ciência da Nutr - Univ Fed Viçosa 2012; 100.
12. Lilliefors, H.W. On the Kolmogorov-Smirnov Test for Normality with Mean and Variance Unknown. Jour. Of the American Statistical Association, 2012, 62, 399-402
13. Mcknight, P.E., Najib, J. Teste U de Mann-Whitney. Wiley Online Library, 2010
14. Girden, E.R. ANOVA: Repeated measures, 1992, 84, 127-129.
15. Souza AO De, Mirian Ueda Yamaguchi. Adesão e não adesão dos idosos ao tratamento anti–hipertensivo. Saúde e Pesqui 2015; 8: 113–122.
16. Ribeiro AG, Minardi R, Cotta M, et al. Representações sociais de mulheres portatdoras de hipertensão arterial sobre sua enfermidade : desatando os nós da

lacuna da adesão ao tratamento na agenda da Saúde da Família. Rev Saúde Coletiva 2010; 21: 87–112.

17. Ribeiro AG, Cotta RMM, Ribeiro SMR. A promoção da saúde e a prevenção integrada dos fatores de risco para doenças cardiovasculares. Cienc e Saude Coletiva 2012; 17: 7–17.

18. Lima MT, Bucher JSNF, Lima JW de O. A hipertensão arterial sob o olhar de uma população carente: estudo exploratório a partir dos conhecimentos, atitudes e práticas. Cad Saude Publica 2004; 20: 1079–1087.

19. Zaitune MP do A, Barros MB de A, Lima MG, et al. Fatores associados ao tabagismo em idosos: Inquérito de saúde no estado de São Paulo (ISA-SP). Cad Saude Publica 2012; 28: 583–595.

20. Rinaldi AEM, Pereira AF, Macedo CS, et al. Contribuições das práticas alimentares e inatividade física para o excesso de peso infantil. Rev Paul Pediatr 2008; 26: 271–277.

21. Martins M do PSC, Gomes ALM, Martins M do C de C e, et al. Consumo alimentar, pressão arterial e controle metabólico em idosos diabéticos hipertensos. Rev Bras Cardiol 2010; 23: 162–170.

22. Martins P de FA, Faria LRC. Alimentos ultraprocessados: uma questão de saúde pública. Comun em Ciências da Saúde 2018; 29: 14–17.

23. Cassani R., Casella Filho A, Fenelon G, et al. I Diretriz sobre o consumo de gorduras e saúde cardiovascular. Arq Bras Cardiol 2013; 100: 1–40.

24. Silva SV. Hipertensão e seus fatores associados em idosos da cidade de Natal/RN. Rev Científica da Esc da Saúde - Catussaba 2016; Ano 5: 105–119.

How to cite this article: