

Older adults with and without arterial hypertension: behavior and health conditions

Idosos com e sem hipertensão arterial: comportamentos e condições de saúde

Ancianos con y sin hipertensión arterial: comportamientos y condiciones de salud

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ABSTRACT

Objective: to describe the sociodemographic and economic characteristics of elderly people with and without arterial hypertension and to compare the occurrences and prevalence odds ratio of behaviors and health conditions. **Method:** in this cross-sectional, analytical study of 957 older adults in Minas Gerais, between May 2017 and June 2018, descriptive, bivariate and multiple binary logistic regression analyses were performed. **Results:** both groups were predominantly female, with 1-5 years of schooling, individual monthly income of one minimum wage, and living with someone. Hypertensive older adults were 32.5% less likely to consume alcohol, twice as likely to have unsuitable waist circumference (WHR=2.35; $p<0.001$), and three times more likely to have five or more morbidities (CPR=3.60; $p<0.001$). **Conclusion:** older adults with arterial hypertension displayed better health behavior as regards alcohol consumption, but worse health conditions as regards abdominal circumference and number of morbidities.

Descriptors: Health of the Elderly; Geriatric Nursing; Hypertension; Health Status; Healthy Lifestyle.

RESUMO

Objetivo: descrever as características sociodemográficas e econômicas e comparar as ocorrências e chances de prevalência dos comportamentos e condições de saúde de idosos com e sem hipertensão arterial. **Método:** estudo transversal e analítico, desenvolvido com 957 idosos de Minas Gerais entre maio de 2017 a junho de 2018. Procederam-se análises descritiva, bivariada e regressão logística binária múltipla. **Resultados:** Em ambos grupos, predomínio do sexo feminino, 1-5 anos de estudo, renda mensal individual de um salário-mínimo e morava acompanhada. Idosos hipertensos apresentaram 32,5% menos chances de prevalência para o consumo de bebida alcoólica, duas vezes mais chances de prevalência de medida inadequada da circunferência abdominal (RCP=2,35; $p<0,001$) e três vezes mais chances de terem cinco ou mais morbidades (RCP=3,60; $p<0,001$). **Conclusão:** idosos com hipertensão arterial tiveram melhor comportamento de saúde relacionado ao consumo de bebida alcoólica, entretanto, piores condições de saúde referentes à circunferência abdominal e número de morbidades.

Descritores: Saúde do Idoso; Enfermagem Geriátrica; Hipertensão; Nível de Saúde; Estilo de Vida Saudável.

RESUMEN

Objetivo: describir las características sociodemográficas y económicas y comparar las ocurrencias y posibilidades de prevalencia de comportamientos y condiciones de salud de ancianos con y sin hipertensión arterial. **Método:** estudio transversal y analítico, desarrollado con 957 ancianos de Minas Gerais entre mayo de 2017 y junio de 2018. Se realizaron análisis descriptivo, bivariado y de regresión logística binaria múltiple. **Resultados:** En ambos grupos predomina el sexo femenino, 1-5 años de escolaridad, ingresos mensuales individuales de un salario mínimo y viviendo acompañado. Los ancianos hipertensos tenían 32,5% menos probabilidades de consumir alcohol, dos veces más probabilidades de tener una circunferencia de cintura inadecuada (RCC=2,35; $p<0,001$) y tres veces más probabilidades de tener cinco o más morbidades (CPR=3,60; $p<0,001$). **Conclusión:** los ancianos con hipertensión arterial presentaron mejores comportamientos de salud relacionados con el consumo de alcohol, sin embargo, peores condiciones de salud en cuanto a la circunferencia abdominal y número de morbidades.

Descritores: Salud del Anciano; Enfermería Geriátrica; Hipertensión; Estado de Salud; Estilo de Vida Saludable.

INTRODUCTION

Demographic aging, a global phenomenon, is accelerated in Brazil, with 13.8% of its population comprised by people aged at least 60 years old¹. In this age group, it is generally possible to identify greater vulnerability in the emergence of chronic diseases such as arterial hypertension (AH), which is among the morbidities that most affect older adults^{2,3}, negatively influencing the quality of life and life expectancy of this population group³.

AH is considered a multifactorial clinical condition, characterized by high and sustained systemic arterial pressure values above 140/90 mmHg. It is frequently associated with metabolic, functional and/or structural alterations in target organs such as heart, brain, kidneys and blood vessels. It can be aggravated by risk factors such as: advanced age, female gender, low schooling and income levels, inadequate housing conditions, genetic predisposition, overweight/obesity, excessive salt intake, alcoholism, smoking, sedentary lifestyle, dyslipidemia and diabetes *mellitus*²⁻⁷.

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Although drug treatment has precise indications, healthy life habits are recommended to control this condition, with emphasis on regular practice of physical activity, healthy diet, smoking cessation and moderate alcohol consumption^{2-4,6}.

Considering the possible influence of health behaviors and conditions in the control and evolution of this morbidity, it is necessary to deepen the knowledge on this theme among aged people with and without AH^{3,4}. Thus, the current research aimed at describing older adults' sociodemographic and economic characteristics and at comparing the occurrences and prevalence chances of health behaviors and conditions of aged people with and without AH.

METHOD

A cross-sectional and analytical study, guided by the *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) tool, and developed among aged people living in the urban area of a health micro-region from Minas Gerais, consisting of eight municipalities.

To calculate sample size, the 66.7% prevalence of systemic arterial hypertension² with 3.0% precision was used, as well as a 95% confidence interval, for a finite population of 36,703 individuals aged at least 60 years old, reaching a minimum sample of 925 older adults and, considering a 15% sampling loss, the final number of interview attempts was 1,063.

Multiple-stage cluster sampling was used to identify the aged people to be interviewed. In the first stage, the arbitrary draw of 50% of the census sectors of each municipality from the Macro-region of Triângulo Sul was considered by systematic sampling. For each municipality, the number of households to be selected was calculated, proportionally to the total number of older adults living in the eight cities of the aforementioned micro-region. Subsequently, the number of households was divided by the number of census sectors, obtaining a similar number of aged individuals to be interviewed within each census sector. Finally, in each census sector, the first household was randomly selected and the others, in standardized clockwise modality, until saturating the sector sample. One aged person per household was recruited and, if there was more than one individual aged 60 or over living in the place, the person who had the first contact with the interviewer was interviewed.

The following inclusion criteria were adopted: being at least 60 years old and living in the urban area of the health micro-region. And the exclusion criteria were the following: having cognitive decline, assessed by the Mini-Mental State Examination⁸; presenting severe stroke sequelae with muscle strength loss in the lower and upper limbs and aphasia, in addition to Parkinson's disease in a severe or unstable stage with impairments in motricity, speech and/or affectivity.

A total of 977 aged individuals were interviewed, of which 15 presented cognitive decline and five did not undergo the full interview. Thus, the study sample was comprised by 957 older adults, divided into two groups: with (n=646) and without (n=311) self-reported AH.

Data collection was carried out in the households from May 2017 to June 2018, by means of direct interviews. Ten interviewers from the health area were selected, who underwent training, qualification and approach on ethical research issues; and they were followed-up until they showed the necessary skills to apply the instruments.

Sociodemographic and economic data, as well as related to morbidities and health self-assessment, were obtained by applying a structured questionnaire prepared by the Collective Health Research Group.

To measure the level of physical activity and sedentary behavior, the long version of the International Physical Activity Questionnaire was used, adapted for aged people⁸. Those who performed 150 minutes or more of weekly physical activity were considered active; and inactive aged people were considered those who performed from 0 to 149 minutes of weekly physical activity¹⁰.

Consumption of alcoholic beverages and the smoking habit were analyzed based on the questions prepared by the researchers, namely: "Do you usually drink alcoholic beverages (cachaça, wine, beer, etc.)?" and "Do you smoke?".

In order to verify the depressive symptoms, the short version of the Geriatric Depression Scale was used¹¹, which consists of 15 questions and a total score varying from 0 to 15 points. Scores above five were considered as indicating depressive symptoms¹¹.

For weight measurement, a portable digital platform-type electronic scale was used, with a capacity of 150 kg and 100 g accuracy, with the aged person barefoot and wearing light clothes. Height (in meters) was measured using a flexible and inelastic measuring tape, of two meters in length divided into centimeters and subdivided into millimeters, fixed to the wall in a flat and regular place without baseboards, with the aged person barefoot, placed in orthostatic position, with the feet together, the back to the marker and the eyes on the horizon. The Body Mass Index (BMI) was calculated by means of the following formula: $BMI = \text{Weight (kg)} / [\text{Height}]^2 \text{ (m)}$. The classification of nutritional status was carried out according to BMI values, considering the following as cutoff points: underweight ($\leq 22 \text{ kg/m}^2$), eutrophic ($> 22 \text{ and } < 27 \text{ kg/m}^2$) and overweight ($\geq 27 \text{ kg/m}^2$)¹².

Abdominal circumference (AC) was measured with the previously described measuring tape; during normal expiration, with the aged person standing upright, and wearing as little clothing as possible. The measurement was taken at the largest abdominal perimeter, between the last rib and the iliac crest, without pressing the soft tissues. The values followed the risk criteria for metabolic complications proposed by the World Health Organization (WHO), as follows: men – no risk (< 94 cm), moderate risk (from 94 to 102 cm), high risk (> 102 cm); women - no risk (< 80 cm), moderate risk (from 80 to 88 cm), high risk (> 88 cm)¹³. Those classified as with risk at any degree were considered as inadequate measures.

The sociodemographic and economic variables studied were the following: gender (female; male); age group, in full years old (60 |70; 70 |80; 80 or more); schooling, in full years of study (0; 1 |5; 5 or more); marital status (single; lives with partner; widowed and separated/separated/divorced); individual monthly income, in minimum wages (without own income; <1; 1; 1 |3; 3 |5; >5); and living arrangement (lives alone; lives with someone). The following variables related to health behaviors were considered: alcohol consumption (yes and no), smoking habit (yes and no) and physical activity (inactive and active); as those related to health conditions: indicative of depressive symptoms (yes and no), WC measurement (inadequate and adequate), overweight (yes and no), morbidities (0 |5 and 5 or more) and health self-assessment (negative and positive).

An electronic database was prepared in Microsoft Excel®, with double-typing. After verifying the inconsistencies between both databases and their correction, the database was imported for analysis into the *Statistical Package for Social Sciences* (SPSS®) program, version 22.0. The data were submitted to descriptive statistics analysis by means of distribution of frequencies and mean and standard deviation. The following tests were applied in order to compare the occurrence of the health behaviors and conditions of people with and without SAH, namely: *Chi-square* and *Student's t* ($p<0.05$). The prevalence odds ratios were presented as unadjusted values for each health behavior and condition. Afterwards, the variables were adjusted for: gender, age (in full years old) and schooling (full years of study), through multiple binary logistic regression, with the groups with and without AH as the main predictor ($p<0.05$). A 95% confidence interval and a significance level of $p<0.05$ were considered.

The research protocol was approved by the Committee of Ethics in Research involving Human Beings. The objectives and the Informed Consent Form were presented and all the pertinent information was provided. Each interview was conducted after consent of the older adults and signing of the Informed Consent Form.

RESULTS

Table 1 presents the distribution of the frequencies corresponding to the sociodemographic and economic characteristics of the aged individuals with and without AH.

TABLE 1: Frequency distribution of the sociodemographic and economic characteristics of aged people with and without arterial hypertension, living in the urban area of a health micro-region, Minas Gerais. Minas Gerais, Brazil, 2021.

Variables		Arterial Hypertension			
		Yes		No	
		n	%	n	%
Gender	Female	442	68.4	198	63.7
	Male	204	31.6	113	36.3
Age group (in full years old)	60 70	216	33.4	142	45.7
	70 80	284	44.0	112	36.0
	80+	146	22.6	57	18.3
Schooling (in years of study)	0	122	18.9	49	15.8
	1 5	352	54.5	149	47.9
	5+	172	26.6	113	36.3
Marital status	Single	38	5.9	25	8.0
	Lives with spouse or partner	265	41.0	145	46.6
	Widowed	271	42.0	106	34.1
	Separated/Divorced	72	11.1	35	11.3
Monthly family income (in minimum wages)	No own income	35	5.4	18	5.8
	<1	22	3.4	5	1.6
	1	318	49.2	150	48.2
	1 3	232	35.9	121	38.9
	3 5	28	4.3	11	3.5
	>5	11	1.7	6	1.9
Housing arrangement	Lives alone	117	18.1	64	24.7
	Lives with someone	529	81.9	20.6	79.4

In both groups, with and without AH, most of the older adults were female, with 1-5 years of study, monthly family incomes of one minimum wage and living alone. Among the older adults with AH, there was predominance of the 70-80-year-old age group (44.0%) and of widowed individuals (42.0%), while for those without the referred morbidity, predominance corresponded to 60-70 years old (45.7%) and to having a partner (46.6%).

Table 2 presents the adjusted prevalence odds ratios for the variables related to the health behaviors of the aged people with and without AH, living in the urban area of a health micro-region from Minas Gerais.

TABLE 2: Distribution of the adjusted prevalence odds ratios for the variables related to the health behaviors of aged people with and without arterial hypertension, living in the urban area of a health micro-region from Minas Gerais. Minas Gerais, Brazil, 2021.

Variables	Arterial Hypertension				χ^2	Adjusted POR (CI)	p-value
	Yes		No				
	n	%	n	%			
Consumption of alcoholic beverages					10.415	0.675 (0.49-0.91)	0.011
Yes	171	26.5	114	36.7			
No	475	73.5	197	63.3			
Smoking					3.234	0.768 (0.52-1.12)	0.175
Yes	84	13.0	54	17.4			
No	562	87.0	257	82.6			
Physical activity					4.089	1.180 (0.86-1.61)	0.302
Inactive	236	36.5	93	29.9			
Active	410	63.5	218	70.1			

Note: χ^2 - Pearson's chi-square association coefficient; Adjusted POR - Adjusted Prevalence Odds Ratio for the following variables: gender, age, schooling; CI - Confidence Interval (95%); p<0.05.

Regarding the health behaviors, a lower percentage of aged people with AH reported consumption of alcoholic beverages (26.5%) and smoking habit (13.0%) in relation to those with AH. Regarding the practice of physical exercise, the highest percentage of aged people with AH was classified as inactive (36.5%) when compared to those without AH (29.9%). After the adjustment, the older adults with AH presented 32.5% fewer chances of prevalence for the consumption of alcoholic beverages in relation to those without the aforementioned condition (p=0.011).

Table 3 presents the adjusted prevalence odds ratios for the variables related to the health conditions of the aged people with and without AH, living in the urban area of a health micro-region from Minas Gerais.

TABLE 3: Distribution of the adjusted prevalence odds ratios for the variables related to the health conditions of the aged people with and without arterial hypertension, living in the urban area of a health micro-region from Minas Gerais. Minas Gerais, Brazil, 2020.

Variables	Arterial Hypertension				χ^2	Adjusted POR (CI)	p-value
	Yes		No				
	n	%	n	%			
Indicative of depressive symptoms					8.312	1.230 (0.84-1.78)	0.274
Yes	171	26.5	56	18.0			
No	475	73.5	255	82.0			
Abdominal circumference					36.702	2.359 (1.57-3.53)	<0.001
Inadequate	560	86.7	219	70.4			
Adequate	86	13.3	92	29.6			
Overweight					19.062	1.283 (0.92-1.78)	0.139
Yes	319	49.4	107	34.4			
No	327	50.6	204	65.6			
Morbidities					85.705	3.603 (2.58-5.02)	<0.001
5+	502	77.7	149	47.9			
0-5	144	22.3	162	52.1			
Health self-assessment					17.624	1.175 (0.85-1.60)	0.315
Negative	388	60.1	142	45.7			
Positive	258	39.9	169	54.3			

Note: χ^2 - Pearson's chi-square association coefficient; Adjusted POR - Adjusted Prevalence Odds Ratio for the following variables: gender, age, schooling; CI - Confidence Interval (95%); p<0.05.

Regarding the health conditions, there was a higher percentage of aged people with AH who presented signs of depressive symptoms (26.5%), inadequate WC measurements (86.7%), overweight (49.4%), five or more morbidities (77.7%) and negative health self-assessment (60.1%) in relation to those without AH. The adjusted analysis indicated that the aged people with AH were nearly twice as likely to have an inadequate WC measurement (POR=2.35; $p<0.001$) and three times more likely to have five or more morbidities (POR=3.60; $p<0.001$) when compared to those without AH, regardless of gender, age and schooling.

DISCUSSION

In both groups, most of the older adults were female, in line with national^{6,14-16} and international^{17,18} studies. It is noted that, from age 60, both systemic arterial pressure and AH occurrence tend to be higher among aged women³. The feminization of aging demands specialized professionals and the development of actions for health promotion, disease prevention, recovery from complications and guidance for self-care¹⁹.

Low schooling, which was identified in both groups, is in line with the data found in the scientific literature²⁰⁻²². The schooling level can interfere with the treatment of AH^{3,5,15} since, when there is a deficit in this competence, aged people may have difficulty understanding the disease, drug therapy and care to minimize and/or avoid complications⁵. Primary Health Care is a resource in the care offer, so as to minimize inequalities that exert negative impacts on the prevention of health problems¹⁹. It is relevant to rethink individual and collective health actions, using clear and objective language targeted at the peculiarities of this population segment.

Individual monthly incomes of up to one minimum wage, in both groups, corroborate data from the research conducted with aged people in *Distrito Federal*⁶. Low economic status can exert negative influences on access to health services and information, hindering treatment and monitoring of morbidities such as AH^{3,19}. Among older adults, socioeconomic inequalities favor inadequate nutrition, which, when associated with the presence of AH, can compromise quality of life and generate a higher risk of cardiovascular morbidity and mortality³. Thus, it is essential that health professionals, especially nurses, offer care alternatives that are consistent with the financial reality of these aged people and provide guidance on the free treatment and follow-up of AH²³.

The predominance of aged people, both with and without AH, living with someone was also identified in research studies developed in Rio Grande do Sul, Brazil⁵, and in Poland²¹. It is necessary to know the composition of households where older adults live. Family members can assist in transportation, medical care and household services, in addition to offering company and emotional support.

Higher occurrence of AH was verified in the group of older adults aged from 70 to 79 years old, a result that corroborates national^{2,7,24} and international¹⁸ studies. The occurrence of AH is higher as age advances, with prevalence in the age group of 65 years old and over³. The human aging process leads to vascular changes, such as progressive hardening and complacency loss in large vessels^{2,3}. It is worth noting the need for actions targeted at the promotion of healthy behaviors and monitoring of health conditions throughout life.

In relation to marital status, most of the older adults with AH were widowed. A research study found that, among hypertensive aged individuals registered at a Basic Health Unit in *Distrito Federal*, married people (49.3%) had more controlled levels of systemic blood pressure when compared to single (13.3%), divorced (6.7%) and widowed (30.7%) people⁶. Absence of a partner can compromise family support, as the spouse can contribute to AH monitoring, stimulating self-care, adherence to the treatment and positive health behaviors¹⁹. Specific strategies should be developed among widowed aged individuals, considering that living alone can only favor self-care deficits²⁵.

Concerning the health behaviors, regardless of gender, age and schooling, aged people with AH presented 32.5% fewer chances for prevalence of alcohol consumption when compared to those without AH, corroborating national^{2,7} and international¹⁸ studies. Consumption of alcoholic beverages interferes in the control of pressure levels^{3,4,6,7} and is one of the main causes of AH³. Among older adults, this behavior is concerning due to the physiological changes associated with age, with the possibility of potentiating sensitivity and reducing tolerance to alcohol²⁶. These data refer to the need to develop health promotion and disease prevention actions among aged people without AH, with a view to identifying the causes of this health behavior.

Regarding the smoking habit, similar data were identified in national²⁰ and international^{18,21} research studies, verifying a lower proportion of aged people with AH who smoked in relation to those without AH. The smoking habit is associated with development of AH^{2,3} and to non-control of pressure levels in these individuals^{4,7}. Health education actions for smoking cessation become essential, reinforcing the harmful effects of smoking and the long-term benefits of abandoning the habit for the prevention of diseases²⁷.

The higher percentage of physical inactivity among aged people with AH corroborates national studies^{2,14,20}. Adopting healthy lifestyles is essential for AH control, with emphasis for regular practice of physical activity^{3,4,28}. It is interesting to identify the preferences in terms of practicing physical activity in order to favor adherence to and/or adoption of this behavior.

The importance of Nursing consultations is highlighted, which allow monitoring changes in health behaviors and contributing to the prevention and recovery of health problems²⁹.

As was the case in this study, aged people with AH from the municipality of São Paulo presented higher occurrence of depressive symptoms when compared to their normotensive counterparts²⁴. This fact can be related to the influence of the indicative sign of depressive symptoms in self-care, contributing to the emergence and/or persistence of negative health behaviors, such as sedentary lifestyle, smoking habit and alcoholism, and consequent SAH deterioration³. Health teams should actively search for these older adults, targeting actions to prevent and/or control chronic diseases such as AH^{24,29}.

The higher occurrence of AH among aged people with worse health conditions, including abdominal fat accumulation, overweight and higher number of morbidities, was also identified in national^{2,20} and international^{18,30} research studies. Multimorbidity is related to the increase in the number of continued use medications, hospitalizations, deterioration in health status and quality of life among older adults³¹. Overweight and fat accumulation in the abdominal region can alter the metabolic profile, leading to increased insulin resistance, hormonal disruption, sodium retention and increased blood volume and cardiac output, which can cause AH³.

In this research, aged people with AH were nearly twice as likely to have inadequate WC measurements, which is consistent with surveys developed in Brazil² and China¹⁸. In individuals aged at least 60 years old, inadequate AC measurements can be related to changes in the physiological and metabolic functions, which reflect on body composition and health³. In recent decades, nutritional problems have been experienced, such as the progressive increase in overweight/obesity and chronic diseases, such as AH, related to unhealthy eating and excess weight^{3,32}. It is essential that aged individuals choose good quality and varied food options and practice physical activity, thus minimizing the possible impact of visceral fat³³.

Aged people with AH are three times more likely to having five or more morbidities. Progressive decline of the physiological reserves can increase the risk of developing several diseases, which can directly affect older adults' biopsychosocial well-being³¹. Health services and professionals should be duly prepared to meet this demand in a qualified manner, performing early diagnoses and planning actions, in order to prevent complications.

A higher percentage of aged people with AH self-assessed their health status as negative, in line with an international study¹⁸. A health self-assessment involves the signs and symptoms of the diseases and the impact of these conditions on the physical, mental and social well-being of the aged population³⁴. This result can be related to aged people's discomfort with AH as a health condition, with the need to implement lifestyle changes and pharmacological treatment³⁵. In the gerontological consultations, it is up to health professionals, especially nurses, to investigate how older adults perceive their health conditions, contributing to adherence to self-care²⁶.

The self-report of morbidities can be considered a limitation of this study; however, the findings have the potential to contribute to targeting interventions aimed at preventing complications and promoting the health of the aged population, both with and without AH.

CONCLUSION

The sociodemographic and economic characteristics of the aged people with and without AH follow national and international trends, with predominance, in both groups, of women, low schooling and income levels, and living with someone. It is noted that those with AH belonged to older age groups and were widowed. Aged people with AH presented better health behaviors related to alcohol consumption but worse health conditions related to AC and number of morbidities.

These findings collaborate with diverse information for the planning of health policies aimed at assisting the aged population with AH, observing their behavioral aspects and their health conditions.

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