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TENSIONAL LEVELS AND FACTORS ASSOCIATED WITH ARTERIAL HYPERTENSION

NÍVEIS TENSIONAIS E FATORES ASSOCIADOS À HIPERTENSÃO ARTERIAL

NIVELES TENSIONALES Y FACTORES ASOCIADOS A LA HIPERTENSIÓN ARTERIAL

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ABSTRACT

Objective: to evaluate the blood pressure levels and factors associated with arterial hypertension of users attended at a prompt health care service. ***Method:*** this is a quantitative, descriptive, exploratory, cross-sectional study with 100 users. The factors with binary logistic regression, with significant values of p≤0.20, were evaluated, and the results are presented in tables and figures, discussed later with the literature. ***Results:*** the mean of the men's blood pressure levels was found to be SBP 130.6 (20.0) mmHg and DBP 78.9 (12.2) mmHg and SBP 119.5 (22.9) mmHg and PAD 71.4 (11.4) mmHg. The prevalence of hypertension was 26.0% (CI95% 17.0-35.0) among men (32%) and women (20%), and hypertension was 10% (IC95 % 4.0-16.0). ***Conclusion:*** it is shown that men's blood pressure levels were higher than among women and the prevalence of arterial hypertension was higher than that estimated for the Brazilian population. ***Descriptors***: Arterial Pressure; Hypertension; Outpatients; Life Style; Cardiovascular Diseases; Risk Factors.

RESUMO

Objetivo*:** avaliar os níveis tensionais e fatores associados à hipertensão arterial de usuários atendidos em um serviço de pronto atendimento à saúde. ***Método*:** trata-se de um estudo quantitativo, descritivo, exploratório, transversal, com 100 usuários. Avaliaram-se os fatores com a regressão logística binária, com valores significativos de p≤0,20, e, os resultados se apresentam em tabelas e figuras, discutidos posteriormente com a literatura. ***Resultados*:** encontrou-se que a média dos níveis tensionais dos homens foi de PAS 130,6 (20,0) mmHg e PAD 78,9 (12,2) mmHg e das mulheres de PAS 119,5 (22,9) mmHg e PAD 71,4(11,4) mmHg. Verificou-se que a prevalência de hipertensão foi de 26,0% ($IC_{95\%}$ 17,0–35,0) entre os homens (32%) e nas mulheres (20%) e a hipertensão arterial referida foi de 10% ($IC_{95\%}$ 4,0–16,0). ***Conclusão: revela-se que os níveis tensionais dos homens foram mais elevados que entre as mulheres e a prevalência de hipertensão arterial foi maior do que a estimada para a população brasileira. ***Descritores*:** Pressão Arterial; Hipertensão; Pacientes Ambulatoriais; Estilo de Vida; Doenças Cardiovasculares; Fatores de Risco.

RESUMEN

Objetivo: evaluar los niveles tensionales y factores asociados a la hipertensión arterial de usuarios atendidos en un servicio de pronta atención a la salud. ***Método:*** se trata de un estudio cuantitativo, descriptivo, exploratorio, transversal, con 100 usuarios. Se evaluaron los factores con la regresión logística binaria, con valores significativos de p≤0,20, y, los resultados se presentan en tablas y figuras, discutidos posteriormente con la literatura. ***Resultados:*** se encontró que el promedio de los niveles tensionales de los hombres fue de PAS 130,6 (20,0) mmHg y PAD 78,9 (12,2) mmHg y de las mujeres de PAS 119,5 (22,9) mmHg y PAD 71,4 (11,4) mmHg. Se verificó que la prevalencia de hipertensión fue del 26,0% (IC95% 17,0-35,0) entre los hombres (32%) y en las mujeres (20%) y la hipertensión arterial referida fue del 10% (IC95) ***Conclusión:*** se revela que los niveles tensionales de los hombres fueron más elevados que entre las mujeres y la prevalencia de hipertensión arterial fue mayor que la estimada para la población brasileña. ***Descriptores***: Presión Arterial; Hipertensión; Pacientes Ambulatorios; Estilo de Vida; Enfermedades Cardiovasculares; Factores de Riesgo.

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INTRODUCTION

It is known that hypertension is a multifactorial clinical condition, characterized by a sustained elevation of blood pressure levels ≥ 140 and / or 90 mmHg. It is associated with metabolic disturbances, functional and / or structural alterations of target organs, being aggravated by the presence of other risk factors. An independent association is maintained with events such as sudden death, stroke, acute myocardial infarction, heart failure, among others.[1]

Hypertension is considered to be a more prevalent condition among cardiovascular diseases. It is estimated that, in Brazil, the frequency of adults who reported a previous medical diagnosis of hypertension in the year 2015 was 22.8%, with Manaus being the capital with the lowest prevalence of hypertension reported at 14.0% (CI95% 11.3-16.7%) and the highest in Macapá (28.7%).[2]

It has been widely identified in national[3-5] and international publications, [6-8] that age, sex and nutritional status are some of the factors that are related to hypertension, which are identified as determinants for the development of the disease, with higher risks for male individuals, increasing considerably with aging, smoking, alcoholism, [9] and sedentary lifestyle and who are overweight.[10]

Blood pressure levels should be measured in any assessment by physicians of any specialty and other appropriately trained health professionals[1]. At least the measurement of systolic and diastolic blood pressure is recommended every two years for adults with BP ≤ 120/80 mmHg and annually for those with BP> 120/80 mmHg and <140/90 mmHg.[11]

It is understood that the evaluation of blood pressure levels and the indication of the prevalence of hypertension of the users who seek care in the health units are fundamental in the elaboration of public and individual health strategies.

OBJECTIVE

- To evaluate the blood pressure levels and factors associated with arterial hypertension of users attended at a prompt health care service.

METHOD

This is a descriptive, exploratory, cross-sectional, quantitative study that included users of the Unified Health System (UHS) who sought care in a care service in the city of Manaus, State of Amazonas, northern Brazil. Data were collected between October and December 2016, after approval by the Ethics Committee of the Federal University of Amazonas (Opinion Num. 1,564,914 / 2016 - CAAE num. 54237616.5.0000.5020).

The sample was calculated based on the prevalence of arterial hypertension, estimated at 25%, in order to maximize the sample size[2]. It was defined that the result of the sample calculation was 100 adults, paired by sex, selected by simple random sampling, based on the spontaneous demand of users who sought clinical care for their health needs at the study site. The following criteria were included for inclusion in the study: users who received care at the prompt service, during the period of data collection, aged 18 years or older. The following exclusion criteria were chosen: underage children, pregnant women, and those who presented difficulties with verbal communication. The Free and Informed Consent Term was signed in two copies by all participants.

Data was collected by a previously trained nursing undergraduate who consisted of socio-demographic evaluation - an instrument composed of items related to personal identification (sex, age, marital status, schooling, individual and family income). Age was obtained from the general registry and habits and lifestyles were evaluated through self-report (smoking and alcoholism). The measurement of blood pressure was measured with digital arm automatic device validated[12] and calibrated. Three pressure measurements were performed with a five minute interval, following the following steps:[13] ten-minute rest with the participant sitting comfortably, feet flat and flat on the floor, relaxed back and arm supported and level at heart. It was certified that the participant had not had a full bladder, no use of coffee, smoke, and alcohol for at least 30 minutes and had not performed physical activity for at least 60 minutes prior to blood pressure measurement. The size of the cuff was adjusted to the circumference of the arm.[13] The mean of the last two measurements was considered in the analyzes and hypertension was defined as values ≥140 / 90 mmHg and / or previous diagnosis of hypertension by a health professional.

The absolute, relative and cumulative frequencies of the variables were estimated. The normal distribution of the data by the Kolmogorov-Smirnov test was checked for the quantitative variables. The bivariate analysis, using the chi-square test of Pearson, was used to verify the existence of association between each independent variable and sex (female / male), for the categorical variables, and for

the quantitative variables, the difference between the means with the Student-T test or the Mann-Whithney test, depending on the normality of the variable of interest. Variables that presented values of p≤0.20 in the bivariate analysis were included as covariables in the binary logistic regression model, obtaining the odds ratio and their respective confidence intervals (95% CI). The analyzes were performed using the software Statistical Program Software System (SPSS) for Windows (version 21.0). The level of significance of 5% was considered in all tests performed.

RESULTS

Among the users attending a service in the city of Manaus, it is revealed that the sample studied was composed of 50% (50/100) women and 50% (50/100) men, a fact that proves the lack of bias of participants by gender (female / male). It was observed that the majority of the sample studied (63%) were in the age group between the second and fourth decades and little more than half lived with a partner (54%). The secondary education was concluded by the majority of the sample (62%). It was shown by the socioeconomic evaluation that the majority had individual income of up to two minimum wages (65%) and just under half with a monthly family income equal to or greater than three wages (43%). It was reported that most users did not smoke (80%) nor did they consume any type of alcohol (65%). It was pointed out that there was a statistically significant difference (p≤0.05) among men in relation to women: to have more individual monthly income of up to two minimum wages (61% vs 39%) and to consume more alcoholic beverages (71.4 % vs. 28.6%), as shown in table 1.

Table 1. Characterization of the socio-demographic aspects and life habits of the users served in the prompt service. Manaus (AM), Brazil, 2016.

Variables	Female n=50		Male n=50		Total n=100	Value p
	n	%	n	%	n	
Age						0.147
18 – 44 years	28	44.4	35	55.6	63	
≥ 45 years	22	59.5	15	40.5	37	
Marital Status						1.000
Without Partner	23	50.0	23	50.0	46	
With Partner	27	50.0	27	50.0	54	
Education						0.840
Illiterate	1	33.3	2	66.7	3	
Incomplete Elementary school (1st to 5th years)	6	60.0	4	40.0	10	
Incomplete Middle school (6th to 9th years)	1	33.3	2	66.7	3	
Incomeplete Highschool	5	45.5	6	54.5	11	
Complete Highschool	30	48.4	32	51.6	62	
Complete Higher Education	7	63.6	4	36.4	11	
Monthly Individual Income (Minimum wage)[a]						0.032*
No income	13	59.1	9	40.9	22	
<1	17	70.8	7	29.2	24	
1 – 2	16	39.0	25	61.0	41	
≥ 3	4	30.8	9	69.2	13	
Monthly Family Income (Minimum wage)[a]						0.331
No income	0	0.0	1	100.0	1	
<1	8	66.7	4	33.3	12	
1 – 2	23	52.3	21	47.7	44	
≥ 3	19	44.2	24	55.8	43	
Smoker						0.290
No	43	53.8	37	46.3	80	
Yes	5	38.5	8	61.5	13	
Ex-smoker	2	28.6	5	71.4	7	
Consumes alcohol						0.002*
Yes	10	28.6	25	71.4	35	
No	40	61.5	25	38.5	65	

a. Minimum wage R$ 880.00. *p≤0.005.

The pressure levels of the users are shown in figure 1. The systolic blood pressure (SBP) of the women ranged from 112.5 mmHg to 125.5 mmHg, with a mean of 119.5 (22.9) mmHg and the diastolic blood pressure (DBP) of the women ranged from 68 , 1 mmHg at 74.6 mmHg, with an average of 71.4 (11.4) mmHg. It was found among men that SBP ranged from 124.9 mmHg to 136.3 mmHg, with a mean of 130.6 (20.0) mmHg and DBP ranged from 74.6 mmHg to 81.5 mmHg, with a mean of 78.9 (12.2) mmHg. It is reported that both means of SBP (p = 0.008) and DBP (p = 0.006) were higher in males when compared to female tension levels.

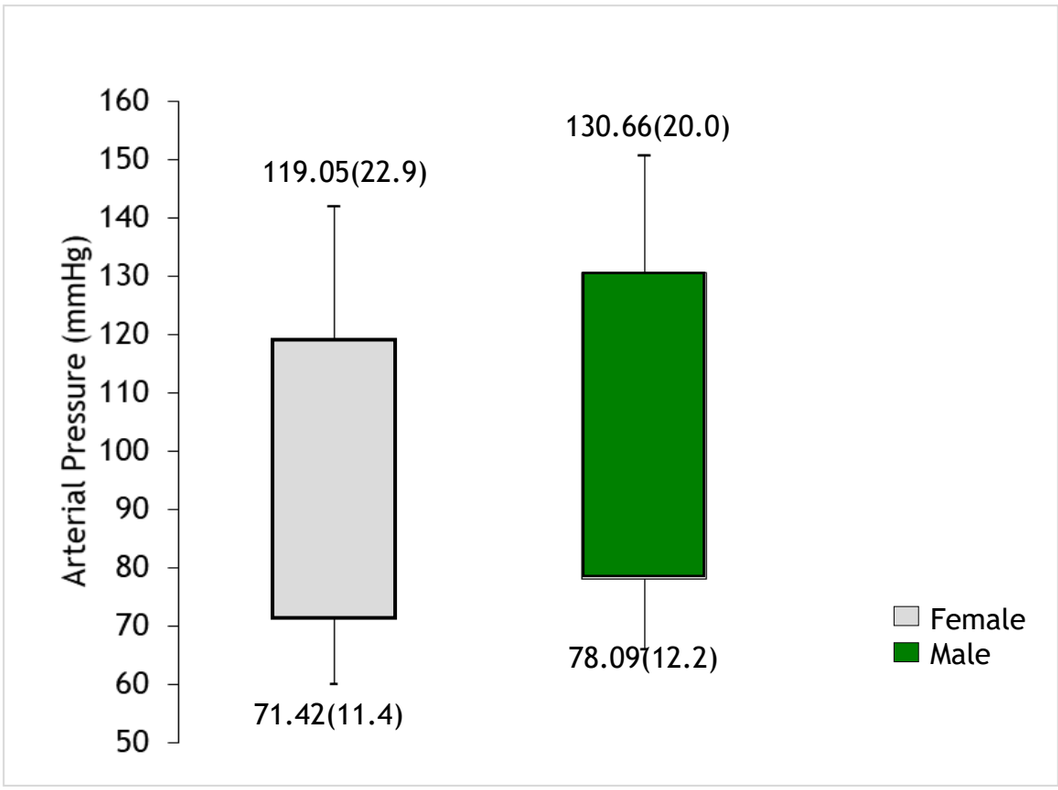

Figure 1. Levels of tension of the users served in the prompt service. Manaus (AM), Brazil, 2016.

It is reported that the overall prevalence of arterial hypertension was 26%, with the value found among men (32%) higher than women (20%). 10% arterial hypertension was reported, as demonstrated in figure 2.

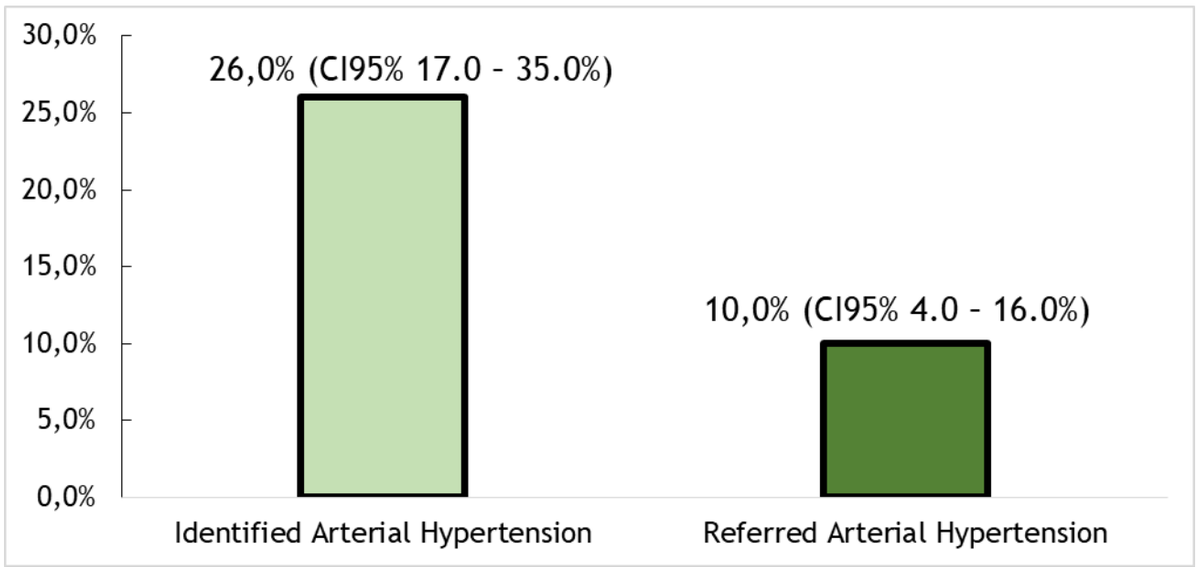

Figure 2. Prevalence of arterial hypertension in users attending the emergency care service. Manaus (AM), Brazil, 2016.

In figure 3, the majority of women (72%) had blood pressure levels classified as normal, whereas in only 24% of the men the blood pressure was normal, and they were statistically different (p≤0.001). It was revealed that a little less than half of the men had prehypertension compatible blood pressure levels; however, prehypertensive men had a statistically significant difference when compared to women with prehypertension (48% vs 12%, p≤0.001).

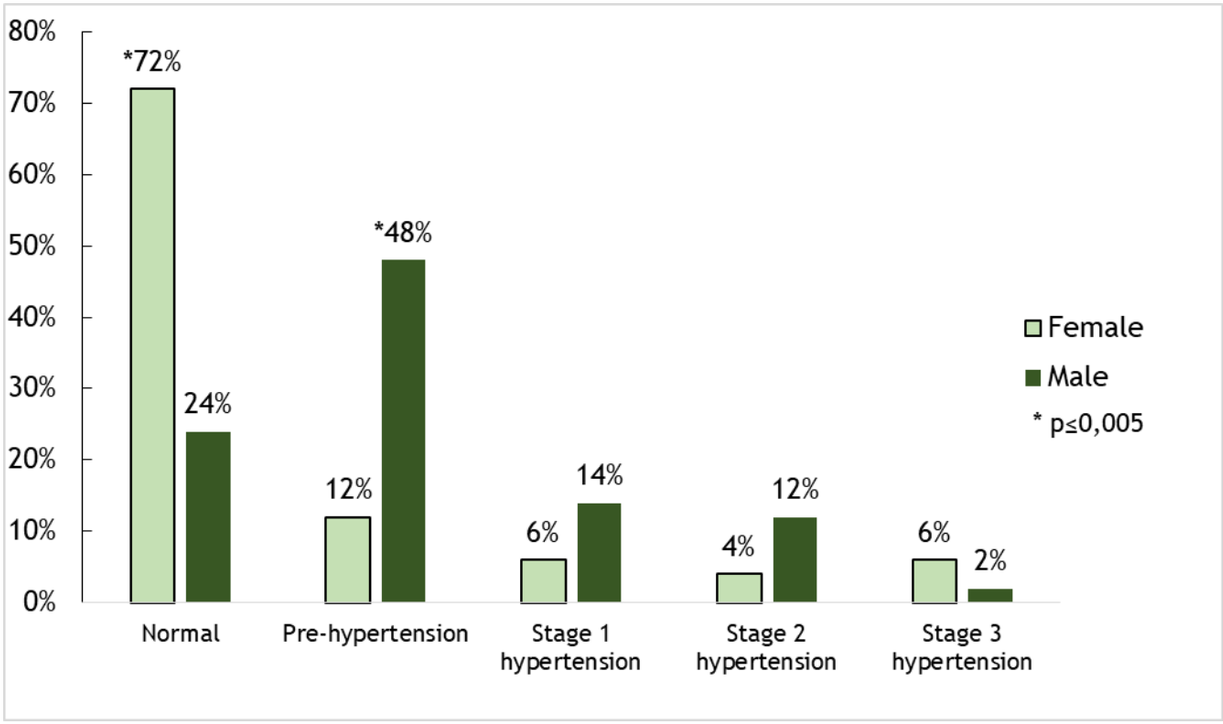

Figure 3. Blood pressure classification of the users served in the emergency care service. Manaus (AM), Brasil, 2016.

In terms of blood pressure measurement habits and knowledge about arterial hypertension, it was added that most users (68%) were not in the habit of measuring blood pressure, but among users who measured pressure the frequency of measurement referred to was at least once a month (19%). It was observed that the majority of users (85%) did not know the value in which blood pressure is considered high and just under half of users (48%) believed that hypertension could be cured. The most frequent complications of arterial hypertension were: cerebrovascular accident (35%) followed by acute myocardial infarction (20%) and renal problems (2%), according to table 2.

Table 2. Characterization of blood pressure measurement habits and knowledge about arterial hypertension according to users served at the prompt service. Manaus (AM), Brazil, 2016.

Variables	Female		Male		Total	Value p
	n	%	n	%	n	
Has the habit of measuring blood pressure						0.668
Yes	15	46.9	17	53.1	32	
No	35	51.5	33	48.5	68	
Frequency of blood pressure measurement						0.695
Daily	1	50.0	1	50.0	2	
Weekly	4	57.1	3	42.9	7	
Monthly	8	42.1	11	57.9	19	
Semiannualy	2	66.7	1	33.3	3	
Annually	0	0.0	1	100.0	1	
Place where you usually measure blood pressure						0.731
Emergency care service	4	40.0	6	60.0	10	
Basic health Unit	3	60.0	2	40.0	5	
Hospital	1	50.0	1	50.0	2	
At home	7	46.7	8	53.3	15	
Do you think high blood pressure can bring complications						0.295
No	30	46.2	35	53.8	65	
Yes	20	57.1	15	42.9	35	
Stroke	20	57.1	15	42.9	35	0.295
Acute myocardial infarction	11	55.0	9	45.0	20	0.803
Kidney Problems	2	100.0	0	0.0	2	0.093
Knows from what value the pressure is considered high						0.577
No	41	48.2	44	51.8	85	
Yes	9	60.0	6	40.0	15	
≥140 and/or ≥90 mmHg	8	61.5	5	38.5	13	0.759
In your opinion can the high pressure be cured						0.713
Yes	22	45.8	26	54.2	48	
No	24	53.3	21	46.7	45	
Doesn't know	4	57.1	3	42.9	7	

Table 3 shows the results of binary logistic regression with variables associated with arterial hypertension. It was verified that the variables gender, age and individual monthly income were positively associated.

Table 3. Binary logistic regression for factors associated with arterial hypertension among users served at the prompt service. Manaus (AM), Brazil, 2016.

Variables	*Odds ratio*	Confidence interval 95%		Value p
Sex				
Female	1,00	-	-	-
Male	0,53	0,21	1,32	0,038*
Age				
18-44 years	1,00	-	-	-
≥ 45 years	0,15	0,05	0,41	<0,001*
Individual monthly income				
1 – 2 Salaries	1,00	-	-	-
≥ 3 Salaries	0,24	0,06	0,93	0,039*

* *p≤0.005*.

It was found that, among the participants in this study, men had a 53% chance of developing arterial hypertension when compared to women. In relation to age, it was found that the chance of developing hypertension among adults aged 45 years or over was 15%, when compared to adults considered young, and for the individual monthly income, the group with the highest income presented 24% chance of having high blood pressure when compared to adults receiving up to two minimum wages.

DISCUSSION

It is contributed, by the presented results, to identify, from the evaluation of the tension levels, the prevalence of arterial hypertension and the factors that are associated in the study population. It is hoped that these data can support the planning of interventions in the nurses' practice, directed to the control of arterial hypertension, starting from the measurement of the blood pressure levels, to the treatment and follow-up of hypertensive users.

The prevalence of hypertension found in this study (26%) was high when compared to the national prevalence (22.8%) revealed by the Surveillance of Risk Factors and Protection for Chronic Diseases by Telephone Inquiry (VIGITEL) in the year 2015[2]. In another study with data from the National Health Survey (NHS), conducted in 2013, the prevalence of hypertension reported from 21.4%.[14]

It was also revealed, through the VIGITEL 2015 findings, that the prevalence of hypertension in the city of Manaus was 14.0%, being higher among men (15.4%) than among women (12.6% %)2. It was pointed out in a study with adults from the city of São Luís, Maranhão, that hypertension was higher in males (32.1%) than in females (24.2%).[15] It was found in another study with adults from riverside communities of the Madeira River, in Porto Velho, that 26% of adults presented hypertension, a prevalence similar to that found in this study, 29% of men and 23% of women being hypertensive.[16] This trend was evidenced in this study, since the prevalence of hypertension was higher in males than in females.

In this study, it was observed that the variables gender, age and individual monthly income were positively associated with hypertension. It is widely reported in the literature that age is an important marker of cardiovascular risk and that its increase may influence the presence of hypertension.[3,17-8] It was also shown in the study that the prevalence of hypertension increased with advancing age, with people over 45 years of age presenting a 53% chance of being hypertensive than those between the ages of 18 and 44 years. It is also worth noting that there is a direct and linear association between aging and an increase in the prevalence of hypertension related to an increase in the life expectancy of the population and an increase in the elderly population.[13]

As regards individual monthly income, it can be seen that socioeconomic differences play an important role in health conditions that influence different factors, such as access to the health system, the degree of information, understanding of the medical condition and adherence to the treatment.[19] It has been demonstrated in previous studies that the lower the family income, the higher the prevalence of hypertension.[20-1] In the study with adults from the city of Pelotas, Rio Grande do Sul, the association of hypertension with family income was detected, revealing that adults with poor living conditions were twice as likely to have arterial hypertension.[21]

This study was limited mainly by the cross-sectional design, which does not allow the establishment of cause and effect relationships. Blood pressure was measured with three measurements using the mean of the last two. It is recorded that there are studies in the literature on the subject that

present a smaller population than the one used.

CONCLUSION

It is concluded that the results of this study revealed the high prevalence of hypertension among the users of a Emergency Care Service in Manaus. It was observed that age, sex and income were factors associated with hypertension, with the majority of users being hypertensive males over 45 years of age. It is inferred that income also had a relevant factor, since the majority of users who presented arterial hypertension had higher income than other users.

It is important to highlight the need for preventive and educational measures and actions in health services with a view to promoting health and seeking to control the blood pressure levels of the adult population of Manaus, especially hypertensive users who seek care in emergency care units City. Social relevance is shown to help identify effective approaches to potentiate the diagnosis, treatment and control of hypertension, as well as to identify the risk factors associated with it, in order to understand the influence on the prevalence of hypertension.

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