Factors associated with adult/elderly adherence to the treatment of arterial hypertension in primary care

Fatores associados à adesão de adultos/idosos ao tratamento da hipertensão arterial na atenção básica

Factores asociados con la adherencia de adultos/ancianos al tratamiento de la hipertensión arterial en atención primaria

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ABSTRACT
Objective: to evaluate the factors that influence the adherence of adults / elderly to the treatment of arterial hypertension. **Methodology**: cross-sectional quantitative research, carried out in two Basic Health Units in the interior of Paraná, in 2016. A structured questionnaire was used to obtain sociodemographic data and a likert scale for assessing treatment, with adherence attributed to a score of 73 to 120. The analysis was based on software R. The adherence score was described by the mean, standard deviation and coefficient of variation. For associations between treatment adherence, univariate logistic regression was used. The research followed the ethical precepts, obtaining CAAE approval: 61218216.8.0000.0106, opinion No. 1.838.418. **Results**: 257 hypertensive patients, mostly women, participated in the study. Of these, 91.05% were adherent to the treatment. There was no significant difference between the Health Units. **Conclusion**: They contributed to a greater chance of adherence, being over 60, retired and having been diagnosed for more than six years.
Descriptors: Primary Health Care; Arterial hypertension; Patient care team; Cooperation and adherence to treatment.

RESUMO
Objetivo: avaliar os fatores que influenciam na adesão de adultos/idosos ao tratamento de hipertensão arterial. **Metodologia:** pesquisa quantitativa transversal, realizada em duas Unidades Básicas de Saúde, no interior do Paraná, Brasil. Utilizou-se de questionário estruturado para obtenção dos dados sociodemográficos e escala do tipo *likert* de avaliação do tratamento, sendo a adesão atribuída à pontuação de 73 a 120. A análise foi a partir do *software R.* O escore de adesão foi descrito pela média, pelo desvio padrão e coeficiente de variação. Para associações entre a adesão ao tratamento, aplicou-se a regressão logística univariada. A pesquisa seguiu os preceitos éticos, obtendo aprovação CAAE**:** 61218216.8.0000.0106 e parecer Nº 1.838.418. **Resultados:** participaram do estudo 257 hipertensos, a maioria mulheres. Destes, 91,05% foram aderentes ao tratamento. Não houve diferença significativa entre as Unidades de Saúde. **Conclusão:** contribuíram para maior chance de adesão: idade superior a 60, aposentado e tempo diagnóstico superior a seis anos.
Descritores: Atenção Básica à Saúde; Hipertensão Arterial; Equipe de assistência ao paciente; Cooperação e adesão ao tratamento.

RESUMEN
Objetivo: evaluar los factores que influyen en la adherencia de adultos / ancianos al tratamiento de la hipertensión arterial. **Metodología**: investigación cuantitativa transversal, llevada a cabo en dos Unidades Básicas de Salud en el interior de Paraná, Brasil, en 2016. Se utilizó de cuestionario estructurado para obtener datos sociodemográficos y escala likert para evaluar el tratamiento, con adherencia atribuida a puntuación de 73 a 120. El análisis se basó en el *software* R. La puntuación de adherencia se describió por la media, la desviación estándar y el coeficiente de variación. Para las asociaciones entre la adherencia al tratamiento, se utilizó la regresión logística univariada. La investigación siguió los preceptos éticos, obteniendo la aprobación del CAAE: 61218216.8.0000.0106, opinión No. 1.838.418. **Resultados**: 257 pacientes hipertensos, en su mayoría mujeres, participaron en el estudio. De estos, 91.05% se adhirieron al tratamiento. No hubo diferencias significativas entre las Unidades de Salud. **Conclusión**: contribuyeron a mayor probabilidad de adhesión: tener más de 60 años, retirarse y haber sido diagnosticados por más de seis años.
Descriptores: Atención Primaria de Salud; Hipertensión arterial; Grupo de atención al paciente; Cumplimiento y adherencia al tratamiento.

INTRODUCTION

The Systemic Arterial Hypertension (SAH) is a multifactor chronic condition considered a serious public health problem worldwide. It requires assisting measures that result in control and, consequently, in a decreasing occurrence of hospitalizations, complications and deaths[1]. Influenced by complex genetic, psychosocial and environmental interactions, the SAH has as its main risk the development of cerebrovascular, heart and kidney diseases[2]. It affects 30% to 45% of the world's population, at an increasing rate[3]. Even though treatment can reduce this risk, the disease continues to be undertreated, undersized and poorly controlled[4].

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It is estimated that 22% to 44% of Brazilian population is affected by hypertension, in addition to the fact that it is directly linked to age, being 60% higher among elderly people[5]. Therefore, due to the SAH characteristic of presenting a mild start and developing to severe health conditions[2], new studies involving different methods for its control are welcome. Furthermore, the investigation of these approaches in handling SAH opens opportunities for primary health care to look into the efficiency of care and handling of the disease.

From this perspective, understanding the factors associated with the adherence to the treatment processes is essential for assessing and/or guiding the actions of the primary care multidisciplinary teams, in stimulating adherence to SAH treatment, in a global context.

The study's aim is to assess the factors influencing the adults/elderly's adherence to the hypertension treatment in two Basic Health Centers (UBS).

LITERATURE REVIEW

Adequate management of Blood Pressure (BP) may require pharmacological and non-pharmacological treatment. The non-pharmacological actions favor the reduction of the daily dose of antihypertensive drugs and delay the progression of the disease. There are different strategies to prevent complications, including changes in lifestyle, physical exercises, and others[4]. Furthermore, the adoption of balanced diet and the restriction of salt and tobacco consumption are fundamental for preventing the disease. However, these actions entail a proactive behavior and require continuous, multifactor and diversified adherence, that is, there is a need for patients' commitment to their own health[6].

In view of the aging population and the difficulty of hiring doctors in Brazil, approaches to antihypertensive treatment through other professionals can be a promising strategy to improve the control of SAH[5]. Team care is a coordinated type of assistance that includes different health professions developing collaborative actions, respecting each medical specialty[7]. This method of handling SAH, with a team-based care, was recommended by the Community Preventive Services Task Force of the United States of America (USA), still under evaluation in European countries as it is a new proposal, and therefore target of much research worldwide[4].

In Brazil, the Attention to Primary Care ('APS' in Brazilian Portuguese), is in charge of assessing blood pressure levels and stimulating adherence to treatment, including pharmacological and non-pharmacological therapies as essential conditions for BP control and consequent reduction of complications[2]. There have been recent investments and initiatives in the country, both in research and in new political strategies, in order to control the epidemic of Non communicable Diseases (NCDs), such as the Model for Attention to Chronic Conditions[7].

METHODOLOGY

This is a cross-section study with a quantitative approach, made in a municipality in the countryside of the State of Paraná, Brazil, with an estimated population of 180,334 inhabitants[8] in 2018. The city has a network of 33 Basic Health Centers (UBSs), of which two hosted the research, thus here being called UBS A and UBS B. They were chosen due to their structure, as well as the distinct characteristics of their teams and population served.

The first UBS, located in the central area of the city, featured a team composed of: a nurse, three nursing technicians, three doctors, a dentist, a dental assistant and four Community Health Agents (ACS in Brazilian Portuguese) as well as it featured a team of the Nucleus for support to Family Health(NASF in Brazilian Portuguese), comprised of a psychologist, a nutritionist, a physical educator and a speech therapist. This center holds gymnastic programs for the elderly, body stretching activities, memory workshops, and a Hiperdia group, held every two weeks[9].

The second Center is located on the outskirts of the city, and it has a more fragile structure, providing care for the low-income population, and featuring a team of three doctors, a dentist, a dental assistant, two nurses, four nursing technicians, an endemic agent and ten community agents. The Unit is part of the University's Multiprofessional Residency based in the municipality, having a nutritionist, a physiotherapist, a physical educator and a nurse. This center holds walking groups, rhythm classes, food education and a Pain Relief Group[10]for its population.

According to Hiperdia's records, in 2016, there were approximately 8,200[11]. The sample size was calculated using the Stat Calc software, following the criteria for finite populations, considering a prevalence of 50%, a confidence margin of 95% and standard error margin of 3%. It resulted in a population of 250 individuals to be interviewed.

The research included hypertensive patients, over the age of 18, of both genders, and capable of understanding and answering the questionnaires without need to be resorting to the help of third parties. The interviews took place in the waiting room of these centers and at their homes, as per the recommendations of the Community Health Agents

team, who accompanied all visits. Data was collected between January and February 2016, using a sociodemographic questionnaire (gender, age, occupation, skin color, date of diagnosis, measurement control) and through the Instrument for the Assessment of Non-Adherence to the Treatment of Arterial Hypertension, developed and validated in Brazil[12]. Although the questionnaire can be self-administered, due to the diversity of questions, it was decided that the interviews should be held, and questionnaire takers accompanied.

This questionnaire consists of 24 questions assessing individuals in four dimensions: the person; the disease/treatment; the health service and the environment. The data is measured using a Likert scale. To calculate the final score each person reached, the value of 1 was defined for the column 'always', the value 2 was defined for 'almost always', the value 3 was defined for 'sometimes', the value 4 was defined for 'almost never' and 5 was the defined score for 'never', totaling 170 possible points. The classification was established based on a score estimation that divided the total points obtained by the respondents in proportions: 'total non-adherence': those who scored 24 to 48 points; 'risk for non-adherence' for scores between 49 to 72 points; 'adherence' for those scoring 73 to 120 points[12].

The data was entered into an Excel 2016 spreadsheet and then analyzed using the its version 3.3.1. The adherence score to treatment was described by simple arithmetic mean, standard deviation and coefficient of variation.

To investigate possible associations between adherence to treatment and the sociodemographic and clinical characteristics of the patients, the univariate logistic regression was used, estimating the odds ratios as an effect measure, with a 95% confidence interval. To investigate the possible association between the variables considered, Fisher's exact test was applied.

The research was approved by the Research Ethics Committee of Universidade Estadual do Centro Oeste, CAAE: 61218216.8.0000.0106 and opinion No. 1.838.418, using the Free and Informed Consent Form. There were no refusals to participate in the research.

RESULTS AND DISCUSSION

In total, 257 hypertensive patients of the UBS participated in the study. The score obtained by the interviewees, related to treatment adherence, had a mean and median of 86.91 and 87.00 points, respectively. Regarding dispersion, a standard deviation of 10.69 points was obtained, with the respective variation coefficient of 12.30%, indicating low dispersion, as shown in Figure 1.
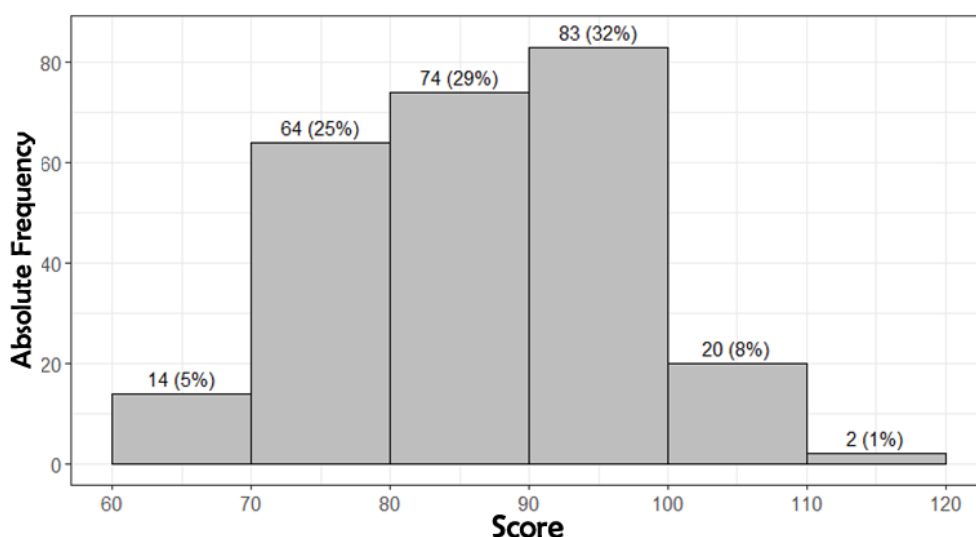

FIGURE 1: Histogram of the Treatment Adherence score. Guarapuava, Brazil, 2016.

The scores in Figure 1 show concentration between 80 and 100 points, with 61% of the survey participants scoring in this range. Still, 5% scored below 70 points, whereas 1% scored above 110 points.

Regarding the classification of treatment adherence, none of the interviewed hypertensive patients scored between 24 and 48 points, which characterizes 'total non-adherence', whereas 8.95% were at 'risk for non-adherence' (23 patients), with scores between 49 and 72 points, and the remaining 91.05% (234) were in the 'adherence to treatment' range, according to what had been proposed, with scores between 73 and 120 points (Table 1 below).

Although the majority of the interviewees has been classified in the category 'adherence' to treatment, regardless of the UBS they go to, UBS B's patients show a higher percentage of adherence, with 92.25% of them in such range, against a percentage of 89.84% for the UBS A's patients.

TABLE 1: Univariate analysis of treatment adherence related to sociodemographic factors. Guarapuava, Brazil, 2016.

Demographic factors	Treatment		Gross OR	CI (95%)	p Value
	Risk for non-adherence	Adherence			
Health Center (UBS)					
A	13 (5%)	115 (45%)	1.00	-	-
B	10 (4%)	119 (46%)	1.35	0.57-3.27	0.501
Gender					
Female	16 (6%)	150 (58%)	1.00	-	-
Male	7 (3%)	84 (33%)	1.28	0.52-3.44	0.602
Age					
Between 20 and 39	4 (2%)	8 (3%)	1.00	-	-
Between 40 and 59	14 (5%)	103 (40%)	3.68	0.89-13.4	0.054
Older than 60	5 (2%)	123 (48%)	12.30	2.62-56.39	< 0.001
Skin Color					
White	21 (8%)	192 (75%)	1.00	-	-
Pardos (mixed-race)	1 (0%)	10 (4%)	1.09	0.19-20.56	0.933
Black	1 (0%)	31 (12%)	3.39	0.67-61.86	0.241
Marital Status					
With a partner	17 (7%)	158 (61%)	1.00	-	-
Single	3 (1%)	30 (12%)	1.08	0.33-4.81	0.911
Widowed	3 (1%)	46 (18%)	1.65	0.53-7.29	0.440
Job					
Pensioner/Retired	4 (2%)	98 (38%)	1.00	-	-
Unemployed/At home	12 (5%)	69 (27%)	0.23	0.06-0.71	0.015
Formal employment/Daily wage	7 (3%)	60 (23%)	0.35	0.09-1.21	0.105
Religion					
Catholic	16 (6%)	189 (74%)	1.00	-	-
Protestants	6 (2%)	40 (16%)	0.56	0.22-1.65	0.261
Without religion	1 (0%)	0 (0%)	#	#	0.990
Education Level					
Illiterate	3 (1%)	33 (13%)	1.00	-	-
Elementary school	16 (6%)	157 (61%)	0.89	0.2-2.87	0.862
High school	4 (2%)	36 (14%)	0.82	0.15-3.98	0.802
University education	0 (0%)	6 (2%)	#	#	0.988
Income					
Less than 1 salary	2 (1%)	35 (14%)	1.00	-	-
More than 1 salary	12 (5%)	178 (69%)	0.85	0.13-3.29	0.833
Smoking					
Yes	6 (2%)	54 (21%)	1.00	-	-
No	17 (7%)	180 (70%)	1.18	0.41-2.99	0.745
Recreation					
Yes	13 (5%)	150 (58%)	1.00	-	-
No	10 (4%)	84 (33%)	0.73	0.31-1.77	0.473

It was not possible to estimate percentage due to low frequency.

The results showed that patients aged 60 or more were more likely to adhere to treatment, compared to those aged between 20 and 39 (OR = 12.30; 95% CI 2.62 - 56.39). With regard to occupation, individuals who classified

themselves as 'unemployed' and / or 'at home' were less likely to adhere to treatment compared to retirees or pensioners (OR = 0.23; 95% CI 0.06 - 0.71).

Although there are no significant differences, the variables of age and race stand out, of which individuals aged between 40 and 59 and black people showed a tendency to adhere to treatment, with OR = 3.68 and OR = 3.39, respectively. It is worth noticing that the participants who defined themselves as having 'formal employment' and protestants showed a lower chance of adhering to treatment, with OR = 0.35 and OR = 0.56, respectively (Table 2).

Table 2: Univariate analysis of treatment adherence based on clinical factors. Guarapuava, Brazil, 2016.

Clinical factors	Treatment		Gross OR	CI (95%)	p Value
	Risk of non-adherence	Adherence			
Date of diagnosis					
5 years or less	16 (6%)	90 (35%)	1.00	-	-
From 6 to 10 years	4 (2%)	69 (27%)	3.07	1.07-11.07	0.054
From 11 to 15 years	2 (1%)	33 (13%)	2.93	0.78-19.19	0.166
Over 16 years	1 (0%)	42 (16%)	#	#	0.989
Interval between appointments					
Up to 4 months	8 (3%)	100 (39%)	1.00	-	-
Between 5 and 10 months	14 (5%)	121 (47%)	0.69	0.27-1.68	0.426
More than 11 months/No appointments	1 (0%)	11 (4%)	0.88	0.14-17.1	0.908
Type of consultation					
Single Health System (SUS)	23 (9%)	214 (83%)	1.00	-	-
Private/Health Insurance Plan	0 (0%)	4 (2%)	#	#	0.994
SUS + Private/Health Insurance Plan	0 (0%)	14 (5%)	#	#	0.988
Frequency of measuring blood pressure					
Inferior to 1 month	20 (8%)	182 (71%)	1.00	-	-
Over 1 month/Does not measure it at all	3 (1%)	51 (20%)	1.87	0.61-8.15	0.328
Location where it is measured					
Home	1(0%)	50 (19%)	1.00	-	-
UBS	20 (8%)	158 (61%)	0.16	0.01-0.79	0.075
Others	0 (0%)	8 (3%)	#	#	0.991

It was not possible to estimate percentage due to low frequency.
Source: Data collected, 2016.

Patients who had been diagnosed the longest date (6 to 10 years) were more likely to adhere to treatment than those patients whose diagnosis had been received less than five years before, with OR = 3.07 (95% CI 1.07 - 11.07). For the other clinical characteristics considered, there was insufficient sample evidence that the differences in the ratio of chances of adhering to the treatment are significant, at the 5% level.

Although the odds ratio was not significant, the participants who reported measuring their blood pressure at least once a month were more likely to adhere to treatment. The people who had appointments in an interval of 5 to 10 months or more than 11 months / did not have appointments at all, were less likely to adhere to treatment, compared to those who had appointments in up to four months.

Therefore, the factors associated with the adherence to pharmacological anti-hypertensive and the non-pharmacological treatment were identified, thus recognizing the consequence of arterial hypertension in the lives of people, families and society. Hypertension is a disease that, after being diagnosed, incurs regular professional follow-ups for its control, stimuli for changing habits and other guidelines[13].

In both health centers where the research was made, findings showed that the adherence rate was high, of around 90%, with no significant difference arising from the characteristics of each region and the population served in Center B: a worse adherence rate was expected, which was not seen. All this data corroborates other studies that reinforce the importance of interdisciplinary action in the population with this pressure profile, in which the level of BP control was around 91%, having as its primary driver the care actions of the APS teams[14].

The goal of health teams in caring for people with the SAH is to ensure that they adhere to treatment as much as possible, aiming disease control. Several tools can be used for this purpose, such as specific protocols, home visits, educational technologies, among others. However, it must be emphasized that these tools should not be limited to the

domain of a single professional, thus enabling comprehensive care. Comprehensive health care results from the effort of the multidisciplinary team, through collective motivation, in order to overcome isolated professional practices, supported by dialogue and sharing of knowledge[15].

In this sense, a recent integrative review to assess the use of protocols in the management of HAS care in APS reinforces the importance of using protocols, as it provides a comprehensive view of the patient and better professionals-patients relationship. However, it also warns for gaps in the existing protocols, as for its comprehensiveness, which undermine compliance with this principle, as they are disconnected from integral actions by a multidisciplinary team, prioritizing specific categories[16].

The sociodemographic variables showed a higher chance of adherence to treatment related to the age group above 60, with prevalence of females, retirees and / or pensioners, with a partner. There was also a tendency for treatment adherence among men, aged 40 to 59 years, of mixed-race or black. Lower chances of adherence to treatment were detected in people with formal employment, protestants, with elementary or high school education, income higher than one salary, but who did not do physical exercises and did not undertake leisure activities.

A study on people with SAH in the waiting room, carried out in a Family Health Strategy Unit (UESF in Brazilian Portuguese), in a city of Minas Gerais, corroborates the findings of this research, with regard to sociodemographic aspects, also revealing the relationship of the longer date of diagnosis (nine years) and use of antihypertensive medication, exclusively pharmacological (84%) and in the usage of non-pharmacological therapies (16%), such as a healthy diet, among others. Such data associate adherence to treatment with educational health actions as a strategy of the multidisciplinary team, revealing poor adherence to non-pharmacological therapies[17].

A piece of research made in Fortaleza, in the State of Ceará, Brazil, assessed the adherence to treatment for arterial hypertension from a different perspective, using other parameters. The results also demonstrate a high rate of adherence to treatment in the population studied, as well as it shows a lower chance of adherence due to socioeconomic factors and a low educational level[18].

As for physical and leisure activities, although their benefits are well-known, they involve a change in lifestyle, which is a challenge for the teams. Sedentary lifestyle and low adherence to physical activities have also been reported in other studies, showing the difficulty of people to change behavior and self-help[19].

Therefore, it is noted that this is a trend, not only in Brazil but in other places, as shown by a study made in Gaza, Palestine, on risk factors for stroke, with a sample of 2,240 people, which pointed out the main risk factor for the SAH, detecting a low proportion of physically active individuals, with 48.3%, especially as age increases[20]. Involving patients in their own treatment becomes an appropriate path. The team needs to analyze the individual's vision and his experience with the disease. The professional must be prepared, must know how to listen to patients, understand them and, later, make joint decisions[21].

The longer date of diagnosis and the frequency of BP measurement also emerged as factors which influenced adherence to treatment. This result may be related to the acceptance of the disease and the monitoring by the health services available to the population. A study made with 135 hypertensive patients, monitored by the FHS showed that the work performed by the Hiperdia program teams obtained positive results in handling comorbidity and in the management of some risk conditions related to cardiovascular diseases. This study showed that the reduction in blood pressure levels was associated with adherence to pharmacological and non-pharmacological treatment developed for that population[22].

The frequency for measuring blood pressure was also a factor linked to greater chances of adherence to treatment. Another study with hypertensive elderly people in Guantánamo-Cuba differs from this finding, in which the majority of the population did not adhere to treatment. In addition to low adherence, there was also the lack of blood pressure control and adverse drug reactions and/or withdrawal from treatment when they felt well. Also, when they show the symptoms, they neglect or forget to take their medication[23].

From the results observed in this study, adherence to the treatment of hypertension may be linked to the work of the multidisciplinary team. Among the studies corroborating this finding, there is a piece of research conducted to evaluate the effectiveness of the actions performed by a multidisciplinary team in controlling hypertension, in a population of 4,762 hypertensive patients. A reduction in blood pressure levels and an increase in control were found as conclusion in patients followed by a primary care team, trained in problem solving, comprising a doctor, a nurse, a nutritionist, a physical educator, a physiotherapist and a psychologist[24].

Still, another piece of research indicates that collaborative interdisciplinary interventions in the care of hypertensive patients does contribute to the adherence to drug treatment, as well as to the lifestyle changes, involving guided physical activities and diets[25].

CONCLUSION

This study identified some factors associated to adherence to treatment by adults/elderly, at two Primary Health Centers, one of which located closer to a central area of the city and having an active NASF team, whereas the other one serves a low-income population and headquarters an Interdisciplinary Residency. Results pointed to a high rate of adherence to treatment in both Health Centers, without significant difference between them. Among relevant factors contributing to adherence, age, occupation and the longer date of diagnosis were found. However, the study has shown that behavior, such as changes in the lifestyle of participants resulted in low adherence.

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