Factors associated with adherence to pharmacological treatment by hypertensive patients

Fatores associados à adesão ao tratamento farmacológico por pacientes hipertensos

Factores associados con la adhesión al tratamiento farmacológico por pacientes hipertensos

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Abstract
Today, arterial hypertension represents one of the most prevalent diseases in Brazil and in the world, being considered as one of the most important public health problems. It is a chronic-degenerative disease, responsible for causing morbidity in the population in developed and underdeveloped countries. The treatment adopted for the control of SAH is based on non-pharmacological and pharmacological measures. Among the non-pharmacological treatments is the adoption of physical exercise practices. Pharmacological treatment consists of taking available antihypertensive drugs. Objective: to evaluate the factors associated with adherence to pharmacological treatment by hypertensive patients in the city of Montes Claros - MG. Materials and Methods: the present work is a descriptive study, with quantitative field analyzes with cross section. The population of this research was composed of 200 hypertensive patients from the Basic Health Units of the city of both genders, selected at random by lot. Results: the prevalence of adherence to pharmacological treatment was 70% in its entirety and of these 73% are able to farm through SUS. Conclusion: Public health directly influences patients' adherence to pharmaceuticals.
Keywords: Risk factors; Arterial hypertension; Public health; Pharmacological treatment.

Resumo
Hodiernamente, a hipertensão arterial representa uma das doenças mais prevalentes no Brasil e no mundo, sendo considerada como um dos mais importantes problemas de saúde pública. Trata-se de uma doença crônico-degenerativa, responsável por ocasionar morbidade na população em países desenvolvidos e subdesenvolvidos. O tratamento adotado para o controle da HAS baseia-se nas medidas não farmacológicas e farmacológicas. Entre os tratamentos não farmacológicos está a adoção de práticas de exercícios físicos. O tratamento farmacológico consiste na ingestão de medicamentos anti-hipertensivos disponíveis. Objetivo: avaliar os fatores associados à adesão ao tratamento farmacológico por pacientes hipertensos no município de Montes Claros - MG. Materiais e Métodos: o presente trabalho trata-se de um estudo de caráter descritivo, com análises quantitativas de campo com corte transversal. A população desta pesquisa foi composta 200 pacientes hipertensos das Unidades Básicas de Saúde da cidade de ambos os gêneros, selecionados de forma aleatória por sorteio. Resultados: a prevalência de adesão ao tratamento farmacológico foi de 70% de forma integral e desses 73 % conseguem os fármacos através do SUS. Conclusão: A saúde pública influência diretamente na adesão aos fármacos pelos pacientes.
Palavras-chave: Fatores de risco; Hipertensão arterial; Saúde pública; Tratamento farmacológico.

Resumen
Hoy en día, la hipertensión arterial representa una de las enfermedades más prevalentes en Brasil y en el mundo, siendo considerada uno de los problemas de salud pública más importantes. Es una enfermedad crónico-degenerativa, responsable de causar morbilidad en la población de países desarrollados y subdesarrollados. El tratamiento adoptado

para el control de la HAS se basa en medidas no farmacológicas y farmacológicas. Entre los tratamientos no farmacológicos se encuentra la adopción de prácticas de ejercicio físico. El tratamiento farmacológico consiste en tomar los antihipertensivos disponibles. Objetivo: evaluar los factores asociados a la adherencia al tratamiento farmacológico de los pacientes hipertensos de la ciudad de Montes Claros - MG. Materiales y métodos: este trabajo es un estudio descriptivo, con análisis cuantitativo de campo transversal. La población de esta investigación estuvo conformada por 200 pacientes hipertensos de las Unidades Básicas de Salud de la ciudad de ambos sexos, seleccionados aleatoriamente por sorteo. Resultados: la prevalencia de adherencia al tratamiento farmacológico fue del 70% en su totalidad y de estos el 73% obtienen los medicamentos a través del SUS. Conclusión: La salud pública influye directamente en la adherencia a los medicamentos por parte de los pacientes.
Palabras clave: Factores de riesgo; Hipertención arterial; Salud pública; Tratamiento farmacológico.

1. Introduction

In Brazil, the systemic arterial hypertension (SAH) is a chronic disease, popularly known as high blood pressure. Thus, the individual is considered hypertensive when the systolic blood pressure is greater than or equal to 140 mmHg and/or the diastolic blood pressure is greater than or equal to 90 mmHg in those whom aren't using antihypertensive medicines (de Oliveira Almeida et al., 2019).

The SAH has three important characteristics: the prevalence, which says that most of the affected by SAH are people with ages above 60 years old; the transcendence considers the SAH as one of the main risk factors for acute myocardial infarction (AMI) and cerebrovascular accident (CVA), also, is considered a silent and asymptomatic disease; and lastly shows a vulnerability characteristic since the SAH is a disease which can be treatable and controllable in the Primary Health Care (PHC) (Dantas & Roncalli, 2019).

The causes of arterial hypertension can be related to lifestyle and to risk factors like stress, salt abuse, heredity, obesity, also called of primary causes; as well, there are the causes generated by factors identified as the presence of kidney problems, hormonal use of contraception, corticoid use, anti-inflammatory drugs use, changes related to pregnancy, among others. With that, we can divide the risk factors in two classes, the non-modifiable ones which are related to sex, age and heredity (genetics factors), and the risk factors resulting from human action and lifestyle as alcoholism, smoking, sedentary lifestyle, stress, the obesity, the arterial hypertension, diabetes mellitus, among others (Araújo et al., 2019; Nobre et al., 2013; C. A. Silva et al., 2018).

According to Ministry of Health, in Brazil approximately 35% of the population presents arterial hypertension, but half of the population are unaware of this disease. Of the people who get the diagnosis, 50% use the pharmacological medication, and, of those, only 40% has the blood pressure controlled (Dantas & Roncalli, 2019; Lobo et al., 2017).

Among the Brazilian affected by SAH, more than 60% are elderly and with that, the SAH contributes directly and indirectly for 50% of the deaths caused by cardiovascular diseases. With that, the elderly records the highest rate of complications and resistance to drugs, since the disease severity increases with age. It is a disease characterized by not having cure, requiring long-term care during all life, being essential the knowledge about the SAH and control measures such as medicines associated to lifestyle drastically reduce the chances of death (M. L. B. da Silva, 2016; Malachias et al., 2016).

The treatment adopted for the SAH's control is based on the non-pharmacological and pharmacological measures, each one with its specificities. Among the non-pharmacological treatments is the adoption of exercise practicing, among others control measures we can mention; the lifestyle changing, including changes in eating habits, reduction of body weight, practice of physical activities, because studies show that aerobic exercises can reduce the blood pressure in 75% of the individuals with hypertension. In addition to the elimination of risk factors that aggravate the SAH, such as smoking, alcoholism and sedentarism, therefore, the prevention is fundamental to ensure quality of life and avoid disease's complication (N. S. C. P. Costa et al., 2021; de Cássia Sousa et al., 2018; Kubotani & Fernandes, 2019; Nogueira et al., 2012).

The pharmacological treatment consists in the antihypertensive medication intake, varying its mechanism of action, its potency, posology and adverse effects. The drugs that act in the arterial hypertension treatment are divided into vasodilators, direct-acting vasodilators and the indirect-acting vasodilators, namely, the vasodilators act in the maintenance of calcium concentration, or in the amendment of ion sensibility to smooth muscle. On the other hand, direct-acting vasodilators promote cardiac effects and generalized arterial vasodilation. And finally, the indirect-acting vasodilators act in the inhibition of sympathetic vasoconstriction and system renin-angiotensin-aldosterone (Araújo et al., 2019; Cesarino et al., 2017; de Oliveira Almeida et al., 2019; Kubotani & Fernandes, 2019).

There are factors that favor the treatment adhesion and among them we can cite: the relation between the hypertensive and the health professional, and diet and lifestyle compliance. This way, the effect on the patient's life is multidimensional, socio-culturally determined, and, with this, varies according to population groups, regionalism, life habits and presence of care services, among other factors. The adhesion's success is also related to family's involvement, the continuing patient education on the pathology and its treatment (Aquino et al., 2017; C. A. Silva et al., 2018).

On the other hand, there are factors that contribute to the treatment non-adherence, such as: difficulty of access to the health services and consequently to the medicines, drug's inefficacy, absence of symptoms, insufficient guidance, inadequate relation between doctors and patients and high-cost treatment. These and other factors contribute directly and indirectly to low adhesion on the use of pharmacological medicines (Aquino et al., 2017).

It is noteworthy that the existence of complications of arterial hypertension is correlated to the unsatisfactory blood pressure control and also the non-adherence to the pharmacological treatment. The non-adherence to the antihypertensive treatment schedule is considered as one of the main causes of occurrence of risk of cardiovascular events and unnecessary hospitalizations in the Unified Health System (SUS) with expenses to the public coffers, besides the possibility of causing the death of the hypertensive patient (Nobre et al., 2013; C. A. Silva et al., 2018).

Therefore, it is extremely important to verify the aspects associated with accession (non-adherence) of hypertensive patients to the pharmacological treatment in the city of Montes Claros – MG. Thus, this work aimed to survey the data which may contribute for the development of proposals for interventions related to the purposed objective.

2. Methodology

This is a descriptive study, with quantitative analysis and cross-sectional study that aimed to evaluate the factors associated with adherence to pharmacological treatment by hypertensive patients with diagnosis for at least six months in the municipality of Montes Claros - MG. This study was approved by the Research Ethics Committee of Brazil's Educational Association (SOEBRAS) under opinion number 4.271.125.

And, for sample calculation, the prevalence of adherence to pharmacological treatment was considered as unknown, tolerable error 5% and confidence interval of 95%, totaling a minimum sample of 395 participants. However, because of the difficulties due to the pandemic by COVID-19, the sample was composed by 200 hypertensive participants of both genders of Basic Health Units of the city Montes Claros – MG. The sample was delimited using the probabilistic model with random selection of participants. For data collection, an easy and simple questionnaire was used for the participants, adapted from (Aquino et al., 2017). After making an initial contact with the participants and presenting them the study and the Informed Consent Form, the data collection was started, in which the application of the questionnaire was made in an individualized way. The collected data were gathered, stored and statistically treated in a spreadsheet in the Excel Software 2013 and transported to the software IBM® SPSS® Statistics version 24.0 statistical analysis databases. The Chi-square test was used to evaluate the differences in proportions of categorical data and multivariate analysis to verify the factors associated with

adherence to pharmacological treatment of hypertension, with a significance level of 5%. Also, the Morisky and Green Test (MGT) was used to measure the adherence to pharmacological treatment. This test applies a simple scale, composed of four questions with dichotomous answers (Morisky et al., 1986).

3. Results and Discussion

Based on the statistical analyses of the data collected, it was possible to identify the socioeconomic characteristics of the respondents with regard to the health service, use of hypertensive medicines and related problems on fulfilling the medical prescription. The data are described in absolute frequency (n) relative frequency (%) and the statistical value (Sin) with P value of <0.05 statistically significant. Considering the sample of 200 respondents, most were composed by the female sex (58.5%), and with a predominant level of education, complete high school (42%), and with a predominant level of education, complete high school (42%), regarding family income, there was a predominance of up to one minimum wage (53.5%), age 46 to 60 years (52%), self-declared blacks (36%) – Table 1.

In the observed data, around 99,5% of respondents use the Unified Health System (SUS) for consults. Regarding the supply of drugs, approximately 73,0% of respondents reported that they obtain the medicine for free in the public system (Table 1). And of those patients who have access to the drugs, most of them (68%) say they understand the medicine's prescription.

It was observed that 44.5% of the interviewed use at least two antihypertensive drugs. And around 71.5% forgot to take the medicine at least once within seven days. Regarding the problems about taking the medicines at the prescribed time, 97% consider that is not very difficult to take so many tablets at the same time (Table 1).

Table 1. Surveys of factors associated to the adherence to pharmacological treatment by hypertensive patients, according to socioeconomic characteristics, health service and use of antihypertensive drugs.

Block 1. Socioeconomic characteristics				
Variables		**n**	**%**	**Sig**
Gender	Female	117	58,5	
	Male	83	41,5	0,016*
Age	31 to 45 years old	50	25,0	
	46 to 60 years old	104	52,0	0,000*
	Over 61 years old	46	23,0	
Color	White	70	35,0	
	Black	72	36,0	0,000*
	Olive	10	5,0	
	Another one	48	24,0	
Nível de Education level	Incomplete elementary school	41	20,5	0,000*
	Completed elementary school	28	14,0	
	Incomplete high school	25	12,5	
	Completed high school	84	42,0	
	Incomplete tertiary education	6	3,0	
	Complete tertiary education	16	8,0	
Monthly family income	1 minimal wage	107	53,5	
	2 to 4 minimal wages	78	39,0	0,000*
	Over 4 minimal wages	15	7,5	

Block 2. data relating to the health service				
Number of medical consults in the last 12 months	None	7	3,5	0,000*
	1 to 2 consults	52	26,0	
	3 to 4 consults	67	33,5	
	≥5 consults	74	37,0	
Medical consult's place	Unified Health System (SUS)	199	99,5	0,000*
	Private Practice	1	0,5	
Place where they get the used medicines	Unified Health System (SUS)	146	73,0	0,000*
	Private Drugstores and Pharmacies	54	27,0	
Understand the medical prescription	Yes	136	68,0	0,000*
	No	63	32,0	
In case of negative in the previous question, the clarification is made by which professional	Doctor	57	28,5	0,000*
	Pharmacist	141	70,5	
	Nurse	2	1,0	
Reads the package leaflet	Yes	1	0,5	0,000*
	No	199	99,5	
Block 3. Use of antihypertensive drugs in the last month				
How many antihypertensive drugs do you use	1 medicine	45	22,5	0,001*
	2 medicines	89	44,5	
	3 medicines	66	33,0	
How often did you forget to take the antihypertensive drugs in an interval of 7 days	1 day	143	71,5	0,000*
	2 days	29	14,5	
	3 days	28	14,0	
How much the antihypertensive drug bothers you	Much	91	45,5	0,000*
	Very little	100	50,0	
	Never	9	4,5	
How do you classify yourself in relation to the adherence to the arterial hypertension's pharmacological treatment	Full adherence	140	70,0	0,000*
	Partial adherence	60	30,0	
Block 4: Related to problems in taking medications daily, at the prescribed time				
Opening or closing the packaging	Too difficult	0	0,0	0,000*
	A little bit difficult	6	3,0	
	Not that difficult	194	97,0	
Reading what is written on the package	Too difficult	8	4,0	0,000*
	A little bit difficult	113	56,5	
	Not that difficult	79	39,5	
Remembering to take all of the medicine	Too difficult	27	13,6	0,000*
	A little bit difficult	90	45,2	
	Not that difficult	82	41,2	
Obtaining the medicine	Too difficult	1	0,5	0,000*
	A little bit difficult	47	23,6	
	Not that difficult	151	75,9	

Source: Authors (2021).

According to the Morisky Green test, 5% of the respondents reported to have remembering problems on taking the medicines, where only 47,7% of them reported to use the medicines at the correct prescribed time. Table 2 shows the answers obtained for each item.

Table 2. Factors that influence the adherence according to the Morisky and Green test, among hypertensive patients.

Questions		n	%	Sig
Do you ever forget to take your medicine?	Yes	184	92,5	0,000*
	No	15	7,5	
Are you careless, sometimes, about taking your medicine?	Yes	104	52,3	0,523
	No	95	47,7	
Do you ever stop taking your medicine when you feel good?	Yes	35	17,6	0,000*
	No	164	82,4	
When you feel bad about the medicine, do you stop taking it?	Yes	151	75,5	0,000*
	No	48	24,5	

Source: Authors (2021).

In this research, the variables table 3 (gender) and table 4 (age), despite the significant difference observed in the relative frequency between total and partial adherence between men and women, through Pearson's Chi-square test showed no statistically significant difference (p = 0.071). Therefore, there wasn't relationship between gender and pharmacological adherence to antihypertensive treatment. The same occurred in the variable age that, despite the difference in the relative frequency on the difficulty of taking the medicine, between the groups of different ages, there was no statistically significant difference (p = 0.765). Thus, there wasn't no relationship between age and pharmacological adherence to antihypertensive treatment.

Table 3- Classify yourself in relation to the adherence to arterial hypertension pharmacological treatment.

	Full adhesion		Patial adhesion		Sig
GENDER	N	%	n	%	
Male	87	62,1	30	50,0	0,071
Female	53	37,9	30	50,0	

Fonte: Autores (2021).

Table 4- Remembering to take all of the medicine.

	Too difficult		A little bit difficult		Not that difficult		Sig
AGE	n	%	n	%	n	%	
31 to 45 years old	6	22,2	20	22,2	24	29,3	
46 to 60 years old	15	55,6	50	55,6	38	46,3	0,765
Over 61 years old	6	22,2	20	22,2	20	24,4	

Source: Authors (2021).

The results show that the Unified Health System (SUS) influences directly on the treatment of arterial hypertension and especially in its accession. Because, according to the results, 99,5% of the users interviewed use the Unified Health System's services to gets consults and medicine's supply, resulting on 70% of patients who fully adhere to treatments. Part of it is due to the patient's access to government programs to have drug's free obtaining, such as "*Aqui tem Farmácia Popular*" which means "There's Popular Pharmacy Here" (R. M. da Silva & Caetano, 2015); because having access to the health care system such as getting consults and medicines, is the first stage of arterial hypertension's treatment.

Regarding the drug's supply, approximately 73,0% of respondents reported they get the medicine for free on the public healthcare system, and 75,9% have said that's not difficult to get the medicine (Table 1). It should be emphasized that the Unified Health System (SUS) offers most of the medicines which are used in arterial hypertension treatment for free, another way to get the medicine is through the accredited pharmacies of the program "*Aqui tem Farmácia Popular*" (Mengue et al., 2016).

And of those patients who have access to the drugs, most of them (68%) say they understand the medicine's prescription. And the percentage that do not understand the prescription, stated that the clarification is mostly saved with a pharmacist (70,5%). Stated (Ferreira Júnior & Batista, 2018), that pharmaceutical care is essential for treatment adherence, promotion of responsible use, reduction of expenses, and access to information, avoiding future problems with the disease. 99,5% of the respondents, reported they do not read the package leaflet, highlighting the importance of health professionals in these patients' routine (Mansour et al., 2016).

The supply of medicines by Unified Health System (SUS) may explain the good treatment adherence, even that the population in its majority belongs to the class and about 53.5% there is no correlation between income and pharmacological adherence in a negative way in this study. Regarding prescription, 68% of respondents stated that they understand the prescription; this percentage may be associated to the level of education, considering that only 20.5% of respondents have incomplete elementary school. On the other hand, other studies state that socioeconomic characteristics, such as income and schooling, may negatively interfere in the treatment's adherence (da Silva Barreto et al., 2016; Gewehr et al., 2018). Understanding the prescription is essential for the patients who adhere to the pharmacological treatment, and the education level may compromise the understanding of medical prescription (C. M. F. N. Costa et al., 2017).

The adherence to the pharmacological treatment by the hypertensive patients is essential for life's quality and avoid future complications (Albuquerque et al., 2016). In this study, it was observed that 44,5% of the interviewed people use two antihypertensive medicines; this data may have contributed to the good adherence, because studies shows that there is a relation between the frequency of prescribed drugs and the adherence to treatment (Aquino et al., 2017; Tavares et al., 2013). A study conducted by (Tavares et al., 2016) in which individuals who used to use three or more medicines had a higher prevalence of low adherence to treatment, corroborating with the hypothesis raised.

And about 71.5% forgot to take the medicine at least once in the interval of seven days. Forgetting to take the medication is one of the main barriers for those who control this clinical condition SAH. The study conducted by (Vancini-Campanharo et al., 2015) corroborates to this data. Of the patients evaluated by the authors, about 67%, mentioned that the remembering of taking the medicine is one of the main factors that contribute to the non-adherence to the treatment. The adherence to pharmacological treatment involves different elements such as the individual, the treatment, the disease, the services, the health professionals, as well as the social and cultural environment of the user and their family (Tavares et al., 2013).

When we analyze the data according to Morisky Green test, 92,5% of the interviewed people reported having problems to remember of taking their medicines, where, only 47,7% of the respondents stated they take the medicines at the

prescribed time. This data shows that the regularity in the adherence to the drug is still a problem to be solved. In a study conducted by (Morsch et al., 2015) in South Brazil, 33% of participants were classified as non-adherent when they answered that they forgot to take their medicines regularly.

According to (Cesarino et al., 2017), some external factors may prevent adherence to the drugs, such as lack of time to take the medicines, financial value of the treatment, the fact of not having health insurance, as was observed in this present work and may have contributed to the partial adherence of 30% of respondents.

4. Conclusion

Public health directly influences to the adherence of drugs by patients. This is not just about a patient's choice, but above all, about the opportunity it has to access to treatment. It is extremely important the adherence for arterial hypertension control, becoming evident the intervention of the multidisciplinary team, according to the needs of each individual.

It is expected that this work may contribute to future researches about the factors that influences to the pharmacological treatment's adherence of hypertensive patients.

References

Albuquerque, G. S. C., Nascimento, B., Gracia, D. F. K., Preisler, L., Perna, P. de O., & Silva, M. J. de S. (2016). Adesão de hipertensos e diabéticos analfabetos ao uso de medicamento a partir da prescrição pictográfica. *Trabalho, Educação e Saúde*, *14*, 611–624.

Aquino, G. A., Cruz, D. T., Silvério, M. S., Vieira, M. de T., Bastos, R. R., & Leite, I. C. G. (2017). Fatores associados à adesão ao tratamento farmacológico em idosos que utilizam medicamento anti-hipertensivo. *Revista Brasileira de Geriatria e Gerontologia*, *20*, 111–122.

Araújo, G. de S. B., Mota, I. A. V., D'arc da Silva, J., de Andrade Aoyama, E., & de Souza, R. A. G. (2019). Hipertensão arterial sistêmica: Problema de saúde pública nos dias atuais. *Revista Brasileira Interdisciplinar de Saúde*.

Cássia Sousa, R., Rufino de Lucena, A. L., Nascimento, W. S. do, Costa Ferreira, T. M., Jácome de Lima, C. L., Lopes Ferreira, J. D., Duarte de Oliveira Matos, S., & Lopes Costa, M. M. (2018). PArticularities of hypertensive elderly people to medicinal treatment adherence. *journal of nursing ufpe/revista de enfermagem ufpe*, *12*(1).

Cesarino, E. J., de Oliveira Sigoli, P. B., Lourenço, V. C., Cesarino, F. T., & de Andrade, R. C. G. (2017). Fatores influentes na adesão ao tratamento anti-hipertensivo em pacientes hipertensos. *Arquivos de Ciências da Saúde*, *24*(1), 110–115.

Costa, C. M. F. N., Silveira, M. R., Acurcio, F. de A., Guerra, A. A., Guibu, I. A., Costa, K. S., Karnikowski, M. G. de O., Soeiro, O. M., Leite, S. N., & Costa, E. A. (2017). Utilização de medicamento pelos usuários da atenção primária do Sistema Único de Saúde. *Revista de Saúde Pública*, *51*.

Costa, N. S. C. P., Guimarães, R. D., Filgueiras, N. C., Gomes, L. G., Sônego, D. A., Spiller, P. R., Dall'Acqua, P. C., & de Cássia Martini, A. (2021). Exercício físico auxiliando no tratamento da hipertensão arterial. *Brazilian Journal of Development*, *7*(2), 19627–19632.

Dantas, R. C. de O., & Roncalli, A. G. (2019). Protocolo para indivíduos hipertensos assistidos na Atenção Básica em Saúde. *Ciência & Saúde Coletiva*, *24*, 295–306. https://doi.org/10.1590/1413-81232018241.35362016

Ferreira Júnior, E., & Batista, A. M. (2018). *Atenção farmacêutica a idosos portadores de doenças crônicas no âmbito da atenção primária à saúde*.

Gewehr, D. M., Bandeira, V. A. C., Gelatti, G. T., Colet, C. de F., & Oliveira, K. R. de. (2018). Adesão ao tratamento farmacológico da hipertensão arterial na Atenção Primária à Saúde. *Saúde em Debate*, *42*, 179–190.

Kubotani, K. P. S., & Fernandes, D. R. (2019). *Utilização de fármacos vasodilatadores de ação direta e indireta no tratamento de hipertensão arterial: Artigo de revisão*.

Lobo, L. A. C., Canuto, R., Dias-da-Costa, J. S., & Pattussi, M. P. (2017). Tendência temporal da prevalência de hipertensão arterial sistêmica no Brasil. *Cadernos de Saúde Pública*, *33*.

Malachias, M. V. B., Plavnik, F. L., Machado, C. A., Malta, D., Scala, L. C. N., & Fuchs, S. (2016). 7ª Diretriz Brasileira de Hipertensão Arterial: Capítulo 1- Conceituação, Epidemiologia e Prevenção Primária. *Arquivos Brasileiros de Cardiologia*, *107*, 1–6.

Mansour, S. N., Monteiro, C. N., & Luiz, O. do C. (2016). Adesão ao tratamento farmacológico de pacientes hipertensos entre participantes do Programa Remédio em Casa. *Epidemiologia e Serviços de Saúde*, *25*, 647–654.

Mengue, S. S., Bertoldi, A. D., Ramos, L. R., Farias, M. R., Oliveira, M. A., Tavares, N. U. L., Arrais, P. S. D., Luiza, V. L., & Pizzol, T. da S. D. (2016). Acesso e uso de medicamentos para hipertensão arterial no Brasil. *Revista de Saúde Pública*, *50*, 8s.

Morisky, D. E., Green, L. W., & Levine, D. M. (1986). Concurrent and predictive validity of a self-reported measure of medication adherence. *Medical care*, 67–74.

Morsch, L. M., Dressler, C. C., Schneider, A. P. H., Machado, E. O., & Assis, M. P. (2015). Complexidade da farmacoterapia em idosos atendidos em uma farmácia básica no Sul do Brasil. *Infarma Ciênc. Farmacêut*, *4*(27), 239–247.

Nobre, F., Coelho, E. B., Lopes, P. C., & Geleilete, T. J. (2013). Hipertensão arterial sistêmica primária. *Medicina (Ribeirão Preto)*, *46*(3), 256–272.

Nogueira, I. C., Santos, Z. M. de S. A., Mont'Alverne, D. G. B., Martins, A. B. T., & Magalhães, C. B. de A. (2012). Efeitos do exercício físico no controle da hipertensão arterial em idosos: Uma revisão sistemática. *Revista Brasileira de Geriatria e Gerontologia*, *15*, 587–601.

Oliveira Almeida, R., dos Santos, S. L. F., Paiva, C. E. Q., Barros, K. B. N. T., & de Macedo Arraes, M. L. B. (2019). Medidas não farmacológicas em hipertensão arterial. *Revista da Faculdade de Ciências Médicas de Sorocaba*, *21*(2), 95–97.

Silva Barreto, M., Matsuda, L. M., & Marcon, S. S. (2016). Fatores associados ao inadequado controle pressórico em pacientes da atenção primária. *Escola Anna Nery Revista de Enfermagem*, *20*(1), 114–120.

Silva, M. L. B. (2016). Representações sociais da hipertensão arterial. *Temas em psicologia*, *24*(3), 895–909.

Silva, C. A., Rocha, R. C., de Oliveira Bueno, S. L., Fontes, S. L. F., Leão, V. D., Marinho, N. A., & Giacomet, M. (2018). Hipertensão arterial sistêmica na atenção básica de saúde. *saúde & ciência em ação*, *4*(1), 71–79.

Silva, R. M. da, & Caetano, R. (2015). Programa" Farmácia Popular do Brasil": Caracterização e evolução entre 2004-2012. *Ciência & Saúde Coletiva*, *20*, 2943–2956.

Tavares, N. U. L., Bertoldi, A. D., Mengue, S. S., Arrais, P. S. D., Luiza, V. L., Oliveira, M. A., Ramos, L. R., Farias, M. R., & Pizzol, T. da S. D. (2016). Fatores associados à baixa adesão ao tratamento farmacológico de doenças crônicas no Brasil. *Revista de Saúde Pública*, *50*, 10s.

Tavares, N. U. L., Bertoldi, A. D., Thumé, E., Facchini, L. A., França, G. V. A. de, & Mengue, S. S. (2013). Fatores associados à baixa adesão ao tratamento medicamentoso em idosos. *Revista de Saúde Pública*, *47*, 1092–1101.

Vancini-Campanharo, C. R., Oliveira, G. N., Andrade, T. F. L., Okuno, M. F. P., Lopes, M. C. B. T., & Batista, R. E. A. (2015). Hipertensão Arterial Sistêmica no Serviço de Emergência: Adesão medicamentosa e conhecimento da doença. *Revista Latino-Americana de Enfermagem*, *23*, 1149–1156.