BLOOD PRESSURE TRACKING IN RESIDENTS OF A SOUTHERN MUNICIPALITY OF MINAS GERAIS

RASTREAMENTO DA PRESSÃO ARTERIAL EM MORADORES DE UM MUNICÍPIO DO SUL DE MINAS GERAIS

DETECCIÓN DE LA PRESIÓN ARTERIAL EN HABITANTES DE UN MUNICIPIO DEL SUR DE MINAS GERAIS

Bárbara Caroliny Pereira Costa[1], Letícia Kuhn da Silveira[2], Fábio de Souza Terra[3], Silvana Maria Coelho Leite Fava[4]

ABSTRACT
Objective: perform blood pressure tracking in residents of a city in the south of Minas Gerais. **Method**: descriptive, cross-sectional study with a quantitative approach, sample by convenience. Data collected in 2018 in public space, analyzed and presented in percentage data. **Results**: Of the 107 participants, 27,0% self-reported hypertension, most used antihypertensive drugs, family history for cardiovascular disease and did not receive guidance for cardiovascular disease; 86,0% had blood pressure values within normal parameters; 14,0% coincident values for stage 1 hypertension, predominantly among men 73.3% and the elderly. **Conclusion**: Blood pressure screening is necessary to make people aware of early diagnosis and treatment and an opportunity to carry out health education actions to promote health, control and treat systemic arterial hypertension.
Descriptors: Blood Pressure Determination; Blood Pressure; Mass Screening; Hypertension.

[1] RN. Doctoral student, Escola de Enfermagem de Ribeirão Preto, São Paulo, Brasil. http://orcid.org/0000-0003-3945-5240
[2] RN. Universidade Federal de Alfenas, Minas Gerais, Brasil. http://orcid.org/0000-0002-7867-5871
[3] PhD professor, Escola de Enfermagem, Universidade Federal de Alfenas, Minas Gerais, Brasil. http://orcid.org/0000-0001-8322-3039
[4] PhD professor, Escola de Enfermagem, Universidade Federal de Alfenas, Minas Gerais, Brasil. http://orcid.org/0000-0003-3186-9596

RESUMO
Objetivo: realizar o rastreamento da pressão arterial em moradores de um município do Sul de Minas Gerais. **Método**: estudo descritivo, transversal, com abordagem quantitativa, amostra por conveniência. Dados coletados em 2018 em espaço público, analisados e apresentados em dados percentuais. **Resultados**: Dos 107 participantes, 27,0% autorreferiram hipertensão, a maioria utilizava anti-hipertensivo, histórico familiar para doença cardiovascular e não receberam orientação para doença cardiovascular; 86,0% apresentaram valores de pressão arterial dentro parâmetros normais; 14,0% valores coincidentes para hipertensão estágio 1, predominantemente entre os homens 73,3% e idosos. **Conclusão**: O rastreamento da pressão arterial é necessário para sensibilizar as pessoas para o diagnóstico e tratamento precoce e uma oportunidade realizar ações de educação em saúde para promoção à saúde, controle e tratamento da hipertensão arterial sistêmica.
Descritores: Determinação da Pressão Arterial; Pressão Arterial; Programas de Rastreamento; Hipertensão.

RESUMEN
Objetivo: realizar la detección de la presión arterial en habitantes de una ciudad del sur de Minas Gerais. **Método**: estudio descriptivo, transversal con abordaje cuantitativo, muestra por conveniencia. Los datos fueron recopilados en 2018, en un espacio público, analizados y presentados en porcentaje. **Resultados**: De los 107 participantes, el 27,0% autoinformó que tenía hipertensión, la mayoría usaba antihipertensivos, tenía antecedentes familiares de enfermedad cardiovascular y no recibió orientación sobre la enfermedad cardiovascular; el 86,0% tenía valores de presión arterial dentro de los parámetros normales; el 14,0% valores que coincidían con hipertensión en etapa 1, que predominó en hombres 73,3% y adultos mayores. **Conclusión**: El cribado de la presión arterial es necesario para sensibilizar a las personas sobre el diagnóstico y tratamiento precoces y una oportunidad para realizar acciones de educación para la salud para promover la salud, controlar y tratar la hipertensión arterial sistémica.
Descriptores: Determinación de la Presión Arterial; Presión Arterial; Programas de Detección; Hipertensión.

INTRODUCTION

Systemic Arterial Hypertension (SAH) is an important public health problem, which makes screening, control and prevention actions essential. Such actions aim to encourage changes in people's lifestyles, in addition to providing an improvement in the quality of life and a reduction in risk factors.[1]

SAH is considered a multifactorial clinical condition characterized by blood pressure levels $\geq$ 140 and/or 90 mmHg, and its main causes are irreversible factors, such as: ethnicity, sex, age and reversible factors, sedentary lifestyle, alcohol consumption, excess weight and obesity and salt intake.[2]

The high prevalence rates of SAH in Brazil correspond to 32.5% of the adult population, whereas in the elderly this number rises to 60%. This high rate directly or indirectly contributes to half of

deaths from Cardiovascular Diseases (CVD).[2]

These data are justified by the demographic profile of current society, marked by increased life expectancy, which contributes to the high incidence of SAH in the elderly, due to the directly proportional association between the prevalence of SAH and population aging. Lifestyle is also related to the increase in sedentary lifestyle and obesity, increasing the incidence of SAH in young people and adults.[3]

Although the literature[2,3] and the vehicles of communication, such as social networks and television have emphasized the need to prevent this clinical condition, many people are still not aware of the early diagnosis and the treatment, when instituted, is carried out late. . Thus, early diagnosis through screening carried out by properly trained and qualified health professionals is essential. By identifying the sustainable elevation of blood pressure and risk factors, it is possible to develop an effective therapeutic plan in order to reduce complications resulting from SAH and thus contribute to reducing mortality from CVD.[3]

Nurses play a fundamental role in this context, as they have the skills to carry out screening and promote health education actions for the population to adopt healthy lifestyle habits. These actions enable the early detection of SAH, the patient's adaptation to the disease, the prevention of complications and adherence to treatment, making the person proactive to take better care of themselves, which contributes to reducing mortality.[4] Screening is a term derived from English screening and aims at the early diagnosis of SAH in asymptomatic people to reduce morbidity and mortality.[2]

Therefore, the measurement of blood pressure (BP) is considered the gold standard in the screening of SAH and, although it is considered a simple procedure and an easy method, care must be taken into account to obtain reliable results.[2,5] In this premise , this study aimed to carry out the tracking of blood pressure measurements in residents of a municipality in the south of Minas Gerais.

METHOD

This is a descriptive, cross-sectional study with a quantitative approach. The sample was for convenience, composed of participants from a municipality in the south of Minas Gerais who attended an event, in a public space, with a large flow of people. This action was carried out by a university extension project called

"DIPER: in search of a better quality of life" with the purpose of taking blood pressure measurements with a view to early diagnosis of the disease and development of educational actions to prevent and control the disease and provide a better quality of life. A tent was set up at the site and organized with tables and chairs and educational materials prepared by the project members to be distributed to the population. The inclusion criteria were people aged 18 and over, who were willing to voluntarily measure BP and participate in the study. Moreover, as exclusion, those who had cognitive deficit. Thus, the sample consisted of 107 participants.

Data were collected in April 2018 during campaigns to prevent and combat SAH, provided for in the calendar of the Brazilian Society of Cardiology, Brazilian Society of Hypertension, World Hypertension League, among others.

For the development of BP tracking, a data collection form built by the "World Hypertension League" was used, translated and validated in Brazil, consisting of the following data: participant identification data; questions about the participant's knowledge of their current health status and use of antihypertensive medication; issues related to non-drug treatment; guidance on alcohol and salt consumption, weight loss, physical exercise and smoking cessation; questions about adherence to treatment for any CVD or type 2 diabetes; and family history of CVD; and fields for recording the size of the arm circumference (AC), limb used for measurement and the size of the cuff used;

The variables of interest for the present study were: gender, age, receiving guidance on SAH, use of antihypertensive drugs, family history of cardiovascular disease, diagnosis of and Diabetes mellitus, and indirect BP measurement values, dominant member for measurement and size of the cuff.

For tracking, the team was trained on the technique for measuring BP and the alignment of knowledge on the guidelines to be shared with people who sought care. Thus, the tracking was performed by nursing students from a public university in the south of Minas Gerais, members of the extension project.

For the measurement of BP, the procedures recommended by the Guidelines were followed.[2] The person was positioned seated, with feet flat on the floor, legs uncrossed, arm extended at the height of the fourth intercostal space, supported on a flat and solid surface and the palm of the hand facing upwards, the measurement of the arm circumference

was performed to choose the cuff size. To measure the BP, an inelastic measuring tape was used to measure the BC at the midpoint between the olecranon and the acromion, in order to choose the appropriate cuff. The cuff width corresponded to 40% of the circumference of the limb to be measured. The equipment used to measure blood pressure was an automatic and validated device from the Omron brand.

Three measurements were taken, considering the two upper limbs, and in the dominant limb, that is, the one with the highest pressure value, two measurements were taken.

The mean of the SBP and DBP was performed, which consisted of the sum of the values obtained from the SBP and their division by two and the sum of the values obtained from the DBP and their division by two. The mean of the values corresponds to the real BP.

From the collected data, the BP was classified according to the values recommended by the Guideline.[2] Depending on the BP values, the person was referred for medical evaluation to make the diagnosis.

It is noteworthy that the research did not result in damage to health for the participants, it only required time and patience on the part of the interviewers and participants for the interview and to carry out the three necessary measurements. The collected data were stored and analyzed in the Microsoft Excel program and, later, presented in tables and graphs, with absolute and percentage values, in addition to the presentation of mean values.

Ethical principles were respected and participants signed the Informed Consent Term.[6] This study was approved by the Ethics and Research Committee of the Federal University of Alfenas-MG, under opinion number 139,507.

RESULTS

The sociodemographic characterization of the participants revealed that 44.9% (48) were female and 55.1% (59) male, aged between 20 and 70 years. Of the 107 participants, 27.0% self-reported hypertension, most used antihypertensive drugs, family history of cardiovascular disease and did not receive guidance on cardiovascular disease; 86.0% had blood pressure values within normal parameters.

The results related to the questionnaire data are presented in Table 1.

Table 1. Distribution of study participants, by gender, regarding the variables arterial hypertension, use of antihypertensive drugs, receiving treatment or guidance about any cardiovascular disease, type II diabetes mellitus and family history of cardiovascular disease. Privet/Minas Gerais, 2018 (n=107)

Variables	No f (%)	Yes f (%)
Arterial hypertension		
Women	40 (37.4%)	8 (7.5%)
Men	44 (41.1%)	15 (14.0%)
Use of antihypertensives		
Women	41 (38.5%)	7 (6.6%)
Men	46 (42.6%)	13 (12.3%)
Receiving treatment or guidance about any cardiovascular disease		
Women	36 (33.7%)	12 (11.2%)
Men	45 (42.1%)	14 (13.0%)
Type II diabetes mellitus		
Women	38 (35.5%)	10 (9.3%)
Men	48 (44.9%)	11 (10.3%)
Family history of cardiovascular disease		
Women	15 (14.1%)	33 (30.8%)
Men	23 (21.4%)	36 (33.7%)

Source: authors.

It was found that men and women presented, as a result of BP measurements, values considered within the normal reference parameters recommended by the 7th Brazilian Guidelines on Hypertension.[2] However, it was evidenced that 14.0% (15) of the people had the results of their measurements considered as stage 1 hypertension, that is, between 140-179/90-109 mmHg, and this change was predominant among 73.3% men. The mean SBP and DBP of the study participants are shown in Graph 1. And also, the average of these pressures by age group, as shown in Table 2.

Graphic 1. Mean systolic and diastolic blood pressure according to the gender of the participants. Privet/Minas Gerais, 2018 (n=107)
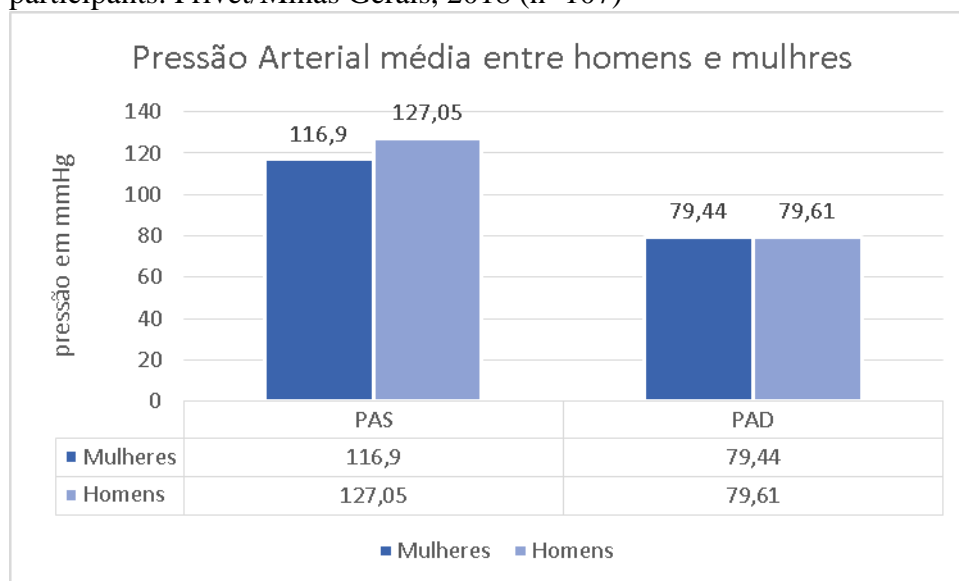
* SBP: Systolic Blood Pressure/ *PAD: Diastolic Blood Pressure
Source: authors.

Table 2. Mean systolic and diastolic blood pressure according to the age group of participants. Privet/Minas Gerais, 2018 (n=107)

AVERAGE PRESSURE PER AGE RANGE	PAS*	PAD*
21 to 30	119.75	72.9
31 to 40	122.0	78.0
41 to 50	133, 56	87.96
51 to 60	127.54	84.16
61 to 70	142.25	74.33

* SBP: Systolic Blood Pressure/ *PAD: Diastolic Blood Pressure
Source: authors.

Furthermore, it was found that the dominant arm in both sexes was predominantly the right arm and the most used cuff was the medium size, which for an adult with a circumference between 35 and 44 cm, a rubber bag with 16 cm is recommended wide by 38 long.

DISCUSSION

The profile of the participants in this study reveals the predominance of SAH in men. Although studies have shown a predominance in women[7-8], men have also been affected by this chronic condition.[9]

This data may be related to the fact that women are more concerned with prevention and health promotion, as they have a greater perception of health care, so they are the majority among users of health services.[8] A study showed that a total of 417 people assisted in a 24-hour

Emergency Care Unit (UPA), 64 were female.10 Although women have sought health services more than men, it is still not a reality among all women.

Regarding age, the data from the present study are in line with the literature, since there is a linear association between the increase in cases of SAH and the increase in age, especially after 50 years of age.[2]

Regarding the use of antihypertensive drugs, most of those who affirmed a diagnosis of SAH reported using antihypertensive drugs. Adherence to drug treatment is essential to control the disease and reduce complications.[8]

However, it is noteworthy that this adherence is not only linked to drug treatment, but also to changes in lifestyle. Therefore, many people with SAH have difficulties in understanding their pathology and the real risks, which leads to limitations related to adherence and self-care. Therefore, health education carried out by the nursing team, together with other health professionals, must be effective, providing information and developing strategies that lead to a better quality of life.[11]

Given this, one should seek to understand the view of the elderly about SAH and implement actions for the development of self-care and practices that contribute to healthy living measures. It is evident that the family is an important tool to strengthen adherence to treatment, in addition to the health professional, who must be concerned with the uniqueness of the person, their beliefs and their values.[12]

Thus, in the strategic planning of health services, health education actions should be established as a goal, with a view to promoting reception, the creation of bonds and qualified listening, in order to contribute to behavioral changes for prevention of SAH, for the continuity of care and for the control of this chronic condition.[13]

The high risk for the development of CVD among men and women, given the family history, signals the importance of adopting strategies aimed at controlling risk factors and, consequently, minimizing mortality from such diseases.[14]

In this context, studies that can early determine SAH are essential, taking into account its direct association with its risk factors, such as increasing age, history of cardiovascular diseases, socioeconomic factors, excessive intake of alcohol and tobacco, and lack of physical activity.[7]

In this line of thought, the screening of SAH becomes an important tool for early detection and for health education, as

it aims to significantly improve the person's quality of life and reduce risk factors for CVD.[15]

Given the importance of screening for BP, it must be performed following the correct steps to measure BP. Frequent errors such as incorrect cuff size, over-inflation and device calibration can lead to pressure overestimation or underestimation, leading to an unreliable diagnosis. Thus, health professionals must appropriate knowledge to acquire skills for the development of a safe practice.[16]

According to the BP measurement technique, the BC measurement must be performed to choose the appropriate size cuff. Failure to comply with this step can lead to complications that interfere with obtaining reliable results.[17] In the present study, the BC measurement was performed and it was found that, in most cases, the medium-sized cuff was used. Therefore, it is necessary that the cuff and CB ratio corresponds to a size around 0.40 and its length from 80 to 100% of the CB value.[18]

On the dominant arm, in the present study, in both sexes, it was verified the predominance of the right arm. This result corroborates another study, in which the BP measurement was screened in several countries and also identified the dominance of the right arm during measurements. One of the hypotheses according to this research would be the anatomy of the aortic arch and its branches.[19]

The importance of measuring the BP in both limbs in the first consultation is highlighted to determine the control arm, that is, the dominant one, the one with the highest blood pressure value.[19]

This study allowed us to identify important data regarding BP measurement tracking, including the importance of BP measurement performed correctly and standardized to obtain reliable results and health education, which should often be carried out by health professionals, including tracking people with SAH.

Study points to the importance of screening, and adds that it was carried out in 2 million adults screened in 80 countries during a period of one month. And as a result, it identified that more than 250,000 adults were detected with SAH and that of that number, 153,905 adults are not treated and have uncontrolled BP, showing low levels of awareness and inadequate control of SAH.[19]

Other research corroborates by stating the need to track BP more frequently and hopes that campaigns with this aim will result in greater awareness of the importance of raising BP as a cause of death and disability.[20]

BP tracking and educational measures are essential actions to perform early diagnosis and treatment, reduce the rates of complications and morbidity and mortality due to SAH.

In this context, it is essential to carry out studies that can early determine SAH in the general population, taking into account its direct association with its risk factors, such as increasing age, history of cardiovascular diseases, socioeconomic factors, excessive alcohol intake and tobacco and lack of physical activity.[7]

CONCLUSION

The fact that the action was carried out in a single day contributes to the reduced number of participants, which makes its generalization unfeasible and can be considered a limitation of the present study. Another limitation refers to the difficulty of people to inform their weight and height, which in many cases prevented the calculation of BMI. New studies on blood pressure tracking in different populations and municipalities for early diagnosis and treatment of SAH are suggested.

Although the results of this study have revealed the BP situation in a small sample of the population, which cannot be generalized, the tracking raised important data to know the SAH situation, refer those with stage 1 SAH for care and follow-up and for support health education actions in order to sensitize people to the measurement of BP, prevention, control and treatment of SAH.

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