Cogitare Enfermagem

ORIGINAL ARTICLE

HIGH BLOOD PRESSURE IN PUBLIC UNIVERSITY EMPLOYEES IN NORTHERN BRAZIL

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ABSTRACT

Objective: to identify the profile of high blood pressure in public employees. Method: a prevalence study, carried out with 223 employees working in the Dean Offices of two public universities in Manaus. Collection consisted of an interview to survey the sociodemographic conditions, lifestyle and systemic blood pressure measurement, from January to March 2018. The Chi-square test was applied and 5% significance was considered. Results: the percentage of participants with high blood pressure was 5.4%. The most frequently self-reported comorbidities were hypertension [41.7% (p=0.002)], diabetes mellitus [25% (p=0.001)] and obesity [58.3% (p=0.0001)]. Most of the participants reported not practicing regular physical activity. Final considerations: the results of this study may contribute as subsidies for the implementation of preventive actions, disease control and actions that ensure effective treatment for individuals with Systemic Arterial Hypertension, especially in the context of worker's health.

DESCRIPTORS: Hypertension; Risk Factors; Lifestyle; Cardiovascular Diseases; Worker's Health.

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INTRODUCTION

Systemic Arterial Hypertension (SAH) is considered a chronic disease and one of the main risk factors for the occurrence of other pathologies, such as Stroke, Acute Myocardial Infarction (AMI), arterial aneurysm and heart and renal failures[1]. For every 20 millimeters of mercury (mmHg) of increase in the systolic pressure value and every 10 mmHg of increase in the diastolic pressure value, the risk of death from stroke and other cardiac and vascular diseases is doubled[2].

In Brazil, it is estimated that the prevalence of SAH can reach 24.7%[3]. An aggravating factor is that, as it is a silent disease, it does not manifest symptoms in most people, making its diagnosis more difficult. Statistical data indicate that only 50% of the individuals who have high blood pressure levels know their diagnosis[4].

A cross-sectional study carried out by Zangirolani[5] pointed out that self-reported SAH was more frequent among women aged 50-59 years old (16.5%), in the age group between 50 and 59 years old (31.9%) and in individuals with low incomes.

Although SAH has no cure, systematic monitoring of the blood pressure values, with the use of appropriate medications and adoption of healthy habits, associated with access to health services that offer regular monitoring, can provide good quality of life for hypertensive people. However, achieving such conditions can be difficult, as only a low percentage of the population presents cardiovascular health factors at an optimal level[6].

The increase in the number of SAH cases exerts a major impact, both on the health of the population and on the social and economic environment of society, since SAH and other Cardiovascular Diseases (CVDs) imply a large number of hospitalizations, resulting in a high socioeconomic cost[7].

According to the 7th Brazilian Guideline on Arterial Hypertension[7], the risk factors associated with increased blood pressure are as follow: heredity, advanced age, obesity, smoking habit, alcoholism, sedentary lifestyle, inadequate diet and stress. With regard to workers' health, these risk factors are linked to their daily activities, which in turn are strongly associated with eating habits, frequency of physical activity and weekly working hours. Lack of time due to the work regime has been considered one of the factors that contribute to the worker reducing the regular practice of leisure or pleasurable activities[8].

Identifying the profile of SAH in workers is relevant when the purpose is to plan and implement preventive actions that may improve workers' health conditions. Thus, this study aims at identifying the profile of high Blood Pressure (BP) in public employees.

METHOD

A prevalence study carried out in the Dean Offices of two public universities in the city of Manaus-AM. This is a clipping from the primary study entitled "Comparative analysis of systemic blood pressure by means of three different devices", whose data collection was conducted from January to March 2018.

The population of this study consisted of technical-administrative employees working in the Dean Offices of the Public Universities, totaling 298 civil servants, 184 from University designated as No. 1 and 114 from University No. 2. For sample size, statistical calculation for a finite population was used, since the mean of the study population does not exceed one hundred thousand individuals, considering a 95% confidence interval and a 5% error.

For selection, the following inclusion criteria were observed: individuals of both genders, aged 18 years old or over, with an arm circumference of 22-36 cm and a wrist circumference of 13.5-21.5 cm. The exclusion criteria were as follows: individuals with contraindications for blood pressure measurement on the left arm or wrist, pregnant women and people on vacation, leave, suspensions or similar. Thus, 64 employees were excluded (19 on leave, 16 on vacation, seven pregnant women, 11 with larger arm circumference than the available cuffs, and one with lower wrist circumference than the cuff of the device under test). Data from ten subjects were collected daily, considering that there was no auscultation exhaustion or interference from the professional by the auscultatory technique, which could lead to bias from the observer.

Thus, the sample consisted of 223 civil servers, among which 135 were from University No. 1 and 88 from University No. 2. Selection took place in a simple random manner, by means of a draw in which the employees from each institution were listed in numerical order from one to N and drawn, so that everyone had the same chance to participate in the research.

For data survey, a form developed by the researchers was used, consisting of two parts. The first allowed for the collection of sociodemographic data (age, gender, marital status, schooling, occupation, income and race/ethnicity), lifestyle (alcoholism, smoking habit and physical activity) and clinical data (self-reported SAH and comorbidities), all collected through interviews. The second part of the form included data on BP measurement, using the auscultatory technique with a properly calibrated mercury column device, meeting the recommendations of the VII Brazilian Guideline for Arterial Hypertension[7].

The data were double typed and analyzed using the Statistical Package for the Social Sciences (SPSS) program, version 21.0. For the descriptive variables, absolute (n) and relative (%) frequencies were calculated, and the continuous variables were expressed as mean and standard deviation. The Chi-square test was used to verify the difference between the groups analyzed, with a p-value$<0.05\%$ being considered as significant.

The study was approved by the Research Ethics Committee of the Federal University of Amazonas, under Opinion No. 2,643,349.

RESULTS

The results in Table 1 show that most of the participants are women (138/61.9%), the largest proportion belonging to the age group between 25 and 44 years old (131/58.7%), self-declared as brown-/black-skinned (154/69.1%), born in the North region (201/90.1%) and without a spouse (130/58.3%). Most reported having complete higher education (157/70.4%) and a monthly income of up to three minimum wages (100/44.8%). All the participants stated exercising some administrative work activity in the Higher Education Institutions (data not included in the table).

Table 1 - Socioeconomic and demographic characteristics of the public employees (n=223). Manaus, AM, Brazil, 2018 (continues)

Variables	Public employees n (%)
Gender	
Female	138 (61,9)

Male	85 (38,1)
Age Group	
18 – 24 years old	24 (10,8)
25 – 44 years old	131 (58,7)
45 – 59 years old	54 (24,2)
≥60 years old	14 (6,3)
Race	
White	62 (27,8)
Asian	7 (3,1)
Brown/Black	154 (69,1)
Origin	
North	201 (90,1)
Other regions	22 (9,9)
Marital status	
With partner	93 (41,7)
Without partner	130 (58,3)
Schooling	
Complete Higher Education	157 (70,4)
High School	62 (27,8)
Not reported	4 (1,8)
Income (Minimum Wage)	
1-3	100 (44,8)
4 to 5	66 (29,6)
≥5	57 (25,6)

Source: The authors (2018)

Table 2 shows the characteristics of lifestyle and family history, self-reported SAH and comorbidities, comparing participants who had normal blood pressure values (SBP<140 mmHg and DBP<90 mmHg) with those whose values were high (SBP≥140 mmHg and/or DBP≥90 mmHg). Among the participants who presented high blood pressure valuesduring BP measurement, there are differences in the group that reported having: SAH [41.7% (p=0.002)], diabetes mellitus [25% (p=0.001)], and obesity or overweight [58.3% (p=0.0001)]. When analyzing the other variables, even though they did not present statistical significance, it draws the attention that the participants with normal blood pressure values were those who reported not drinking alcohol and not having SAH, as well as other associated comorbidities. However, it is noteworthy that most of the normotensive (97/45%) and hypertensive (6/50%) individuals reported not practicing any regular physical activity.

Table 2 – Casual measure of normal and high Blood Pressure of the public employees, according to lifestyle, family history, arterial hypertension and other self-reported comorbidities (n=223). Manaus, AM, Brazil, 2018

Variables	Normal BP n (%)	High BP n (%)	p
Alcohol (consumption)			0,33
Yes	79 (37,4)	2 (16,7)	
Never	131 (62,1)	10 (83,3)	
I quit	1 (0,5)	0	
Smoking habit			0,513
Yes	4 (1,9)	0	
I quit	6 (2,8)	1 (8,3)	
I never smoked	201 (95,3)	11 (91,7)	
Physical activity (weekly)			0,98
Does not practice	97 (45)	6 (50)	
1-2 times	39 (18,5)	2 (16,7)	
3 times	31 (14,7)	2 (16,7)	
≥ 4 times	44 (20,9)	2 (16,7)	
Self-reported Systemic Arterial Hypertension*			0,002
Yes	23 (10,9)	5 (41,7)	
No	188 (89,1)	7 (58,3)	
Self-reported commorbidities			
Diabetes mellitus	8 (3,8)	3 (25)	0,001
Dyslipidemia	56 (26,5)	6 (50)	0,078
Obesity/Overweight	28 (13,3)	7 (58,3)	0,000
Other cardiovascular diseases	12 (5,7)	1 (8,3)	0,704
Family history			
Stroke	71 (33,6)	7 (58,3)	0,081
Systemic Arterial Hypertension	157 (74,4)	11 (91,75)	0,177
Diabetes mellitus	114 (54)	6 (50)	0,785
Dyslipidemia	96 (45,5)	6 (50)	0,761
Obesity/Overweight	51 (24,2)	5 (41,7)	0,174
Other cardiovascular diseases	84 (39,8)	5 (41,7)	0,898

Source: The authors (2018)

In all, 12 participants had high BP (12/5.4%). Despite all (211/94.6%) of the participants who presented blood pressure valueswithin the normal range, at the time of measurement, the percentage of public employees who reported having SAH was expressive (28/12.6%), where not all (23/82.1%) were using antihypertensive medications.

DISCUSSION

In relation to the sociodemographic characteristics, it is observed that the results found in this study were similar to others carried out with employees working in public entities[9].

The percentage of participants with high BP values during pressure measurement (12/5.4%) was lower when compared to the population-based research study conducted with adults living in Amazonas (13.3%)[10]. However, an association with self-reported SAH, diabetes mellitus and overweight/obesity was identified.

The participants who reported being overweight also presented high BP. These findings are similar to a study[11] that showed an association between SAH and overweight/obesity, both in men and in women. Another study showed SAH diagnoses in 36.8% of the obese individuals, representing a prevalence ratio that is 5.08 times higher in relation to euthropics[5]. The profile of the individuals with hypertensive peaks is worrisome, given that weight gain involves physiological processes that result in hyperinsulinemia, a condition which, at the renal level, induces vasoconstriction and hypertension[11].

The prevalence of obesity in Brazil has grown by nearly 60% in the last 13 years[3] and can be related to the increase in SAH cases in the country. Thus, coexistence of these two conditions suggests the need to sensitize these individuals about self-care and lifestyle habits that favor maintenance of the ideal weight, with a view to controlling BP and reducing its complications and health problems.

The number of participants who reported having SAH was lower, when compared to the percentage found in Manaus (23.3%)[3]. However, the association between diagnosis of SAH and presence of hypertensive peaks indicates that BP is not controlled in the group under study. In addition to that, only 82.1% of the hypertensive patients stated using antihypertensive drugs. A study with inhabitants of the North region showed that 91.4% of the hypertensive participants with an indication for drug treatment used antihypertensive medications[12]. These findings indicate that there are weaknesses in the process of adherence to the pharmacological treatment for SAH, which depends on factors such as knowledge about the importance of treatment and accessibility to medications. On the other hand, BP control depends not only on the use of prescribed medications, but also on the control of body weight, balanced diet, daily physical activity and smoking cessation, among other habits that contribute to the health and well-being of people who suffer from this disease[7].

Under this circumstance, taking into account that SAH is a chronic disease with the potential for serious harms when not controlled, it is indispensable to implement strategies such as education in health and that these are aligned with the public policies that enhance adherence to pharmacological and non-pharmacological treatments. Education in health is a transformation tool that enables the clients' reflection and perception about their health status. Other strategies, such as those involving the multidisciplinary team and the family, can provide opportunities for adherence to the antihypertensive treatment.

The study participants presented hypertensive peaks and diabetes mellitus in a similar way to that identified in the literature[13], reinforcing that the group under study is more susceptible to complications resulting from SAH: coronary diseases, acute myocardial infarction, stroke and kidney disease; the association of these comorbidities doubles the cardiovascular risk, and the presence of overweight/obesity favors the development of these complications[7]. In this case, it is essential to discuss and plan strategies for the identification, control and prevention of these diseases, as the prevalence of diabetes, overweight and obesity has evolved in a critical epidemiological situation in recent years[3].

Half of the participants with high BP also reported dyslipidemia. Although no statistical significance was identified, another study conducted with adults in Brazilian capitals identified

an association between self-reported arterial hypertension and high cholesterol (OR=1.9; 95%CI 1.8–2.2)[13]. The identification of these comorbidities in the group under study is noteworthy, as it indicates the vulnerability of these workers to serious health problems, since dyslipidemia and SAH are risk factors for the development of atherosclerosis, and the complications of this disease can be AMI, Stroke and sudden death[14].

The prevalence of CVDs (arrhythmia, atherosclerosis, angina, heart valve problem) was also higher among the participants with high BP, which is worrying, as the presence of one or more CVDs in hypertensive patients, as well as obesity and dyslipidemia, contribute to the increase of their additional cardiovascular risk[7]. Thus, it is important to work on reducing the chance of developing CVDs in hypertensive individuals, in addition to ensuring good cardiovascular health conditions for the general population, as a study carried out with residents of Brazilian capitals showed that only 3.4% of the sample presented an ideal pattern of cardiovascular health. The authors emphasize that CVDs were the leading cause of death in the world, with SAH directly or indirectly contributing to this outcome[6].

Among the participants with high BP, it was identified that the majority reported having a family history of SAH. A study showed changes in the circadian rhythm of BP in young children of hypertensive parents[15]. The reference regarding family history of stroke, dyslipidemia, overweight and cardiovascular diseases was expressive among the group under study. Taking into account that genetic inheritance is a non-modifiable risk factor, it becomes more necessary to control the environmental factors in the group with this characteristic and, considering that SAH is a disease with a relatively simple diagnosis, it is understood that it is necessary to plan and adopt strategies that can make the screening of individuals with SAH and their family members effective, in order to carry out a multidisciplinary care plan focused on prevention and on health promotion.

Regarding the practice of physical activity, most of the participants, either hypertensive or not, stated being sedentary, which can also be related to the high proportion of overweight or obese employees. In this scenario, it is important to highlight that the practice of physical activity is essential in the prevention and treatment of SAH, in addition to reducing the risk of cardiovascular morbidity and mortality[7]. A study shows that only 10.2% of the hypertensive individuals indicated the practice of physical exercise as a strategy to control hypertension[5]. This is also due to the difficulty in exercising self-care when it requires changes in lifestyle[16].

In this perspective, the presence of physical activity in the work environment can bring benefits both to the workers and to the institution, which can substantially reduce their rates of work absences.

The limitations of this study refer to the fact that the information about the comorbidities was obtained in a self-reported manner. Thus, the prevalence values of these diseases can be underestimated, as the individuals do not always know their diagnosis. Another limitation lies in the smoking habit and alcohol consumption variables, which are susceptible to information bias from the participants.

FINAL CONSIDERATIONS

The findings indicate that the public employees with high blood pressure levels were also diagnosed with SAH and diabetes mellitus, as well as that they reported being obese or overweight. Family history of SAH and associated comorbidities were more expressive among the hypertensive individuals. Sedentary lifestyle was significant, both among hypertensive and normotensive individuals.

Encouraging the regular practice of physical activity, systematic monitoring of BP,

associated with systematic education in health actions, during work, can encourage the worker to adopt self-care practices that enable prevention and/or adequate control of the cardiovascular risk factors.

This study reasserts the need to implement strategies that ensure management of individuals with SAH, in order to guarantee an effective treatment and reduce the development of health problems. Nurses can significantly contribute to the prevention of systemic arterial hypertension, diabetes and dyslipidemia, through education in health and encouragement of preventive practices, adherence to treatment and individual and collective care measures. In addition to that, it leads to rethinking the current health model aimed at workers, taking into account the current difficulties in coping with chronic diseases, their complications and the socioeconomic impact.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - Travassos MCP, Sousa AM, Toledo N das N; Drafting the work or revising it critically for important intellectual content - Santiago CDS, Travassos MCP, Sousa AM, Almeida GS de, Toledo N das N; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - Santiago CDS, Travassos MCP, Toledo N das N. All authors approved the final version of the text.