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Posted Date: 31 October 2023

doi: 10.20944/preprints202310.2037.v1

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Article

Sociodemographic Characteristics and Risk Factors Related to Hypertension among Individuals from Huambo, Angola

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ABSTRACT: WHO estimates that around 600 million people suffer from high blood pressure which causes high costs for health systems and influences the economy of these countries. In this study, we investigate the sociodemographic characteristics and risk factors related to hypertension among individuals from Huambo, Angola. This cross-sectional study was conducted with 158 participants consulted in the Cardiology services at Hospital Geral do Huambo, between January and July 2023. A total of 67.1% of the studied patients were hypertensive. The mean age of the hypertensive (55.8±11.3) patients was higher than non-hypertensive (53.1±13.4) patients, although no significance was observed (p=0.199). Patients aged between 30 and 40 (OR=1.19, P=0493), male (OR=1.17, P=660), employees (OR=9.94, P=0935), patients consuming alcohol (OR=1.11, P=0.864), and practising physical activity (OR=1.12, P=0.742) presented a high chance of developing hypertension, while those living in urbanized areas (OR=0.78, P=0.59) and with a low educational level (OR=0.43, P=0.194), had a low chance to develop hypertension. There was no statistical significance between demographic or behavioural characteristics with hypertension (P>0.05). Regarding clinical characteristics, body mass index was statistically related to hypertension (p=0.011). Our findings show that hypertension is a major health problem for the young population of Huambo. There is an urgent need to create strategies to improve the prevention, diagnosis, and treatment of hypertension, not only in Huambo but throughout the country. Further studies to understand determinants related to hypertension should be carried out among the young population in Angola.

keywords: hypertension; risk factors; Huambo; Angola

1. INTRODUCTION

Hypertension is one of the most common chronic diseases, constituting an independent risk factor for many diseases, such as stroke and chronic renal failure.[1,2] The World Health Organization (WHO) estimates that around 600 million people suffer from high blood pressure, with a global increase of 60% by 2025, in addition to around 7.1 million deaths per year, which causes very high costs for health systems, directly influencing the economy of these countries.[3,4] For example, low- and middle-income countries (LMICs) have 93% of the world's disease burden and contribute to around 78% of deaths from cardiovascular disease and 50% of the total disease burden.[3] Several authors show that demographic characteristics such as advanced age, alcohol consumption, smoking and a sedentary lifestyle can increase the risk of hypertension.[5] Also, the body mass index (BMI) has been a determining factor in the diagnosis of obesity.[5]

Until the 20th century, infectious diseases were the main causes of death in the world population. Today, with the improvement of socio-economic and health conditions, non-communicable diseases (NCDs) are the main cause of death in the world, causing 63% of deaths. In

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sub-Saharan Africa, the epidemiology of cardiovascular diseases is different compared to other parts of the world, where mortality is declining, and life expectancy is increasing.[6]

Studies carried out in Angola on hypertension and associated risk factors, specifically in Bengo, Huambo, Luanda and Lubango, revealed a significant prevalence of hypertension among the young population and a low level of knowledge about this cardiovascular disease.[7–10] Despite that, there are few studies published on the prevalence and risk factors of hypertension in Angola, particularly in Huambo, one of the provinces, located in the centre of the country. Therefore, the present study aimed to investigate the prevalence and factors associated with hypertension in Huambo, in order to contribute to the definition of strategies for controlling cardiovascular diseases.

2. MATERIAL AND METHODS

2.1. Study design and setting

This is a cross-sectional study with a convenience sample of 158 participants of both sexes aged between 30 and 70 years who were consulted in the Cardiology services at Hospital Geral do Huambo between January and July 2023. Huambo is one of the 18 provinces of Angola, located in the country's central region. According to 2018 population projections, prepared by the National Statistics Institute, it has a population of 2,309,829 inhabitants and a territorial area of 35,771 km2, making it the fourth most populous province in Angola and one of the richest in the country. The data were used using the World Health Organization's (WHO) Step Wise questionnaire for surveillance of chronic non-communicable diseases[11]. Sociodemographic (age, sex, occupation, place of residence and educational level), behavioural (alcohol consumption and physical activity) and clinical data (Signs, symptoms and morbidities) were obtained through an interview, after signing the consent form. free informed. The research project was first forwarded to the Scientific Council of the Faculty of Medicine of Huambo, having decided positively (Deliberation No. 003/CC/23) and subsequently sent to the Ethics Committee of the Institute of Health Research of Angola, also approved by this Body (031/C.E.M.S./2023). Written informed consent was obtained.

2.2. Data and sample collection

Blood pressure was measured on the right arm with an OMRON automatic sphygmomanometer with the patient sitting and using the appropriate cuffs according to the individual's upper arm circumference.[12] Pressure values were measured after the interview with a minimum rest of 5 minutes and the person must remain seated with their arm resting on the table. Three consecutive measurements were taken with a one-minute interval between one and the other and the systolic and diatonic blood pressure values of the 3 measurements were recorded taking the average into account. Patients were considered hypertensive if systolic BP was ≥140 mmHg and diastolic BP was ≥90 mmHg.[13] Hypertension was defined according to the diagnostic and classification criteria established by the European Society of Arterial Hypertension, which establishes in adults as Ideal (systolic blood pressure 12mmHg and diastolic blood pressure <85mmHg); normal (systolic blood pressure <130mmHg and diastolic blood pressure <85mmHg); borderline (systolic blood pressure 130mmHg and diastolic blood pressure 85mmHg or 139 - 89mmHg); stage I hypertension (systolic 140-159mmHg and diastolic 90 - 99mmHg); Stage II hypertension (Systolic 160 -169mmHg and diastolic 100 - 109mmHg); Stage III hypertension (Systolic ≥180mmHg and diastolic ≥110mmHg); Isolated systolic hypertension (≥140 and diastolic <90mmHg).[14] Height and weight were measured with an analogue medical scale containing a non-slip platform, manual adjustment, 600-2100mm altimeter, up to 150kg, 500g graduation with a platform dimension of 270x370, (MEDIKA brand, Portugal). All procedures and standards for reliable results were taken into account considering the manufacturers' descriptions and guidelines. Body mass index was classified according to the WHO classification as normal up to 25, overweight between 25-30 and obese ≥30. After a study was carried out in the cardiology section, patients with high BP were immediately given appropriate treatment.

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2.3. Statistical analysis

SPSS version 29 was used to analyze the data. Chi-square test to compare the proportion between hypertensive and non-hypertensive patients. Logistic regression analysis was performed with hypertension as the dependent variable and demographic, behavioural and clinical variables as independent variables. Odds ratios (OR) and 95% confidence intervals (CI) were calculated. All P-values less than 0.05 were considered statistically significant.

3. RESULTS

The basic characteristics of the participants are shown in Table 1. A total of 158 subjects of both sexes took part in the study, from these 107 (67.7%) were female and 51 (32.7%) males. The age range of the participants varied between 30 and 70 years, with a predominance in the 40s (85.4%) onwards. From the point of view of prevalence, it was found that 67.1% (106/158) of the sample were hypertensive. The mean age and SD among the non-hypertensive subjects was 53.9±13.3 and the hypertensive subjects was 55.8±11.3. There was no statistical significance in age (P=0.079), gender (P=0.660), occupation (P=0.935), area of residence (P=0.590), educational level (P=0.359), behavioural characteristics such as physical activity (P=0.743) and consumption of alcohol (p=0.864) with hypertension. The multivariate logistic regression test showed that patients with hypertension aged between 30 and 40 (OR=1.19 CI 95%: 0.3-5.28, P=0493), male (OR=1.17 CI 95%: 0.11-13.5, P=660), employees (OR=9.94 CI 95%: 0.48-1.965, P=09. 35), those living in urban areas (OR=0.78 CI 95%: 0.32-192%, P=0.59), low school graduates (OR=0.43 CI 95%: 0.12-1.55%, P=0.194), consuming alcohol (OR=1.11 CI 95%: 0.33-3.80, P=0.864) and practising physical activity (OR=1.12 CI 95%: 0.57-2.18, P=0.742) had increased risk. In Table 2, we showed the clinical characteristics related to hypertension. Of the 106 patients with hypertension, 81 (76.4%, P=0.732) reported having a headache, 25 (23.6%, P=0.723) chest pain, 81 (76.4%, P=0.333) blurred vision, 63 (59.4%, P=0.661) tinnitus and 97 (91.8%, P=0.189) nosebleeds. Concerning BMI, the majority (46/106, 43.4%) of hypertensive patients in the sample were obese, followed by those who were overweight (37/106, 34.9%), and (23/106, 21.7%).

Table 1. Demographic and behavioural characteristics related to hypertension among patients from Huambo, Angola.

Independent variables	N (%)	Hypertension			Univariate analysis	
		No (%)	Yes (%)	p-value	OR (95% CI)	p-value
Overall	158 (100)	52 (32.9)	106 (67.1)			
Demographic characteristic						
Age, year (mean ± SD)	54.9 ± 12.0	53.1 ± 13.4	55.8 ± 11.3	0.199		
Age distribution						
<30 yo	3 (1.90)	1 (1.90)	2 (1.90)	0.079	0.41 (0.30 – 5.28)	0.493
30 – 40 yo	20 (12.7)	11 (21.2)	9 (8.50)		1.19 (0.11 – 13.5)	0.890
>40 yo	135 (85.4)	40 (76.9)	95 (89.6)		1.00	
Gender						
Female	107 (67.7)	34 (65.4))	73(68.9)		1.00	
Male	51 (32.7)	18 (34,6)	33 (31.1)	0.660	1.17 (0.58 – 2.37)	0.660
Occupation						
Unemployed	104 (65.8)	34 (65,4)	70 (66,0)		1.00	
Employed	54 (34,2)	18 (34.6)	36 (34.0)	0.935	9.94 (0.48 – 1.95)	0.935
Residence area						
Non-Urbanized	28 (17.7)	8 (15.4)	20(18,9)	0.590	1.00	
Urbanized	130 (82.3)	44 (84.6)	86 (81.1)		0.78 (0.32 – 1.92)	0.591

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Educational level						
Illiterate	16 (10.1)	4 (10.5)	12 (16,9)	0.359	0.43 (0.12 – 1.55)	0.194
Basic	41 (25.9)	18(34.6)	23(21.7)		0.75 (0.21 – 2.69)	0.658
Medium	52 (32.9)	16 (30.8)	36 (34.0)		0.83 (0.23 – 3.03)	0.782
High	52 (47.7)	16 (42.1)	36 (50.7)		1.00	
Behavioural characteristic						
Alcohol						
No	145 (91.8)	48 (92.3)	97 (91.5)	0.864	1.00	
Yes	13 (8.20)	4 (7.70)	9 (8.50)		1.11 (0.33 – 3.80)	0.864
Physic activity						
No	70 (44.3)	24 (46.2)	46 (43.4)	0.743	1.00	
Yes	88 (55.7)	28 (53.8)	60 (56.6)		1.12 (0.57 – 2.18)	0.743

Table 2. Clinical characteristics related to hypertension among patients from Huambo, Angola.

		Hypertension		
Clinical characteristics	**N (%)**	**No (%)**	**Yes (%)**	**p-value**
Overall	158 (100)	52 (32.9)	106 (67.1)	
Signal and symptoms				
Headache	122 (77,2)	41 (78.8)	81 (76.4)	0.732
Chest pain	36 (22.8)	11 (21.2)	25 (23.6)	0.723
Blurry vision	117 (74,1)	36 (69.2)	81 (76.4)	0.333
Buzz	92 (58.2)	29 (55.8)	63 (59.4)	0.661
Nosebleed	145 (91.8)	48 (92.3)	97 (91.8)	0.864
Asthenia	141 (89.2)	44 (84.6)	97 (91,5)	0.189
Comorbidities				
No	53 (33.5)	17 (32.7)	36 (34.0)	0.874
Yes	105 (66.5)	35 (67.3)	70 (66.0)	
Distribution Comorbidities				
AVC	9 (5.70)	3 (5.80)	6 (5.70)	0.978
Heart failure	48 (30.4)	17 (32.7)	31 (29.2)	0.658
Arterial injury	30 (19.0)	9 (17.3)	21 (19.8)	0.706
Retinal damage	15 (9.50)	97 (91.5)	9 (8.50)	0.539
Aneurysm	1 (0.90)	0 (0.00)	1 (0.90)	0.482
Angina Pectoris	1 (0.60)	0 (0.00)	1 (0.90)	0.482
Body mass index				
Normal	40 (25,3)	17 (32.7)	23 (21.7)	0.011
Overweight	62 (39.2)	25 (48.1)	37 (34.9)	
Obesity	56 (35.4)	10 (19.2)	46 (43.4)	

4. DISCUSSION

Hypertension has become the main cardiovascular risk factor globally.[15] The data found in the present study showed that hypertension was prevalent in most of the population studied, with about

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67% affected by high blood pressure. The prevalence of high blood pressure in the present study was higher than that reported by Sebastião et al in a study addressing the Demographic characteristics and risk factors related to high blood pressure among healthy blood donors from Luanda, the capital city of Angola, where about 7.3% of the population had high blood pressure (>140/90 mmHg).[10]

In an epidemiological cohort study conducted among individuals from Poland, Zatonska et al. (2023) found that several factors played a significant role in increasing the chances of developing hypertension after nine years. These factors included gender, educational level, body weight, alcohol consumption, and embracing a healthy lifestyle.[16] In the present study, patients aged between 30 and 40 (OR=1.19, P=0.493), male (OR=1.17, P=0.660), employees (OR=9.94, P=0.935), patients consuming alcohol (OR=1.11, P=0.864), and practising physical activity (OR=1.12, P=0.742) presented a high likelihood of developing hypertension, while those living in urbanized areas (OR=0.78, P=0.591) and with a low educational level (OR=0.43, P=0.194), had a low likelihood to develop hypertension (Tables 1 and 2).

In our study, we found that certain factors were associated with a higher likelihood of developing hypertension. Patients who were between the ages of 30 and 40 (OR=1.19, P=0.493), male (OR=1.17, P=0.660), employees (OR=9.94, P=0.935), alcohol consumers (OR=1.11, P=0.864), and those who engaged in physical activity (OR=1.12, P=0.742) had a higher likelihood of developing hypertension. On the other hand, individuals living in urbanized areas and those with a low educational level had a lower likelihood of developing hypertension (Tables 1 and 2). In previous research, it was discovered that women who are over the age of 40 have a higher likelihood of developing high blood pressure. Interestingly, our study yielded similar findings, reinforcing this connection.[2] Exercise has been widely recognized as having a remarkable impact on managing high blood pressure and numerous studies have consistently shown this positive effect. However, our study found that physical activity might play a role in contributing to high blood pressure since the prevalence of this condition increased from 54% to 57% among non-hypertensive to hypertensive subjects, respectively.[17,18] The augmented risk of hypertension occurrence among individuals engaged in physical exercise in Angola necessitates comprehensive exploration in future studies. It is imperative to investigate and elucidate the potential underlying reasons behind this association.

Mendy et al., (2020) conclude that the likelihood of having hypertension was significantly higher among those classified as overweight and obese workers compared to their peers.[19] In addition, previous studies carried out in Angola by Piris et al, (2016) using a database from the demographic surveillance system held at the Health Research Centre of Angola (CISA), also concluded that being overweight and obese were significantly associated with hypertension.[20] Our results provide additional evidence that individuals with a normal (22%) body mass index have a reduced likelihood of high blood pressure compared to those who are overweight (35%) or obese (43%), aligning with previous research findings (Table 2). Furthermore, we explored other significant clinical factors, including the occurrence of comorbidities. Our findings revealed that the prevalence of hypertension is twice as high among patients with comorbidities in comparison to those without comorbidities (Table 2).

There are important limitations to this study. The study's statistical power and our ability to draw accurate conclusions are hindered by the small sample size. Additionally, we did not conduct thorough clinical examinations to definitively determine the presence of hypertension. It's important to note that the study's findings may not reflect the overall state of hypertension in Angola, as it was conducted in a specific region. Notwithstanding the limitations inherent in our study, the results unequivocally underscore the substantial prevalence of cardiovascular disease in Angola, thereby underscoring the urgent necessity for substantial investment in this domain. To this end, we strongly advocate prioritizing research initiatives aimed at identifying high-risk populations prone to developing hypertension. By doing so, we can acquire crucial insights that will inform targeted interventions and ultimately enhance public health outcomes.

In summary, hypertension is a significant public health issue in the population of Huambo. It is crucial to implement urgent strategies to prevent the rise in the number of individuals living with high blood pressure.

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In this study, we explore the potential demographic factors that may contribute to the rise in hypertension cases in Huambo. It's important to note that the limited number of participants in our study may have affected the statistical power, and the data might not fully represent the actual epidemiological profile of hypertension in the region. Hence, it is crucial to develop effective strategies that focus on enhancing the prevention, diagnosis, and treatment of hypertension. These efforts should extend beyond Huambo and encompass the entire country, to mitigate the rise in cardiovascular diseases among the socially vulnerable population in Angola.

Author Contributions: Conceptualization: JP and CSS. Investigation: JP, JV, and CSS. Methodology: JP and CSS. Validation: JP, LV, ED, and CSS. Data curation: JP and CSS. Formal analysis: CSS. Data collection: JP. Supervision: LV and ED. Writing - original draft: JP and CSS. Writing – review & editing: JP and CSS. All authors approved the final manuscript for publication.

Acknowledgments: The authors thank patients for their participation. We also thank CISA|INIS for the logistical, administrative and scientific support.

Data Availability Statement: The data supporting this study's findings are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Shi J, Liu Y, Liu Y, et al. Association between ApoE polymorphism and hypertension: A meta-analysis of 28 studies including 5898 cases and 7518 controls. Gene 2018;675:197–207.
2. Wyatt CM, Chertow GM. Updated guidelines for the diagnosis and management of high blood pressure: implications for clinical practice in nephrology. Kidney Int 2018;93(4):768–70.
3. Vetrano DL, Calderón-Larrañaga A, Marengoni A, et al. An International Perspective on Chronic Multimorbidity: Approaching the Elephant in the Room. The Journals of Gerontology: Series A 2018;73(10):1350–6.
4. Singer PS. Updates on Hypertension and New Guidelines. Adv Pediatr 2019;66:177–87.
5. Wu W, Diao J, Yang J, et al. Impact of Sociodemographic Characteristics, Lifestyle, and Obesity on Coexistence of Diabetes and Hypertension: A Structural Equation Model Analysis amongst Chinese Adults. Int J Hypertens 2021;2021:1–12.
6. Riley L, Guthold R, Cowan M, et al. The World Health Organization STEPwise Approach to Noncommunicable Disease Risk-Factor Surveillance: Methods, Challenges, and Opportunities. Am J Public Health 2016;106(1):74–8.
7. Pires JE, Sebastião Y V, Langa AJ, Nery S V. Hypertension in Northern Angola: prevalence, associated factors, awareness, treatment and control. BMC Public Health 2013;13(1):90.
8. Paquissi FC, Cuvinje ABP, Cuvinje AB, Paquissi AM. Hypertension among Outpatients at a General Hospital in South Angola: Prevalence, Awareness, Treatment, and Control. Clin Med Insights Cardiol 2016;10:CMC.S39561.
9. Sebastião CS, Sacomboio E, Francisco NM, et al. Blood pressure pattern among blood donors exposed to SARS-CoV-2 in Luanda, Angola: A retrospective study. Health Sci Rep 2023;6(8).
10. Sebastião CS, Sacomboio E, Francisco NM, et al. Demographic characteristics and risk factors related to high blood pressure among healthy blood donors from Luanda, Angola: A retrospective study. Health Sci Rep 2023;6(6).
11. Gatimu SM, John TW. Socioeconomic inequalities in hypertension in Kenya: a decomposition analysis of 2015 Kenya STEPwise survey on non-communicable diseases risk factors. Int J Equity Health [Internet] 2020 [cited 2023 Oct 5];19(1). Available from: https://pubmed.ncbi.nlm.nih.gov/33267846/
12. Fonseca-Reyes S, Forsyth-MacQuarrie AM, García de Alba-García JE. Simultaneous blood pressure measurement in both arms in hypertensive and nonhypertensive adult patients. Blood Press Monit 2012;17(4):149–54.
13. Vischer AS, Burkard T. Principles of Blood Pressure Measurement – Current Techniques, Office vs Ambulatory Blood Pressure Measurement. 2016. p. 85–96.
14. Shi J, Liu Y, Liu Y, et al. Association between ApoE polymorphism and hypertension: A meta-analysis of 28 studies including 5898 cases and 7518 controls. Gene 2018;675:197–207.
15. Parati G, Lackland DT, Campbell NRC, et al. How to Improve Awareness, Treatment, and Control of Hypertension in Africa, and How to Reduce Its Consequences: A Call to Action From the World Hypertension League. Hypertension [Internet] 2022 [cited 2023 Oct 2];79(9):1949–61. Available from: https://pubmed.ncbi.nlm.nih.gov/35638381/

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 31 October 2023 doi:10.20944/preprints202310.2037.v1

16. Zatońska K, Basiak-Rasała A, Połtyn-Zaradna K, et al. Sociodemographic and behavioral factors associated with controlled hypertension after 9 years of observation of a PURE Poland cohort study. Front Public Health 2023;11.
17. Oliveira GF, Marin TC, Forjaz CLM, Brito LC. Exercise Training and Endothelial Function in Hypertension: Effects of Aerobic and Resistance Training. Arq Bras Cardiol [Internet] 2021 [cited 2023 Oct 2];116(5):948–9. Available from: https://pubmed.ncbi.nlm.nih.gov/34008819/
18. Moussouni A, Sidi-yakhlef A, Hamdaoui H, Aouar A, Belkhatir D. Prevalence and risk factors of prehypertension and hypertension in Algeria. BMC Public Health [Internet] 2022 [cited 2023 Oct 4];22(1). Available from: https://pubmed.ncbi.nlm.nih.gov/35982441/
19. Mendy VL, Vargas R, Ogungbe O, Zhang L. Hypertension among Mississippi Workers by Sociodemographic Characteristics and Occupation, Behavioral Risk Factor Surveillance System. Int J Hypertens [Internet] 2020 [cited 2023 Oct 2];2020. Available from: https://pubmed.ncbi.nlm.nih.gov/32724672/
20. Pedro JM, Brito M, Barros H. Cardiovascular Risk Assessment in Angolan Adults: A Descriptive Analysis from CardioBengo, a Community-Based Survey. Int J Hypertens 2018;2018:1–6.

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