

Epidemiological profile of essential hypertension mortality in Brazil from 2011 to 2020

Perfil epidemiológico da mortalidade por hipertensão essencial no Brasil no período de 2011 a 2020

Perfil epidemiológico de la mortalidad por hipertensión esencial en Brasil de 2011 a 2020

RESUMO

Objetivo: Descrever o perfil epidemiológico da mortalidade por hipertensão essencial no Brasil no período de 2011 a 2020. Método: Estudo epidemiológico do tipo ecológico que utilizou dados do Sistema de Informações sobre Mortalidade no Brasil no período de 2011 a 2020. A coleta de dados ocorreu mediante a utilização de um roteiro, utilizando as variáveis sociodemográficas que correspondem ao sexo, raça/cor, escolaridade, faixa etária, e estado civil; e o desfecho correspondendo ao ano e local de ocorrência do óbito. Resultado: Quando analisada a frequência de óbitos por HE no Brasil nos últimos dez anos, evidencia-se que o perfil de indivíduos que morrem pela doença é de mulheres, da raça branca, analfabeta, maior de 80 anos e viúva. Conclusão: Estes achados são indicativos para emergência em elaborar e consolidar políticas públicas mais eficazes neste contexto, mas também a importância de mais estudos sobre e o acompanhamento dos dados referentes a HE.

DESCRIPTORES: Epidemiologia; Mortalidade; Hipertensão Essencial.

ABSTRACT

Objective: To describe the epidemiological profile of mortality from essential hypertension in Brazil from 2011 to 2020. Method: An ecological epidemiological study that used data from the Mortality Information System in Brazil from 2011 to 2020. Data collection took place through the use of a script, using sociodemographic variables that correspond to sex, race/color, education, age group, and marital status; and the outcome corresponding to the year and place of death. Result: When analyzing the frequency of deaths from HE in Brazil in the last ten years, it is evident that the profile of individuals who die from the disease is women, white, illiterate, over 80 years old and widowed. Conclusion: These findings are indicative for the emergence of elaborating and consolidating more effective public policies in this context, but also the importance of more studies on and monitoring of data related to HE.

DESCRIPTORS: Epidemiology; Mortality; Essential Hypertension.

RESUMEN

Objetivo: Describir el perfil epidemiológico de la mortalidad por hipertensión arterial esencial en Brasil de 2011 a 2020. Método: Estudio epidemiológico ecológico que utilizó datos del Sistema de Información de Mortalidad de Brasil de 2011 a 2020. La recolección de datos se realizó mediante el uso de un guión, utilizando variables sociodemográficas que corresponden a sexo, raza/color, educación, grupo de edad y estado civil; y el desenlace correspondiente al año y lugar del fallecimiento. Resultado: Al analizar la frecuencia de muertes por EH en Brasil en los últimos diez años, se evidencia que el perfil de las personas que mueren por la enfermedad es mujer, blanca, analfabeta, mayor de 80 años y viuda. Conclusión: Estos hallazgos son indicativos para el surgimiento de la elaboración y consolidación de políticas públicas más efectivas en este contexto, pero también la importancia de más estudios y seguimiento de datos relacionados con la ES.

DESCRIPTORES: Epidemiología; Mortalidad; Hipertensión esencial.

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INTRODUCTION

Among the major causes of death in the world, Cardiovascular Diseases (CVD) are considered the most frequent, and among them, Essential Hypertension (EH) which is characterized as a pathology that has numerous mechanisms for involvement, which when interacting with behavioral factors such as sedentary lifestyle, excess sodium intake, smoking, obesity and genetic factors can manifest in the individual.¹

CVDs are the main cause of outpatient and hospital care worldwide, especially in developing countries, such as Brazil, concentrating, only in 2017, as reported by DATASUS, the record of 1,312,663 deaths from CVD in the country.²

EH is defined when there is an increase in Blood Pressure (BP) with systolic \geq 140 mmHg and diastolic \geq 90 mmHg, which means that the maximum pressure under the arterial wall was exerted in an individual in which there is no comorbidity, thus, it is a chronic circumstance of great relevance

to cardiac morbidity and mortality.³

Through EH, the individual can develop other CVDs, since this pathology affects around 1.4 billion people worldwide, and the number is projected to increase in the coming years. In a study carried out, it showed that between 2008 and 2017, 818,813 people with EH were hospitalized in Brazil, representing 7.21% of hospitalizations for pathologies of the circulatory system.^{4,5}

EH in Brazil is considered a serious public health problem, being, according to 2017 data, responsible for 30% of deaths in Brazilians, and due to the alarming numbers, it is considered a neglected pathology in the national territory, both by society, as by professionals although it is a disease of easy diagnosis and treatment.⁶

Through the above, it is understood the importance of conducting research in order to promote updates about EH, as it was explicit, through the alarming data of cases of deaths and hospitalizations due to the disease, the need for greater interventions to effect changes that impact statis-

tics is imperative, where these expressive numbers alone justify this research, while demonstrating how relevant is the development of studies on this pathology.

Thus, the following question was defined as a research problem: what is the epidemiological profile of mortality from essential hypertension in Brazil from 2011 to 2020? When one understands the need to know the main characteristics of individuals who are affected by the disease, and whose outcome is death in all Brazilian regions.

Thus, the objective of this study was to describe the epidemiological profile of mortality from essential hypertension in Brazil from 2011 to 2020.

METHODS

To describe the epidemiological profile of mortality from essential hypertension in Brazil, an observational ecological epidemiological study was carried out, descriptive and cross-sectional study using data

from the Mortality Information System (SIM) of deaths that occurred in Brazil between 2011 and 2020. Data were obtained through the Information System of the Unified Health System (DATASUS).

For this study, the International Classification of Diseases (ICD-10) was adopted, using the ICD-10 I10 category, which corresponds to Essential Hypertension. Essential Hypertension was analyzed according to the ICD-10 I10 category, according to the macro-region of domicile (North, Northeast, Southeast, South and Midwest).

Data collection took place through the use of a script in which data were grouped by frequency measures related to sociodemographic variables that correspond to sex, race/color, education, age group, and marital status; and the outcome corresponding to the year and place of death.

Data analysis was performed using simple descriptive statistics (frequency and percentage) based on data provided by SIM, via DATASUS/TabNet. The description of the data was carried out by exposing a table and graphs created in Microsoft Office Excel, version 2016. After this step, the discussion of the data took place through the available scientific literature on EH.

By making use of public domain information and secondary data, available on DATASUS, where individuals have their identity preserved, without any identification, this article does not face ethical issues, thus, there was no need for the study to be submitted to the Research Ethics Committee (CEP - Comitê de Ética em Pesquisa).

RESULTS

During the period from 2011 to 2020, there were 257,272 deaths from EH in Brazil, with an average of 25,272 deaths per year, with the highest number of this event in 2020 (n=37,600), as shown in Figure 1.

The Brazilian macro-region with the highest incidence of the disease was the Southeast region (n= 112,936), representing

43.90%, almost half of the cases. Followed by Northeast 32.09% (n=82,546), South 13.19% (n=33,929), Midwest 5.46% (n= 14,056) and North 5.37% (13,805) as shown in Figure 2. This high percentage can be attributed to the Southeast, for being the most populous Brazilian region and concentrating a nationally known capitalist niche, directly affecting the way and quality of life of its inhabitants, who naturally have a sedentary lifestyle, an unruly diet and exposed to high levels of

stress due to the pace of work practiced in this region.

When analyzing the frequency of deaths from EH in Brazil in the last ten years, it is evident that the profile of individuals who die from the disease is women (n=138,604), white (n=119,226), illiterate (n=69,231), over 80 years old (11,398) and widowed (n=85,871), shown in Table 1.

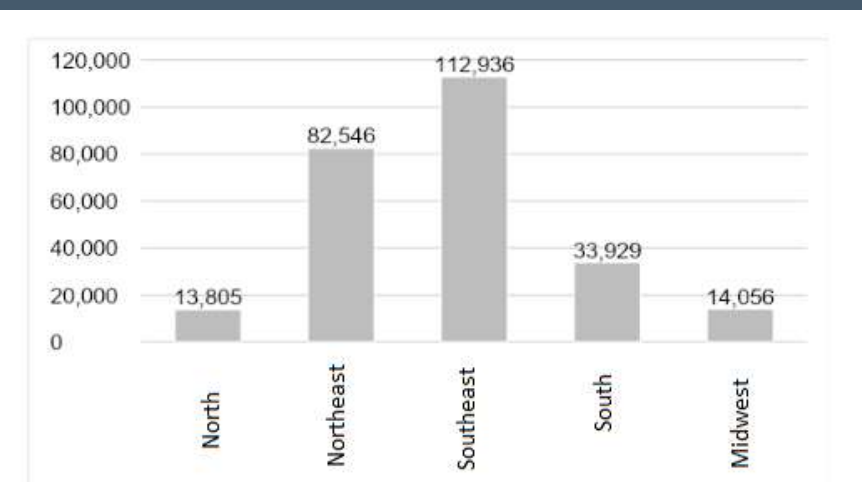
Figure 3 shows that the place whe-

Figure 1. Number of deaths from essential hypertension reported from 2011 to 2020 in Brazil. Teresina, Piauí, 2022



Source: SIM/DATASUS. Authors' elaboration (2022).

Figure 2. Number of deaths from essential hypertension reported by Brazilian macro-region, from 2011 to 2020, in Brazil. Teresina, Piauí, 2022



Source: SIM/DATASUS. Authors' elaboration (2022).

re the deaths occurred was at home (n= 125,749), with the hospital setting being the second place with the highest number of occurrences (n= 98,774). Because it is often a silent disease, EH can be fatal to the individual in carrying out their daily activities, and when identified, this is referred to the nearest hospital institution.

DISCUSSION

Of the 257,272 deaths from EH in Brazil, shown in Figure 1 in the analyzed period, it showed that during the years 2011 to 2019 there was a certain regularity in the frequency of mortality rates, with an average of 24,408 deaths per year, and in 2020, there is a jump in the number of these deaths to (n=37,600). The Brazilian population estimate for 2021 is 213,317,639 people. In 2009, the country had 94,070 establishments, 42,049 of which were privately managed and 52,021 were public, with 431,996 inpatient beds in health establishments.⁷

In 2021, the Ministry of Health (MH) launched the Strategic Action Plan to Combat Chronic Diseases and Non-Communicable Diseases in Brazil, for the period from 2021 to 2030, which will be developed in 226 strategic actions, and is interested in act in the prevention of risk factors for Chronic Diseases (CD) and Non-Communicable Diseases (NCDs), with Systemic Arterial Hypertension (SAH) included, as well as other CDN-CDs, in the national territory in the next ten years, which has in its scope the elaboration and consolidation of public policies and programs to organize services in a network, as well as to produce oriented knowledge for evidence-based clinical decision making. For SAH, the Comprehensive Health Care (PHC) axis provides for an increase in the coverage rate of these services to identify, manage and monitor a greater number of people affected by SAH, as well as create a disease monitoring system in all SUS care levels.⁸

Through this research, it was observed that the majority of deaths from EH, as shown in Table 1, were women

Tabela 1. Características sociodemográficas dos indivíduos que tiveram morte decorrente de por hipertensão essencial, no período de 2011 a 2020, no Brasil. Teresina, Piauí, 2022

Characteristics	n	%
Sex		
Male	118.639	46,11%
Female	138.604	53,87%
Ignored	29	0,001
Race/ color		
White	119.296	46,37%
Black	27.311	10,62%
Yellow	1.410	0,54%
Brown	99.458	38,66%
Indigenous	609	0,24%
Ignored (blank)	9.188	3,57%
Education		
None	69.231	26,91%
1 to 3 years of study	64.481	25,06%
4 to 7 years of study	43.447	16,89%
8 to 11 years of study	22.244	8,65%
≥ 12 years of study	6.258	2,43%
Ignored (blank)	51.611	20,06%
Age group (in years)		
Less than 1 year	27	0,01%
1-4 years	20	0,007%
5-9 years	24	0,009%
10-14 years	31	0,01%
15-19 years	115	0,04%
20-29 years	752	0,29%
30-39 years	3.229	1,26%
40-49 years	11.073	4,30%
50-59 years	26.413	10,27%
60-69 years	43.908	17,07%
70-79 years	60.224	23,41%
≥ 80 years	111.398	43,30%
Ignored	58	0,22%
Marital status		
Single	50.155	19,49%
Married	80.551	31,31%
Widow	85.871	33,38%
Legally separated	13.461	5,23%
Other	6.861	2,67%
Ignored (blank)	20.373	7,92%

Source: SIM/DATASUS. Authors' elaboration (2022).

(n=138,604), with no great difference between the number and men who were victims of the disease (n=138,604). This data is corroborated by the epidemiological bulletin carried out by the Health Surveillance Secretariat in 2020, which emphasized the female sex with the highest incidence of EH in Brazil in recent years.⁹

However, the study carried out in 2019 in the state of Amazonas (AM), showed that most people living with EH in the state are female, however, in the capital Amazonas, most of those affected are men.¹⁰ In another study, it was revealed that the predominance of deaths by EH was of men, black and over 80 years old.¹¹

Between 2011 and 2012, in Brazil, there were 31,901 hospitalizations for EH, of which 717 resulted in death, with a higher incidence in elderly people over 85 years of age, with chances of terminality, subtly higher for females, a finding that confirms the findings of this article.¹²

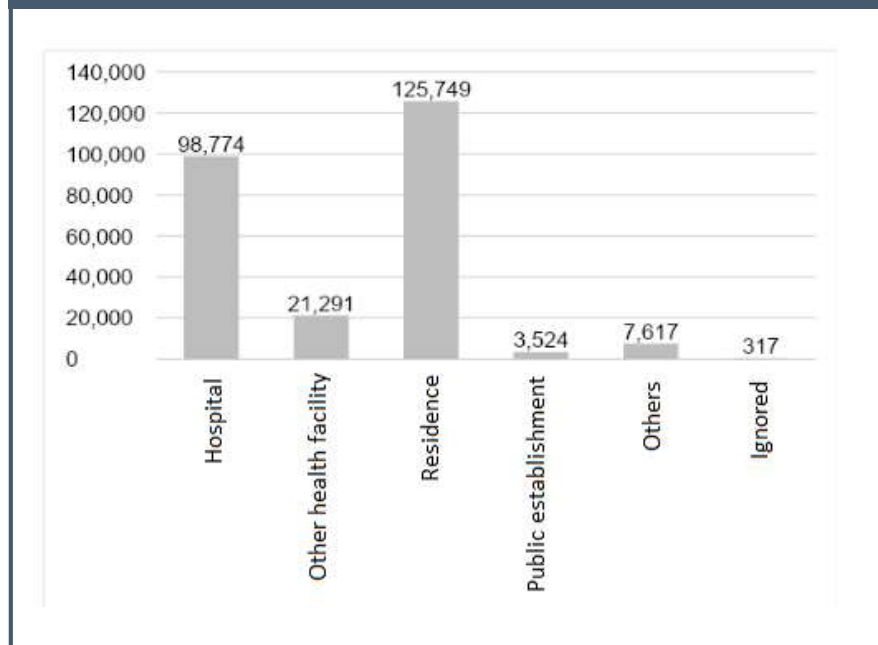
It was evidenced through other researches, to be the Southeast region with the highest number of cases of death by EH in the country, due to its demographic density and for gathering, in its territory, a complex and extensive economic hub that serves as a reference for the Brazilian population in other macro-regions.¹¹

He knows that eating habits and lifestyle are preponderant factors for the appearance of EH in the individual, and these prevention measures are closely linked to the person's ability to articulate causes and circumstances, because the lower the level of education, the greater the challenges in performing the appropriate therapy when diagnosed.¹³

Research carried out in Chicago, in the United States of America, verified a significant incidence of EH in the population with less than 3 years of schooling, given that it was only possible to be collected due to the intense monitoring of areas where people with a low level of education live.¹⁴

As shown in Figure 3, the place of death from EH was mostly at home, followed by events in a hospital setting, thus, the prevalence of deaths in the home environment may point to the fact of having a disease

Figure 3. Place of occurrence of deaths from essential hypertension, from 2011 to 2020, in Brazil. Teresina, Piauí, 2022



Source: SIM/DATASUS. Authors' elaboration (2022).

with silent signs and symptoms, which are usually neglected by the population, for not being able to make associations with the family history of involvement by the disease, or with the habits they carry out in their daily lives such as smoking, sedentary lifestyle, high-sodium diet, alcoholism, among others.¹⁴

The existing imbalance related to access to health services can also be an impediment for the individual to seek care, thus, the prevalence of high rates of death due to health problems may be higher than what is reported, as well as providing a substantial increase in cases.¹⁶

Regarding ignored data, they draw attention to the harm caused by underreporting, which impairs a more reliable interpretation of data on diseases, as it distorts reality about the picture or panorama of health problems.¹⁷

CONCLUSION

The profile of mortality from EH in Brazil follows, in most variables, in a na-

tional increase, showing a significant leap between the years 2019 and 2020. The data found by this article corroborate the knowledge produced in the scientific literature on the subject addressed, presenting EH as a challenging disease with potential for progression to important comorbidities, which mainly affects elderly women over 80 years of age.

The variable that stood out the most was the lack of schooling of most deaths from the disease in the country, a fact that significantly compromises the population's understanding of the severity of the pathology.

These findings are indicative of the need to develop and consolidate not only more effective public policies in this context, but also the importance of further studies on and monitoring of data referring to all dimensions of EH. It is completely urgent and relevant to develop activities and strategies for accessing health care to reduce these events.

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