

EPIDEMIOLOGICAL ASPECTS OF MORBIMORTALITY DUE HUMAN IMMUNODEFICIENCY VIRUS IN THE BRAZILIAN NORTHEAST

Aspectos epidemiológicos da morbimortalidade pelo vírus da imunodeficiência humana no nordeste brasileiro

Aspectos epidemiológicos de la morbimortalidad por el virus de la inmunodeficiencia humana en el nordeste brasileño

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How to quote this article:

Souza Júnior EV, Cruz DP, Caricchio GMN, et al. Epidemiological aspects of morbimortality due human immunodeficiency virus in the brazilian northeast. Rev Fund Care Online. 2021 jan/dez; 13:144-149. DOI: <http://dx.doi.org/10.9789/2175-5361.rpcfo.v13.8025>

ABSTRACT

Objective: to describe the epidemiological aspects of morbimortality due Human Immunodeficiency Virus in the Brazilian northeast between 2013 and 2017. **Methods:** descriptive and cross-sectional study with data collected through the hospital information systems. It were selected the variables: federative units, sex, age groups and color/race. **Results:** it was registered 34.647 hospitalizations in Brazilian northeast. Of these, 4.031 died, corresponding to the mortality of 11,63%. It were evidenced higher morbidity (30,77%) and death (19,40%) in Pernambuco and higher mortality in Alagoas (19,40%). The men have prevailed in the hospitalizations (65,98%), deaths (69,51%) and mortality (12,26%). The adults between 35 and 39 years old had greater morbidity (17,66%) and deaths (17,39%) and the elderly ≥ 80 years old had greater mortality (22,64%). The brown color/race have prevailed in the hospitalizations (51,36%) and deaths (49,71%) and the indigenous in the mortality (50%). **Conclusion:** the epidemiology of infections reflects in the need of health care interventions, mainly in the state of Alagoas for presenting greater mortality due pathology.

Descriptors: Public health; Epidemiology; HIV Seroprevalence.

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RESUMO

Objetivo: descrever os aspectos epidemiológicos da morbimortalidade pelo Vírus da Imunodeficiência Humana no nordeste brasileiro entre 2013 e 2017. **Métodos:** estudo descritivo e transversal realizado com dados do Sistema de Informações Hospitalares. Selecionou-se as variáveis: unidades federativas, sexo, faixa etária, e cor/raça. **Resultados:** registrou-se 34.647 internações no nordeste brasileiro. Destes, 4.031 evoluíram para o óbito, correspondendo a mortalidade de 11,63%. Evidenciou-se maior morbidade (30,77%) e óbito (19,40%) em Pernambuco e maior mortalidade em Alagoas (19,40%). Os homens prevaleceram nas internações (65,98%), óbitos (69,51%) e mortalidade (12,26%). Os adultos entre 35 e 39 anos tiveram maior morbidade (17,66%) e óbitos (17,39%), já os idosos ≥ 80 anos, tiveram maior mortalidade (22,64%). A raça/cor parda prevaleceu nas internações (51,36%) e óbitos (49,71%) e os indígenas na mortalidade (50%). **Conclusão:** a epidemiologia das infecções reflete na necessidade de intervenções em saúde principalmente no estado de Alagoas por apresentar maior mortalidade pela patologia.

Descritores: Saúde pública; Epidemiologia; Soroprevalência de HIV.

RESUMEN

Objetivo: describir los aspectos epidemiológicos de la morbimortalidad por el Virus de la Inmunodeficiencia Humana en el nordeste brasileño entre 2013 y 2017. **Métodos:** estudio descriptivo y transversal realizados con datos del Sistema de información hospitalaria. Fueran seleccionada las variables: unidades federativas, sexo, grupo de edad y color/raza. **Resultados:** se ha registrado 34.647 hospitalizaciones en el nordeste brasileño. De estos, 4.031 evolucionaron a óbito, correspondiendo la mortalidad de 11,63%. Se evidenció una mayor morbilidad (30,77%) y muertes (19,40%) en Pernambuco y mayor mortalidad in Alagoas (19,40%). Los hombres prevalecieron en la morbilidad (65,98%), muertes (69,51%) y mortalidad (12,26%). Los adultos entre 35 y 39 años tuvieron mayor morbilidad (17,66%) y muertes (17,39%), y las personas mayores ≥ 80 años tuvieron mayor mortalidad (22,64%). La color/raza parda prevaleció en las hospitalizaciones (51,36%) y muertes (49,71%) y los indígenas en la mortalidad (50%). **Conclusión:** la epidemiología de las infecciones refleja en la necesidad de intervenciones en la salud principalmente en el estado de Alagoas por presentar mayor mortalidad pela patología.

Descriptor: Salud pública; Epidemiología; Seroprevalencia de VIH.

INTRODUCTION

The *Human Immunodeficiency Virus* (HIV) is catalogued as the etiological agent of *Acquired Immunodeficiency Syndrome* (AIDS).^{1,2} This is a retrovirus of the family *Retroviridae* that has pathogenic activity in CD4 + T lymphocytes, causing their gradual and progressive depletion.¹ HIV infection occurs through sexual or blood channels, or through contact and/or exchange of organic secretions or cells contaminated by the virus.²

Currently, HIV infection consists of a dynamic, unstable and incurable pandemic with significant epidemiological modifications over time,^{1,3} which makes it one of the most challenging public health problems worldwide. Up to 2015, 830,000 cases of infected people were registered in Brazil,

being the only country in Latin America that showed an increase of 11% in the incidence in recent years,⁴ consolidating itself in a prominent position in the world ranking of cases of HIV infections.⁵

Globally, it is estimated that about 20 million people are infected with HIV.⁶ This reality drives the public authorities in intergovernmental covenants with the aim of implementing joint actions that guarantee the control of the infection and consequently, the change in the world public health scenario.^{7,8}

In Brazil, antiretroviral therapies are fully covered by the Unified Health System (SUS - Sistema Único de Saúde).⁹ However, in other countries that provide free treatment, including Brazil, there are records of an increase in AIDS mortality. One of the factors associated with this increase is the socioeconomic vulnerability identified as the main cause of high mortality. Therefore, Health Research and interventions cannot be decontextualized from the socioeconomic aspects of the community and/or the country.¹⁰

Poverty is the apex of the reflection of a country's income concentration.¹¹ The northeast region in Brazil presents a significant disparity in socioeconomic indicators compared to the other Brazilian regions.¹² It is considered the poorest in the country and its political, economic and social aspects are responsible for much of the extra-regional migration that occurs in large scale.¹³

In parts, the therapeutic success of *AIDS* depends significantly on the ease of access to health services, inputs, information, medicines, among others, thus reflecting on political issues.¹⁴ Given the high incidence of poverty in the Northeast region,¹² such success may be compromised and consequently threaten the public health of the region. Therefore, the objective of this study is to describe the epidemiological aspects of morbidity and mortality due to the Human Immunodeficiency Virus in northeastern Brazil between the years 2013 and 2017.

METHODOLOGY

This is a descriptive and cross-sectional study based on secondary data from the Sistema de Informações Hospitalares (SIH - Hospital Information System) in the hospital morbidity section of the Unified Health System (SUS). The SIH is fed by the institutions belonging to SUS and managed by the Municipal and State Health Departments, in which all information regarding Brazilian hospitalizations is recorded and, subsequently, the data are sent to the Executive Secretariat of the Ministry of Health.¹⁵

The study scenario was the Brazilian northeast, one of the 5 regions of the country, organized in 9 Federative Units (UF): Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia, as shown in Table 1. It is estimated for the year 2019 a northeastern population of 57,883,049 inhabitants.¹⁶

Table 1 – Description of the Federative Units. Jequié, BA, Brazil, 2018

Federative Units	HDI*	Territorial extension	Population**	Demographic Density*
Maranhão	0.639	331.936,949 km ²	7.000.229	19.81 inhab/km ²
Piauí	0.646	251.611,929 km ²	3.219.257	12.40 inhab/km ²
Ceará	0.682	148.887,633 km ²	9.020.460	56.76 inhab/km ²
R. G. do Norte	0.684	52.811,107 km ²	3.507.003	59.99 inhab/km ²
Paraíba	0.658	56.468,435 km ²	4.025.558	66.70 inhab/km ²
Pernambuco	0.673	98.076,021 km ²	9.473.266	89.62 inhab/km ²
Alagoas	0.631	27.848,140 km ²	3.375.823	112.33 inhab/km ²
Sergipe	0.665	21.918,443 km ²	2.288.116	94.36 inhab/km ²
Bahia	0.660	564.732,450 km ²	15.344.447	24.82 inhab/km ²

* Human Development Index - Information updated in 2010

** Information updated in 2017

Source: Brazilian Institute of Geography and Statistics (IBGE).¹⁷

Data collection took place in July 2018 and the cases referring to HIV (Human Immunodeficiency Virus Disease and asymptomatic human immunodeficiency virus infection status) were selected. Morbimortality data were correlated to the following variables: year of care of the cases (2013 to 2017), Federal Units, sex (male and female), age group (< 1 year to ≥ 80 years), and color/race (white, black, brown, yellow and indigenous).

The data were translated by means of simple descriptive statistics (absolute and relative frequencies) for all analyses. In addition, the mortality rate was calculated considering the ratio between deaths and the number of hospitalizations, multiplied by 100.¹⁵ Due to the fact that it is a study whose nature of data is secondary source and public domain, there was no need for submission to the Research Ethics Committee, according to Resolution No. 466/2012 of the National Health Council.

RESULT

According to Table 2, it is observed that there were 34,647 hospitalizations in northeast Brazil due to HIV. Of these, 4,031 evolved to death, which corresponded to a mortality rate of 11.63% in the period studied. Analyzing the epidemiological aspects by Federative Units, higher morbidity and death was evidenced in the state of Pernambuco with 10,660 (30.77%) and 782 (19.40%), respectively, and higher mortality in the state of Alagoas, with 19.40%.

Regarding sex, Table 3 shows that the male population showed significantly higher prevalence in hospitalizations 22,860 (65.98%), deaths 2,802 (69.51%) and mortality rate of 12.26%. In addition, they had a rate of more than 30% in the variables of hospitalizations and deaths in relation to females.

Table 2 – Morbidity and mortality according to the year of care and the Federal Units between the years 2013 and 2017. Jequié, BA, Brazil, 2018

Variables	Hospitalizations	%	Deaths	%	Mortality (%)
Year					
2013	757	2.18	96	2.38	12.68
2014	7.933	22.90	995	24.68	12.54
2015	8.360	24.13	1.010	25.06	12.08
2016	9.136	26.37	1.037	25.73	11.35
2017	8.461	24.42	893	12.15	10.55
Total	34.647	100	4.031	100	11.63

UF

Maranhão	1.365	3.94	218	5.41	15.97
Piauí	3.401	9.82	429	10.64	12.61
Ceará	6.677	19.27	760	18.85	11.38
R. G. do Norte	2.665	7.69	358	8.88	13.43
Paraíba	4.067	11.74	396	9.82	9.74
Pernambuco	10.660	30.77	782	19.40	7.34
Alagoas	1.753	5.06	435	10.79	24.81
Sergipe	690	1.99	68	1.69	9.86
Bahia	3.369	9.72	585	14.51	17.36
Total	34.647	100	4.031	100	11.63

Source: Ministry of Health - SUS Hospital Information System (SIH/SUS)

Table 3 – Morbidity and mortality according to sex between 2013 and 2017. Jequié, BA, Brazil, 2018

Sex	Hospitalizations	%	Deaths	%	Mortality (%)
Male	22.860	65.98	2.802	69.51	12.26
Female	11.787	34.02	1.229	30.49	10.43
Total	34.647	100	4.031	100	11.63

Source: Ministry of Health - SUS Hospital Information System (SIH/SUS)

With regard to the age group, it is possible to infer according to Table 4 that the offensive of HIV presents increasing behavior over the years. It is noted that adults aged between 35 and 39 had a higher prevalence of hospitalizations with 6,117 (17.66%) and deaths with 701 (17.39%). Elderly people aged 80 years or older had higher mortality, accounting for 22.64% of the total.

Table 4 – Morbidity and mortality according to age group between 2013 and 2017. Jequié, BA, Brazil, 2018

Age group	Hospitalizations	%	Deaths	%	Mortality (%)
< 1	275	0.79	12	0.30	4.36
1 to 4	369	1.07	5	0.12	1.36
5 to 9	252	0.73	3	0.07	1.19
10 to 14	291	0.84	7	0.17	2.41
15 to 19	618	1.78	48	1.19	7.77
20 to 24	1.845	5.33	193	4.79	10.46
25 to 29	3.891	11.23	425	10.54	10.92
30 to 34	5.543	16.00	635	15.75	11.46
35 to 39	6.117	17.66	701	17.39	11.46
40 to 44	5.086	14.68	590	14.64	11.6
45 to 49	4.328	12.49	555	13.77	12.82
50 to 54	2.675	7.72	344	8.53	12.86
55 to 59	1.608	4.64	225	5.58	13.99
60 to 64	924	2.67	140	3.47	15.15
65 to 69	417	1.20	82	2.03	19.66
70 to 74	226	0.65	34	0.84	15.04
75 to 79	129	0.37	20	0.50	15.5
≥ 80	53	0.15	12	0.30	22.64
Total	34.647	100	4.031	100	11.63

Source: Ministry of Health - SUS Hospital Information System (SIH/SUS)

Finally, Table 5 presents the morbimortality stratified by the variable color/race. There is a higher prevalence of hospitalizations 17,796 (51.36%) and deaths 2,004 (49.71%) in self-declared brown people and higher mortality among indigenous people (50%). The lack of information on ethnic variables high percentage is also highlighted.

Table 5 – Morbidity and mortality according to color/race between 2013 and 2017. Jequié, BA, Brazil, 2018

Color/race	Hospitalizations	%	Deaths	%	Mortality (%)
White	1.546	4.46	145	3.60	9.38
Black	660	1.90	72	1.79	10.91
Brown	17.796	51.36	2.004	49.71	11.26
Yellow	1.489	4.30	152	3.77	10.21
Indigenous	2	0.01	1	0.02	50
No information	13.154	37.97	1.657	41.11	12.6
Total	34.647	100	4.031	100	11.63

Source: Ministry of Health - SUS Hospital Information System (SIH/SUS)

DISCUSSION

In Brazil, one of the biggest public health problems is the considerable advance in the number of cases of HIV/AIDS patients. Thus, it is necessary to carry out a search for information that describes the current reality, in order to reduce difficulties in coping with the disease, thus providing qualified assistance.⁸

The Brazilian northeast suffers from weaknesses in financial transfers to the region, which favors the exposure of the population to economic precariousness and generates difficulties in access to basic health services.¹⁸ Moreover, disadvantaged individuals are also more likely to develop pathologies, such as HIV infection, since there is an increase in vulnerability due to reduced access to health information and services.¹⁹

Based on this assumption, the state of Pernambuco showed a higher prevalence of hospitalizations with 10,660 (30.77%) and deaths with e 782 (19.40%), as shown in Table 2. This characteristic presents itself as a growing evolution, corroborating with the AIDS epidemic that began in 1983 in the state, where the first case was reported in the Hospital das Clínicas of the Federal University of Pernambuco.²⁰ Through this aspect, it is possible to understand that over the years, the state remained presenting higher numbers in the variables of hospitalizations and deaths.

On the other hand, the state of Alagoas presented a higher mortality rate with 24.81%, which refers to a study²¹ that used the education variable to observe the discrepancies of individuals in this locality regarding access to resources, information and health services. From this, significant numbers of underreporting of deaths due to AIDS were evidenced and, among the records whose criteria was met, it was noted the high prevalence of people with low education among the reported deaths in the Alagoas population. Thus, there is a significant precariousness of health information that facilitates the transmission chain and difficulties in seeking and adhering to therapy.

The male population significantly demonstrates a higher prevalence in hospitalizations, deaths and mortality compared to the female population, as shown in Table 3. Thus, we understand the existence of regional discrepancies regarding sex, in which the North and Northeast regions present a ratio of 17 male cases for every 10 cases in the female population.²² In this segment, it is possible to observe, culturally, the more active participation of women in health services in order to ensure the prevention of diseases and other aggravations, which contributes to the lower morbidity and mortality values in this population.²³

In this perspective, the fact that the male population has resistance to adherence to health services contributes significantly in the rates greater than 30% of the variables of hospitalizations and deaths in relation to the female sex,

as shown in Table 3. Thus, it is possible to notice that some men present this feeling due to the insecurity they have in knowing their health situation, that is, they delay the diagnosis for fear of discovering something.²⁴ This finding, therefore, is considered by many authors something harmful for daily life and that can interfere with living and health conditions, generating the elimination of coping strategies.²⁵

The gradual advance of age is accompanied by the increasing appearance of morbidities in general and by the mortality caused by HIV/AIDS Infection. In the present study, the age group between 35 and 39 was responsible for the higher prevalence of hospitalizations with 6,117 (17.66%) and deaths with 701 (17.39%), according to Table 4. This fact can be attributed to the greater exposure of this age group to risk factors for the emergence of this infection. Among them, we highlight the non-use of condoms due to the feeling of non-vulnerability that many of them have.²⁶

The elderly, aged 80 years or older, had higher mortality (22.64%), which is an inherent factor in the decrease in functional capacity that the elderly acquire over the years as physical and cognitive difficulties that cause problems for the individual and the society in which the latter is inserted.⁸ When there is a late diagnosis for HIV/AIDS, the infection is postponed and the chances of survival are reduced.²⁷ In addition to these aspects, the heterosexual route is one of the most prevalent transmission routes, and therefore, specific campaigns are needed for interventions on safe sex also among the elderly.²⁶

The stratification by color/race occurred with significant changes, where individuals self-reported as brown are more affected in relation to hospitalizations and deaths, as shown in Table 5. In this perspective, it is emphasized that this population has an active sex life associated with reduced levels of information, due to the low level of Education evidenced in most of this ethnic/racial follow-up.²⁶ Based on this assumption, it is necessary that multiprofessional teams increase health education aimed at the dissemination of basic information, such as the use of condoms and other methods of prevention against HIV/AIDS, considering the necessary specificities and paying attention to the particularities of each individual.²⁷

The indigenous population stood out for showing the highest mortality rate, since the reality of Health in the indigenous context is lower compared to that of the general population. They are also affected by infectious diseases and these are attributed to the characteristic of greater relevance among the other pathologies that affect this population, especially chronic diseases that present a lower prevalence. Therefore, Health in this environment is somewhat weakened, which makes diagnosis and treatment difficult, resulting in deaths.²⁸

CONCLUSION

The present study made it possible to describe the epidemiological aspects of HIV morbidity and mortality in the Brazilian Northeast. It was found that the highest

prevalence of hospitalizations and deaths occurred in the state of Pernambuco, among males, aged between 35 and 39 years old and in self-reported brown people. Mortality stood out in the state of Alagoas, among males, age group 80 years or older, and among indigenous people. It is noteworthy that during the study period, mortality from HIV presented decreasing behavior and there is a need for health interventions mainly in the state of Alagoas because of higher mortality from the infection.

It is noteworthy that the data of the present study were collected through a secondary source of SIH. From this perspective, the data can show underreporting and, therefore, the inaccuracy of the records. However, it is a tool capable of elucidating the epidemiological information of the health problems of the Brazilian population, and consequently, the direction of strategies to ensure the promotion, protection and rehabilitation of health throughout the national territory.

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Received on: 24/08/2018
Reviews required: 30/01/2019
Approved on: 15/02/2019
Published on: 05/01/2021

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