

# TEMPORAL ANALYSIS OF SUICIDE MORTALITY IN THE BRAZIL NORTHEAST

*ANÁLISE TEMPORAL DA MORTALIDADE POR SUICÍDIO NO NORDESTE*

*ANÁLISIS TEMPORAL DE LA MORTALIDAD POR SUICIDIO EN EL NORDESTE DE BRASIL*

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## ABSTRACT

Suicide is a serious public health issue that requires detailed analysis for the formulation of effective policies. This study examined suicide mortality in the Northeast Region of Brazil between 2013 and 2022 with the aim of identifying trends and regional patterns. Using data from the Mortality Information System (SIM), 30,047 deaths classified by age, sex, marital status, and location of occurrence were analyzed. The methodology included an ecological time series design and Prais-Winsten generalized linear regression to correct for serial autocorrelation. A 48% increase in the suicide mortality rate was observed, rising from 4.47 to 6.61 per 100,000 inhabitants. The average annual percentage change (APC) was 5.03%, indicating an increasing trend. The results highlight the urgent need for targeted regional policies for suicide prevention and strengthening mental health support.

**Keywords:** *Heart Transplant; Social Protection; Social Service; Health.*

## RESUMO

O suicídio é um grave problema de saúde pública que exige uma análise detalhada para a formulação de políticas eficazes. Este estudo examinou a mortalidade por suicídio na Região Nordeste do Brasil entre 2013 e 2022 com o objetivo de identificar tendências e padrões regionais. Utilizando dados do Sistema de Informações sobre Mortalidade (SIM), foram analisados 30.047 óbitos classificados por idade, sexo, estado civil e local de ocorrência. A metodologia incluiu um desenho ecológico de série temporal e regressão linear generalizada de Prais-Winsten para corrigir a autocorrelação serial. Observou-se um aumento de 48% na taxa de mortalidade por suicídio, que subiu de 4,47 para 6,61 por 100 mil habitantes. A variação percentual anual (APC) média foi de 5,03%, indicando uma tendência crescente. Os resultados destacam a necessidade urgente de políticas regionais direcionadas para a prevenção do suicídio e o fortalecimento do suporte à saúde mental.

**Descritores:** *Suicídio; Mortalidade; Serviço Social; Análise Espaço-Temporal.*

## RESUMEN

El suicidio es un grave problema de salud pública que exige un análisis detallado para la formulación de políticas eficaces. Este estudio examinó la mortalidad por suicidio en la Región Nordeste de Brasil entre 2013 y 2022 con el objetivo de identificar tendencias y patrones regionales. Utilizando datos del Sistema de Información sobre Mortalidad (SIM), se analizaron 30.047 muertes clasificadas por edad, sexo, estado civil y lugar de ocurrencia. La metodología incluyó un diseño ecológico de serie temporal y regresión lineal generalizada de Prais-Winsten para corregir la autocorrelación serial. Se observó un aumento del 48% en la tasa de mortalidad por suicidio, que subió de 4,47 a 6,61 por cada 100.000 habitantes. El cambio porcentual anual (APC) promedio fue del 5,03%, indicando una tendencia creciente. Los resultados destacan la necesidad urgente de políticas regionales dirigidas a la prevención del suicidio y al fortalecimiento del apoyo a la salud mental.

**Descriptores:** *Trasplante de Corazón; Protección Social; Servicio Social; Salud.*

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## INTRODUCTION

Suicide is defined as the volitional act, initiated, and completed by the individual himself, with the intention of causing his own death consciously and intentionally<sup>1</sup>. This phenomenon is complex and multifactorial, resulting from the interaction of several social, economic and, mainly, psychological aspects. According to Penso and Sena<sup>2</sup>, suicide is a voluntary and intentional action, which seeks to cease the life of the practitioner after a process of reflection and planning, in which death is seen as a way to end suffering.

Globally, suicide is a significant public health problem. Data from the World Health Organization<sup>3</sup> indicate that more than 700,000 people commit suicide annually. Suicide is the fourth leading cause of death among young people aged 15 to 29, with a particularly high incidence in low-income countries and a notably higher prevalence among men.

In Brazil, the scenario is equally alarming. Suicide rates have shown a significant growth in recent years, configuring themselves as a serious public health issue. According to data from the Ministry of Health, between 2010 and 2019, Brazil recorded 112,230 deaths by suicide, with a 43% increase in the annual number of deaths, from 9,454 in 2010 to 13,523 in 2019<sup>4</sup>. This increase underscores the urgent need for effective strategies for suicide prevention.

Given this overview, it is essential to understand the regional specificities of the problem. The Northeast Region of Brazil, in particular, has demographic and socioeconomic characteristics that can influence suicide rates<sup>5</sup>. In this context, the present study examined suicide mortality in the Northeast Region of Brazil between 2013 and 2022, with the aim of identifying regional trends and patterns. Studies such as this one is of great importance, as they not only promote an in-depth reflection on the occurrence of suicide, but also contribute to the development of policies and strategies aimed at reducing suicide rates and improving mental health support in the region.

## METHOD

This study adopts an ecological time series design to analyze suicide mortality rates in the Northeast Region of Brazil, focusing on the period from 2013 to 2022. The primary source of data was the Mortality Information System (MIS/SIM), accessed through the Department of Information of the Unified Health System (Datusus) of the Ministry of Health. SIM provides detailed information on deaths registered throughout the country, enabling the specific extraction of data on suicides. All deaths of individuals aged 10 years or older, living in the Northeast Region, and whose underlying cause of death was identified as suicide, according to the International Classification of Diseases (CID/ICD-10) were included. The codes used to identify suicides range from X60 to X84, including several categories such as self-poisoning by drugs and substances (X60-X64), intentional self-harm by methods such as hanging, drowning, and firearms (X70-X74), among others.

For the analysis, several relevant variables were considered: sex (male and female), age group (10 to 19 years, 20 to 39 years, 40 to 59 years, and 60 years or older), place of occurrence (domicile and others), and marital status (single, married, widowed,

divorced/separated, and other). Suicide mortality rates were calculated per 100 thousand inhabitants, using population data provided by the Brazilian Institute of Geography and Statistics<sup>5</sup>.

To evaluate the temporal evolution of mortality rates, the Prais-Winsten generalized linear regression technique was used, which corrects for serial autocorrelation of the data. The Annual Percent Change (APC) and the respective 95% confidence intervals (95%CI) were calculated to identify trends over time. Trends were classified based on p-value and linear coefficient: increasing trends were identified when  $p < 0.05$  and the linear coefficient was positive; decreasing trends were observed when  $p < 0.05$  and the linear coefficient was negative; and stationary trends were defined when  $p > 0.05$  and the linear coefficient was not statistically different from zero<sup>6</sup>.

Data analysis was performed using the STATA statistical software, version 16.0. Considering that the study used secondary data without identifying the participants, there was no need to submit it to the Research Ethics Committee. The study was conducted in accordance with Resolution No. 466/2012 of the National Health Council, which establishes ethical guidelines for research involving secondary data.

## RESULTS

In a 10-year period (2013 to 2022), the Northeast Region of Brazil recorded 30,047 deaths by suicide, called voluntary self-harm injuries. Table 1 presents information on the epidemiological profile of these occurrences, and the variables analyzed include marital status, age, gender, and place of occurrence.

Regarding marital status, it was observed that 72% of suicides occurred among single, widowed, or separated individuals, totaling 18,667 cases. In contrast, 28% of suicides were recorded among married people, totaling 7,143 cases.

**Table 1 – Epidemiological profile of suicide mortality. Nordeste, Brazil, 2013-2022.**

Variable	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	%
<b>Marital status</b>												
Single/widowed/ separate	1.492	1.418	1.521	1.669	1.851	1.836	1.916	2.032	2.451	2.481	18.667	72%
Married	623	639	646	674	734	723	701	720	854	829	7.143	28%
<b>Age</b>												
10 to 19 years old	206	213	219	233	277	221	269	262	316	322	2.538	8%
20 to 39 years old	1.070	1.078	1.053	1.148	1.213	1.247	1.295	1.281	1.541	1.548	12.474	42%
40 to 59 years old	769	723	810	848	953	972	993	1.060	1.221	1.300	9.649	32%
60 +	440	374	450	483	532	544	524	626	698	655	5.326	18%
<b>Place of occurrence</b>												
Domicile	1.491	1.417	1.492	1.642	1.781	1.866	1.945	2.057	2.436	2.433	18.560	62%
Other	987	964	1.033	1.071	1.197	1.114	1.131	1.170	1.338	1.393	11.398	38%
<b>Sex</b>												
Female	494	491	536	544	590	592	614	638	756	793	6.048	20%
Male	1.998	1.905	2.001	2.174	2.389	2.397	2.467	2.596	3.030	3.037	23.994	80%

**Source:** Produced by the actors, 2024.

Regarding the age distribution, the 20 to 39 age group has the highest incidence of suicides, with 42% of the cases (12,474 suicides). The age group of 40 to 59 years follows with 32% of the cases (9,649 suicides) and the age group of 60 years and over with 18% of the cases (5,326 suicides). Finally, the age group from 10 to 19 years old represents 8% of the total (2,538 cases).

In terms of place of occurrence, most suicides occurred at home, representing 62% of the total (18,560 cases). In contrast, 38% of suicides (11,398 cases) occurred in other locations.

As for the sex of the affected individuals, the data reveal that 80% of suicides (23,994 cases) were committed by men. While women were responsible for 20% (6,048 cases).

The analysis of standardized suicide mortality rates per 100 thousand inhabitants in the Northeast Region of Brazil, between 2013 and 2022, reveals significant variations between states and a general upward trend over the period (Table 2).

**Table 2 – Standardized suicide mortality rate per 100 thousand inhabitants according to year. Nordeste, Brazil, 2013-2022.**

UF	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Variation 2013/2022
<b>Maranhao</b>	3,55	3,72	4,10	4,17	4,50	4,38	4,73	4,74	5,31	5,40	52%
<b>Piaui</b>	7,22	7,67	8,49	10,09	9,91	10,20	9,99	8,54	11,49	11,10	54%
<b>Ceará</b>	6,72	6,40	6,34	6,60	7,14	7,22	6,88	6,60	8,87	8,50	26%
<b>Rio Grande do Norte</b>	4,59	4,87	4,50	5,12	5,10	5,66	5,67	6,65	7,21	6,66	45%
<b>Paraíba</b>	5,03	3,98	5,61	4,52	6,21	5,88	6,30	6,36	6,82	8,01	59%
<b>Pernambuco</b>	3,55	3,51	3,26	4,25	4,64	4,57	4,67	4,70	5,61	4,97	40%
<b>Alagoas</b>	4,27	3,52	3,50	3,33	3,08	4,12	3,86	4,98	4,72	5,68	33%
<b>Sergipe</b>	5,78	5,09	5,35	5,16	5,46	5,92	5,00	5,69	5,72	6,95	20%
<b>Bahia</b>	3,22	2,98	3,7	3,44	3,94	3,75	4,37	4,92	5,60	5,85	82%
<b>Northeast</b>	<b>4,47</b>	<b>4,26</b>	<b>4,48</b>	<b>4,78</b>	<b>5,20</b>	<b>5,27</b>	<b>5,40</b>	<b>5,64</b>	<b>6,57</b>	<b>6,61</b>	<b>48%</b>

Source: Produced by the actors, 2024.

In the general panorama, the suicide mortality rate in the Northeast Region increased from 4.47 per 100 thousand inhabitants in 2013 to 6.61 in 2022, resulting in a total variation of 48%.

Among the states, Bahia recorded the highest percentage change, with an increase of 82%, from 3.22 per 100 thousand inhabitants in 2013 to 5.85 in 2022. In contrast, Sergipe recorded the lowest percentage change, with an increase of 20%, from 5.78 in 2013 to 6.95 in 2022.

The analysis of the means of standardized suicide mortality rates per 100 thousand inhabitants, as well as the percentage annual variation rates (APC) and trends for each state in the Northeast Region of Brazil, between 2013 and 2022, are shown in Table 3.

**Table 3 - Trend and Annual Percent Change (APC) of the suicide mortality rate (per 100 thousand inhabitants). Northeast, 2013-2022.**

UF	Average mortality rate	APC (%)	IC95%	Tendency
<b>Maranhao</b>	4,46	4,51	3,90; 5,13	Crescent
<b>Piauí</b>	9,57	4,59	2,22; 7,01	Crescent
<b>Ceará</b>	7,13	2,91	0,83; 5,03	Crescent
<b>Rio Grande do Norte</b>	5,61	5,34	3,90; 6,81	Crescent
<b>Paraíba</b>	5,87	6,15	5,18; 7,12	Crescent
<b>Pernambuco</b>	4,37	5,36	3,42; 7,34	Crescent
<b>Alagoas</b>	4,11	4,24	-0,30; 8,98	Stationary
<b>Sergipe</b>	5,61	1,64	-0,07; 3,37	Stationary
<b>Bahia</b>	4,13	7,86	6,00; 9,75	Crescent
<b>Northeast</b>	<b>5,27</b>	<b>5,03</b>	<b>3,97; 6,11</b>	<b>Crescent</b>

**Source:** Produced by the actors, 2024.

The average suicide mortality rate in the Northeast Region was 5.27 per 100,000 inhabitants, with a CPA of 5.03% (95%CI: 3.97; 6.11%), reflecting a general upward trend throughout the region.

Among the states, Piauí has the highest average mortality rate, with 9.57 per 100 thousand inhabitants, and also a high percentage annual variation rate (APC), of 4.59%. The positive APC and the confidence interval (95%CI) of 2.22 to 7.01% indicate a significant increasing trend in Piauí.

In contrast, Alagoas and Sergipe showed stationary trends. Alagoas had a mean mortality rate of 4.11 and an APC of 4.24% (95%CI: -0.30; 8.98%), indicating stability with a variation that is not statistically significant. Sergipe, with an average rate of 5.61 and an APC of 1.64% (95%CI: -0.07; 3.37%), also shows a stationary trend.

## DISCUSSION

Suicide is a serious public health problem that affects individuals in all parts of the world, with profound implications for society, the economy, and people's well-being<sup>7</sup>. In Brazil, the suicide rate has been a growing concern, especially in regions such as the Northeast, where socioeconomic, cultural, and structural factors can influence incidence rates<sup>8</sup>. The Brazilian Northeast, one of the most populous regions with distinct socioeconomic characteristics, has faced significant challenges related to mental health and suicide prevention<sup>9</sup>. Data on suicides provide crucial information for understanding trends and formulating effective public policies.

Suicide is the second leading cause of death among young people aged 15 to 29 globally and most suicide deaths occur in low- and middle-income countries. This disparity underscores the urgent need for prevention approaches adapted to the context of each country, considering cultural, social, and economic particularities<sup>10</sup>.

A recent study, which evaluated the effectiveness of universal suicide prevention interventions in OECD member countries, showed that interventions such as legislative reforms and the implementation of physical barriers resulted in significant reductions in suicide mortality. These interventions proved to be more effective in reducing suicide among men than among women, pointing to the need to adapt strategies according to gender and regional specificities<sup>11</sup>.

This study analyzes deaths by suicide in the Northeast between 2013 and 2022. Understanding suicide occurrences in the region is essential to develop targeted interventions and more effective prevention strategies. The data reveal significant variations in the characteristics of victims over time and highlight critical areas that require attention.

The data indicate that most deaths by suicide occur among men, who represent 80% of the total cases. Recent studies on suicide in municipalities in the Northeast corroborate this finding<sup>12</sup>. The number of male suicides increased substantially, from 1,998 in 2013 to 3,037 in 2022. This pattern can be attributed to factors such as stigmas associated with seeking help, economic and social pressures, and gender behavior patterns that affect men more strongly<sup>13</sup>.

Regarding the age group, the analysis reveals that the 20 to 39 age group is the most affected, accounting for 42% of suicides. The number of suicides in this age group increased significantly, from 1,070 in 2013 to 1,548 in 2022. This growth may be related to factors such as social pressures, economic difficulties, and work-related stress, which are more prevalent among individuals in this age group<sup>14,15,19</sup>. Although the age group of 60 years and over represents a smaller percentage of cases (18%), a gradual increase is also observed, which may be associated with mental health problems related to aging and social isolation<sup>17</sup>.

Regarding marital status, the data indicate that most deaths by suicide occur among single, widowed, or separated individuals, who represent 72% of the total cases. This group showed a steady increase over the study period, from 1,492 cases in 2013 to 2,481 in 2022. The predominance of suicides among these individuals may suggest greater vulnerability associated with the lack of social support and support networks, aspects that are crucial for mental health<sup>18</sup>.

Finally, the analysis of the place of occurrence reveals that most cases occur in the home environment, a finding that reinforces the need for preventive strategies focused on homes, as critical places for intervention and mental health support<sup>19</sup>.

In addition to aspects related to personal characteristics, it is crucial to examine overall suicide mortality trends to gain a more comprehensive understanding of the situation. The suicide mortality rate in the Northeast Region rose from 4.47 in 2013 to 6.61 in 2022, an increase of 48%. This growth is significant and indicates a worsening of the mental health situation in the region. Notably, Bahia had the highest percentage increase (82%), which may reflect a combination of specific factors, such as changes in



socioeconomic conditions or failures in the approach to mental health services. Other states, such as Piauí and Paraíba, also showed substantial increases (54% and 59%, respectively), which points to a generalized regional trend.

The increase in suicide rates can be associated with several factors, including changes in economic conditions, increased social stress, and deficiencies in the mental health system. The recent economic and social crisis, exacerbated by the COVID-19 pandemic, may have contributed to the increase in stress and anxiety, influencing suicide rates (De Oliveira Soares, 2021)<sup>16</sup>. Previous studies show that economic crises and public health disasters often have a significant negative impact on the mental health of populations<sup>20</sup>.

The average suicide mortality rate in the Northeast Region in the period studied is 5.27, with an APC of 5.03%, indicating a general increasing trend. This suggests a continued rise in the suicide rate, reflecting a persistent regional concern about mental health.

The states of Piauí, Ceará, Rio Grande do Norte, and Pernambuco have high average rates and increasing APC, which indicates a continuing concern about rising suicide rates. Piauí, in particular, with the highest average rate (9.57) and an APC of 4.59%, highlights the need for urgent intervention. These data may reflect the lack of access to adequate mental health services and the need for more robust prevention and support programs<sup>21</sup>.

Alagoas and Sergipe have average rates and APC that suggest a stationary trend. Although growth is not as sharp as in other states, stability at relatively high levels is still worrisome.

These results underscore the urgent need for mental health policies adapted to regional specificities and a multifaceted approach that addresses socioeconomic inequalities, access to mental health services, and cultural variables that influence suicidal behavior in the Northeast.

## CONCLUSION

The present study provides a detailed analysis of the occurrence of suicides in the Northeast Region of Brazil between 2013 and 2022, highlighting a worrying 48% increase in suicide mortality rates. This growth reflects a general upward trend in the number of deaths, highlighting an urgent public health issue that demands immediate attention.

Among the limitations of the study, the use of secondary data stands out, which may be subject to underreporting and failures in records. In addition, the analysis is based on aggregated data, which may hide important nuances in the social and cultural dynamics that influence suicidal behavior in different subgroups. Another limiting aspect is the lack of data on interventions already carried out in the region, which would make it difficult to assess the impact of these actions on suicide rates.

On the other hand, the potential of the data analyzed is significant. The temporal and geographical scope allows us to identify trends and patterns that are crucial for the formulation of effective public policies. The results obtained offer a comprehensive view of the phenomenon, indicating the need for targeted strategies, especially for vulnerable

groups, such as men and young adults. In addition, the study underscores the importance of a multifaceted approach that integrates social, economic, and cultural issues into suicide prevention.

Thus, it is essential to continue research and develop public health policies that address regional specificities, ensure adequate psychological support, and promote the mental health of the population in the Northeast Region. The evidence highlights the urgent need to implement more robust actions to combat suicide and direct greater resources to mental health treatment.

## REFERENCES

1. PENSO, M. A. SENA, D. P. A. A desesperança do jovem e o suicídio como solução. *Revista Sociedade e Estado – Volume 35, Número 1, Janeiro/Abril 2020*. Disponível em: <https://www.scielo.br/j/se/a/rLfXhwgd7qgpBzMSrjwFXmj/>. Acesso em 06 de janeiro de 2024.
  2. CONSELHO REGIONAL DE PSICOLOGIA DO DISTRITO FEDERAL. Orientações para a atuação profissional frente a situações de suicídio e automutilação. Brasília: CRP, 2020. 48p.
  3. WORLD HEALTH ORGANIZATION. International Association for suicide Prevention. Annual report 2022. WHO, 2022. Disponível em: <https://www.iasp.info/wp-content/uploads/2022-IASP-Annual-Report->. Acesso em 06 de janeiro de 2022.
  4. BRASIL. Ministério da Saúde, Secretaria de Vigilância em Saúde. Boletim Epidemiológico: Suicídio. Saber, agir e prevenir, v.52, n. 33, 2023.
  5. IBGE. Estatísticas do Séc. XX. Disponível em: Suicídio ([ibge.gov.br](http://ibge.gov.br)).
  6. ANTUNES JLF, CARDOSO MRA. Uso da análise de séries temporais em estudos epidemiológicos. *Epidemiol Serv Saude*. 2015 jul-set;24(3):565-76.
  7. WORLD HEALTH ORGANIZATION. Suicide worldwide in 2019: global health estimates. WHO, 2021. Disponível em: <https://iris.who.int/bitstream/handle/10665/341728/9789240026643-eng.pdf?sequence=1>. Acesso em 06 de janeiro de 2024.
  8. SILVA, Bráulio Figueiredo Alves da et al. O suicídio no Brasil contemporâneo. *Sociedade e Estado*, v. 33, p. 565-579, 2018.
  9. GONÇALVES, Ludmilla RC; GONÇALVES, Eduardo; OLIVEIRA JÚNIOR, Lourival Batista de. Determinantes espaciais e socioeconômicos do suicídio no Brasil: uma abordagem regional. *Nova Economia*, v. 21, p. 281-316, 2011.
  10. WHO. (2014). Preventing suicide: a global imperative. Retrieved from <http://apps.who.int/iris/bitstream/10665/131056/1/9789241564779>
  11. DA SILVA, Daniel Augusto; MARCOLAN, João Fernando. Tendência da taxa de mortalidade por suicídio no Brasil. *Revista Baiana de Enfermagem*, v. 36, 2022.
  12. RIBEIRO, JM, Moreira MR. An approach to suicide among adolescents and youth in Brazil. *Cien Saude Colet* 2018; 23(9):2821-2834.
- SANT'ANA, M. A. V. Evolução e perfis sociodemográficos do suicídio no Brasil: uma análise entre os anos de 2000 e 2017. Fiocruz. 2020.



13. SOBRINHO AT, CAMPOS RC. Percepção de acontecimentos de vida negativos, depressão e risco de suicídio em jovens adultos. *Anal Psicol* 2016; 34(1):47-60.
14. DA ROSA, Ana Elisa Sena Klein. Suicídio e fragilidade social na velhice, uma triste realidade. *Revista Longeviver*, n. 12, 2011.
15. QUINODOZ, J. M. (1996) The sense of solitude in the psychoanalytic encounter. *The International Journal of Psychoanalysis*. E 77 , 481–496
16. DE OLIVEIRA SOARES, Raquel Juliana. COVID-19 e Riscos Psicossociais: um alerta sobre o Suicídio. *Brazilian Journal of Health Review*, v. 4, n. 1, p. 1859-1870, 2021.
17. LOVISI, Giovanni Marcos et al. Análise epidemiológica do suicídio no Brasil entre 1980 e 2006. *Brazilian Journal of Psychiatry*, v. 31, p. S86-S93, 2009.
18. SCHUCK, Fernanda Wartchow et al. A influência da pandemia de COVID-19 no risco de suicídio. *Brazilian Journal of health Review*, v. 3, n. 5, p. 13778-13789, 2020.
19. MEDEIROS, Soraya Maria de; GUIMARÃES, Jacileide. Cidadania e saúde mental no Brasil: contribuição ao debate. *Ciência & Saúde Coletiva*, v. 7, p. 571-579, 2002.