

Mortality due to cervical cancer in a capital of the Brazilian Amazon

Mortalidade por câncer de colo do útero em uma capital da Amazônia brasileira

Mortalidad por cáncer cervical em una capital de la Amazonia brasileña

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Abstract

Objective: To analyze mortality from cervical cancer in the city of Belém-Pará-Brazil. **Methods:** Epidemiological, cross-sectional, descriptive study with data on mortality from cervical cancer for the period 2013-2020, obtained from the Mortality Information System and made available by the Pará State Department of Public Health. All reported deaths of women living in the municipality of Belém were included. Data were obtained in June 2022. A descriptive analysis of the socio-epidemiological profile was carried out; mortality rates were calculated according to the year of occurrence; and trend analysis was performed using simple linear regression. **Results:** A total of 695 deaths were analyzed, with the highest proportion identified in women aged between 50 and 69 years old (43%; n=149), housewives (59%; n=410), single women (39.9%; n=277) and low education, proportionally. The rates were high and tended to increase in the series studied. The period 2015-2017 stands out as the most significant indices. **Conclusion:** The evidence obtained points to a higher proportion of deaths from CC among women with low education, housewives, single women, aged between 50 and 69 years old. The findings suggest improving actions to promote women's health and prevent cervical cancer, with improvements in screening actions for the disease.

Descriptors: Epidemiological Profile; Mortality; Cervical Cancer; Oncology Nursing; Public Health.

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What is already known on this?

Currently, there is research in underdeveloped countries on the topic. In Brazil, there is work on the causes of CC, how to prevent it and in different States there is work on the epidemiological profile.

What this study adds?

It presents the mortality profile due to CC, contributing to the understanding of how the disease presents itself and, consequently, developing new policies and actions capable of reducing the high rates.



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Resumo

Objetivo: Analisar a mortalidade por câncer de colo do útero na cidade de Belém-Pará-Brasil. **Métodos:** Estudo epidemiológico, transversal, descritivo com dados de mortalidade por câncer de colo do útero relativos ao período 2013-2020, obtidos do Sistema de Informação sobre Mortalidade e que foram disponibilizados pela Secretaria de Estado de Saúde Pública do Pará. Foram incluídos todos os óbitos notificados de mulheres residentes no município de Belém. A obtenção dos dados deu-se em junho de 2022. Foi feita análise descritiva do perfil socioepidemiológico; foram calculadas as taxas de mortalidade, segundo o ano de ocorrência; e realizada a análise de tendência por meio de regressão linear simples. **Resultados:** Foram analisados 695 óbitos, sendo a maior proporção identificada em mulheres com idade entre 50 e 69 anos (43%; n=149), donas de casa (59%; n=410), solteiras (39,9%; n=277) e baixa escolaridade, proporcionalmente. As taxas mostraram-se elevadas e com tendência de crescimento na série estudada. Destaca-se o período 2015-2017 índices mais significativos. **Conclusão:** As evidências obtidas remetem à maior proporção de óbitos por CCU entre mulheres com baixa escolaridade, donas de casa, solteiras, na faixa etária de 50 e 69 anos. Os achados sugerem o aprimoramento das ações de promoção da saúde da mulher e a prevenção do câncer de colo do útero, com aperfeiçoamento das ações de rastreamento da doença.

Descritores: Perfil Epidemiológico; Mortalidade; Câncer de Colo do Útero; Enfermagem Oncológica; Saúde Pública.

Resumen

Objetivo: Analizar la mortalidad por cáncer de cuello uterino en la ciudad de Belém-Pará-Brasil. **Métodos:** Estudio epidemiológico, transversal, descriptivo con datos de mortalidad por cáncer cervical durante el período de 2013-2020, extraídos del Sistema de Información de Mortalidad, brindados por la Secretaría de Salud Pública del Estado de Pará. Se incluyeron todas las muertes reportadas de mujeres residentes en el municipio de Belém. Los datos fueron obtenidos en junio de 2022. Se realizó un análisis descriptivo del perfil socioepidemiológico; las tasas de mortalidad se calcularon según el año de ocurrencia; y el análisis de tendencias se realizó mediante regresión lineal simple. **Resultados:** Se analizaron 695 defunciones, identificándose la mayor proporción en mujeres con edades entre 50 y 69 años (43%; n=149), amas de casa (59%; n=410), solteras (39,9%; n=277) y de baja instrucción escolar, proporcionalmente. Las tasas fueron elevadas y tendieron a aumentar en las series estudiadas. Se destaca el periodo de 2015-2017 que obtuvo índices más significativos. **Conclusión:** La evidencia obtenida apunta a una mayor proporción de muertes por CC entre mujeres con baja escolaridad, amas de casa, solteras, con edades entre 50 y 69 años. Los hallazgos sugieren la necesidad de mejorar las acciones de promoción de salud de las mujeres y prevención del cáncer de cuello uterino, como también el perfeccionamiento de las acciones de detección de la enfermedad.

Descriptores: Perfil epidemiológico; Mortalidad; Cáncer cervical; Enfermería oncológica; Salud pública.

INTRODUCTION

The fight against cervical cancer (CC) has been prioritized on the global agenda due to the high number of cases, approximately 570,000, and 311,000 deaths recorded in the world.⁽¹⁾ Furthermore, in the global context, the adjusted mortality rate, in 2020, was 4.60 deaths/100,000 women. In Brazil, it is the third most common malignancy in women, with an estimated 16,710 new cases for the year 2022, which represents an incidence risk of 15.38 cases per 100,000 women.⁽²⁾

Specific mortality due to cervical cancer is of concern to health authorities in Brazil, especially in the North region and the state of Pará, as it is the most common cancer with a clear temporal trend of growth.⁽²⁾ In the capital of Pará, 1,197 cases of cervical cancer were recorded in the period 2013-2017, and it is estimated that in 2023 there will be 220 new cases, being the second most common neoplasm in the capital of Pará.⁽³⁾

In Brazil, the mortality rate due to CC was 3.64 deaths/100,000 women in 2020 with 682,027 deaths, with the highest rates in the country being evident in the North region with 9.52 deaths/100,000 women, representing the main cause of female cancer deaths in the region. In Pará, the mortality rate adjusted to the world population corresponded to 8.26 deaths/100,000 women and in the state capital there were 11.27 deaths/100,000 women.⁽⁴⁾

With a view to reducing deaths from the disease, measures have been implemented, such as collective screening and vaccination against HPV, actions offered in the primary health care network, included in national policy, and therefore aimed at combating the disease. Screening allows for early diagnosis and treatment and adds a high expectation of cure when the disease is discovered in the early stages.⁽⁴⁾

However, for satisfactory results, women need to undergo the Pap smear in accordance with ministerial guidelines. In this sense, research carried out by VIGITEL (2022) showed that between 2010 and 2020 the percentage of women aged 25 to 64 who underwent the Pap smear at some point in their lives was greater than 80%. However, it was found that it was a one-off action, without systematicity, that is, without repeating the exam in accordance with what is recommended by the policy to combat the disease. In relation to the HPV vaccine, implemented in the public network, since 2014, for the age group of 9 to 14 years old, it has shown low coverage.⁽⁵⁻⁶⁾

It can be seen from this how challenging it is to reduce mortality from cervical cancer, and studies are needed that explore the characteristics of the socio-epidemiological profile of women who die from this cause, to guide prevention actions, optimization of resources and better targeting of disease tracking programs, as well as identifying possible causes of this type of neoplasia.⁽⁷⁾

Therefore, this study is justified because it is a territory with high rates of illness and mortality. The results may offer contributions to the establishment of strategies to reduce mortality, essentially related to nursing practice, since, according to Resolution No. 385/2011 of the Federal Nursing Council (COFEN), the nurse has exclusivity in collecting the Pap smear.⁽⁸⁻⁹⁾

The objective of the present study was to analyze mortality from cervical cancer in the city of Belém/PA.

METHODS

Epidemiological, cross-sectional and descriptive study conducted following the recommendations of Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).⁽¹⁰⁾

Held in the municipality of Belém, capital of the state of Pará, located in the north of Brazil in the biome called Amazon, with an estimated total population in 2021 of 1,506,420 inhabitants, with a territorial area of 1,059,458 km².⁽¹¹⁾

The data on mortality due to CC were obtained from the Mortality Information System (MIS), made available by the State Secretariat of Public Health of Pará, in June 2022, in the format of a bank, and come from the death certificates of women who resided in the municipality.

This study included all cases of deaths due to CC in women over 20 years old (n=695), living in the city of Belém, reported in the MIS, in the period from 2013 to 2020. Deaths in which the analyzed variables presented inconsistency due to incorrect data filling were left out.

For data analysis, debugging was first carried out in the database, using Microsoft Office Excel® 2013. Subsequently, descriptive analysis was carried out with the results expressed in relative and absolute frequencies. Next, in the same program, mortality rates from cervical cancer were calculated, according to the year of death, and trend analysis was carried out using the simple linear regression model, considering mortality rates as the dependent variable, and the years in which deaths occurred as independent variables. This analysis technique allowed visualization of the behavior of the mortality rate over the years and the linear association between time (years) and mortality rate.

Study approved by the Research Ethics Committee of the Undergraduate Nursing Course at the State University of Pará under opinion no. 5,323,530.

RESULTS

According to Table 1, the highest proportion of deaths from cervical cancer was identified in women aged between 50 and 69 years old, accounting for 43% (n=299), although occurrences have been recorded from the age of 20 years of age, reaching elderly women over 80 years old. In relation to education, secondary education and incomplete higher education were more prevalent with 31.7% (n=220) and 31.4% (n=218), respectively. Housewives (59%, n=410), single women (39.9%, n=277) and mixed-race women (80.3%; n=558) showed predominance of deaths.

Table 1. Sociodemographic profile of women who died from cervical cancer in the city of Belém. PA, Brazil, 2013-2020. (n=695)

Variables	N	%
Race/Skin color		
White	94	13.5
Black	32	4.6
Asian	1	0.1
Brown	558	80.3
Indigenous	3	0.5
Unknown	7	1.0
Age group		
20-29 years old	15	2.2
30-39 years old	87	12.5
40-49 years old	134	19.3
50-59 years old	149	21.4

60-69 years old	150	21.6
70-79 years old	91	13.1
80+ years old	69	9.9
Marital status		
Single	277	39.9
Married/Stable Union	277	39.9
Widowed	101	14.5
Separated/Divorced	24	3.4
Unknown	16	2.3
Schooling		
No schooling	4	0.6
Incomplete Elementary School	70	10.1
Complete Elementary School	135	19.4
High School	220	31.6
Incomplete Higher Education	218	31.4
Complete Higher Education	29	4.2
Unknown	19	2.7
Occupation		
Retired	15	2.1
Administrative activity	26	3.7
Clothier	22	3.2
Housewife	410	59.0
Housekeeper	45	6.5
Manicure	11	1.6
Agricultural producer	11	1.6
Professor	18	2.6
Self-employed	22	3.2
Other occupations	100	14.4
No information	15	2.1

Source: Mortality Information System (MIS) (2022).

The data in Table 2 show that mortality from CC among women aged between 40 and 69 years old was more significant among single women. While among those aged 70-79 and 80 or over, the highest records were among widows (31.9% and 53.6%, respectively).

Regarding education, a higher proportion of deaths was identified among older women with a lower level of education (70-79 years old=29.7% and 80 years old and over=34.8%) (Table 2).

Table 2. Proportion of deaths from cervical cancer in the city of Belém, according to sociodemographic variables related to age group. PA, Brazil, 2013-2020.

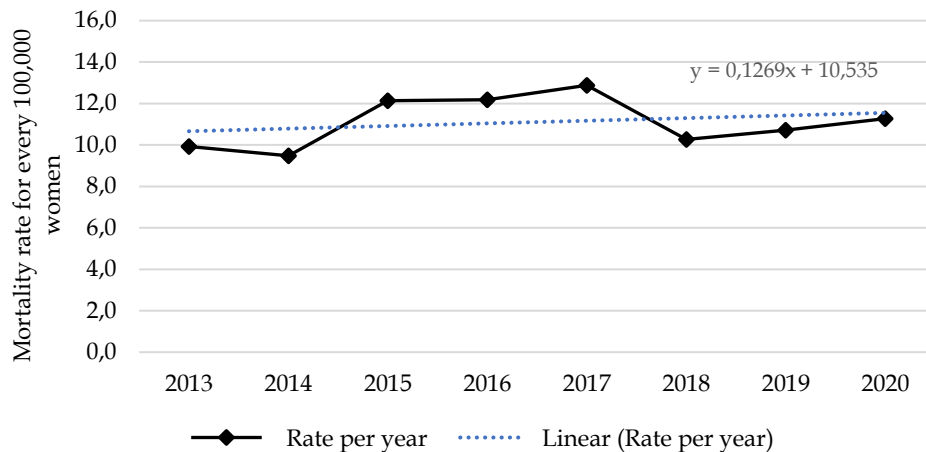
Variables	Age group (years old)						
	20-29 (n=15)	30 - 39 (n=87)	40 - 49 (n=134)	50 - 59 (n=149)	60-69 (n=150)	70-79 (n=91)	80 + (n=69)
Race/Skin color							
White	26.7	14.9	13.4	10.7	10.7	14.3	20.3
Black	-	3.4	4.5	4.7	4.7	3.3	8.7
Asian	-	-	-	-	-	-	1.4
Brown	73.3	78.2	80.6	83.2	84.0	81.3	68.1
Indigenous	-	1.1	-	1.3	-	-	-
Unknown	-	2.3	1.5	-	0.7	1.1	1.4
Marital status							
Single	66.7	52.9	45.5	43.0	36.0	25.3	27.5
Married	13.3	17.2	22.4	28.2	32.0	29.7	10.1
Widowed	-	2.3	-	3.4	18.7	31.9	53.6
Separated/Divorced	-	1.1	6.0	4.0	4.0	2.2	1.4
Stable union	20	26.4	23.9	20.8	7.3	6.6	-
Unknown	-	-	2.2	0.7	2.0	4.4	7.2
Schooling							
No schooling	-	1.1	-	-	1.3	-	1.4
Incomplete Elementary School	-	1.1	2.2	4.7	11.3	29.7	21.7
Complete Elementary School	6.7	11.5	16.4	16.1	22.7	22.0	34.8
High School	40	36.8	29.1	34.2	33.3	27.5	24.6

Incomplete Higher Education	40	39.1	44.8	41.6	23.3	15.4	10.1
Complete Higher Education	13.3	9.2	4.5	2.7	4.7	2.2	-
Unknown	-	1.1	3.0	0.7	3.3	3.3	7.2

Source: Mortality Information System (MIS) (2022).

Specific mortality rates from cervical cancer were high and tended to increase throughout the period studied, with an average annual increase of 0.12 deaths/100,000 women. It is also noteworthy that the years 2015 (12.1/100,000 women), 2016 (12.2/100,000 women) and 2017 (12.9/100,000 women) presented more significant rates (Figure 1).

Figure 1. Trend in mortality from cervical cancer in the city of Belém, PA, Brazil, 2013-2020.



Source: Data from the Mortality Information System (2022).

DISCUSSION

The municipality of Belém has high mortality rates from cervical cancer, with the most affected women remaining those who live in greater social vulnerability, such as a low level of education, according to proportion analysis, which was mentioned in study that linked this type of neoplasm with low rates of human development.⁽¹²⁾

Analyzing the variables related to marital status, married women and women in stable unions had lower percentages of deaths when compared to those in other forms of relationships. This fact is attributed to the greater social support they possibly receive, as well as habits considered healthier than those not married, with more effective participation in screening exams, balanced diet, physical activity and reduction in alcohol and tobacco consumption.⁽¹³⁾

This is evidence identified in a study carried out in Indian districts, in which women who reported greater social support, being married, having better financial conditions, better caste (social status) and health insurance (access to health services) presented greater adherence to cervical cancer screening, which can have a direct impact on reducing mortality.⁽¹⁴⁾

The high proportion of deaths in women aged 50-69 years old may be related to low adherence to the Pap smear, making it hard for the early identification of intraepithelial lesions and, consequently, their treatment difficult. Therefore, it becomes a challenge for public health management and professionals, especially in primary care, to implement measures to systematically examine elderly women.⁽¹⁵⁾

Therefore, there is an importance of cervical cancer screening in women aged 60 and over, making it necessary to discuss whether the age group currently recommended as a priority for screening, corresponding to 25-64 years old, should be maintained, as women over 60 years of age have shown a high propensity to develop high-grade injuries and die.⁽¹⁶⁾

Furthermore, in this context, data from a survey carried out in Brazil in the period 2012-2016 concluded that women with cervical cancer in the 60-64 age group had a mortality rate from cervical cancer of 9.99%, considered high compared to other age groups.⁽¹⁶⁾ In addition, in Brazil, people over 60 years of age have a lower level of education, less access to health education, preventive measures and information regarding specific treatment.⁽¹⁵⁾

These data converge with the study carried out in a Brazilian municipality, which analyzed the trend in mortality from cervical cancer, based on age group and education in the period from 1999 to 2019, identifying higher rates among women aged 60-69 years old and with less education.⁽¹⁷⁾

It is noteworthy that most women in this age group had as their main occupation working at home, carrying out domestic services, caring for children and, thus, ending up neglecting their health. A study shows that, regardless of geographic location or social status, women prioritize these responsibilities and make little or no time available to attend health services. This demonstrates that a relational factor to mortality is the lifestyle linked to low access to health services.⁽¹⁸⁾

Regarding the striking ethnic differences highlighted, there are authors who emphasize that this is the influence of racial inequalities present in Brazil, in addition to the entire situation of social differences and weaknesses in the country. Furthermore, other literature states that there is no biological explanation that justifies this high mortality rate from cervical cancer in brown women.⁽¹⁹⁾

Regarding education, in line with the data presented, a low level of education has been identified in the profile of women who die from this type of cancer, associated with low adherence to recommended treatment.⁽¹⁹⁾ Furthermore, the lack of knowledge and information about CC, screening and its benefits, including women who do not understand the importance of screening, that is, carrying out the exam in the absence of signs and symptoms or health problems, are also linked to high rates of illness and mortality from the disease.⁽²⁰⁻²²⁾

Furthermore, women with greater education have more access to income and, therefore, to more qualified information related to health, and choose to undergo preventive examinations in private clinics; therefore, they provide results in a timely manner.⁽²³⁾ The importance of health education programs valuing the social status of women, as well as their health literacy, is highlighted for greater adherence to preventive measures.

The analysis of mortality rates from cervical cancer in the city of Belém showed an upward trend with significant fluctuations during the period studied. It is known that these results can be influenced by the conditions of access to health services for primary prevention against HPV, as well as secondary prevention screening and early diagnosis.⁽²⁴⁾

It is recognized that women marginalized in society, whether due to age, ethnicity, education, place of residence, or other factors, are harmed twice: first, because they are more susceptible to HPV infection; second, because access to cervical cancer prevention and screening strategies is limited, contributing to the worsening of the disease and increased mortality rates.⁽²⁵⁾

It is also noteworthy that developed countries prioritize health promotion actions with social protection policies, investment in education and enabling access to health services; opposite to countries with low development, which do not have sufficient promotion and prevention action programs to reduce morbidity and mortality.⁽²⁶⁾

The high mortality from cervical cancer was also evidenced in other studies, which recognized the North as the region of Brazil with the highest death rates, which should be considered as a scientific offer for the application of strategic planning measures by public management, essentially from the state of Pará and the capital Belém.⁽²⁷⁾ In the Brazilian context, historically, the North region has exhibited indicators that portray greater impoverishment of the population and higher mortality rates due to CC, with projected growth, according to a study carried out by Loureiro *et al.*⁽¹²⁾ It also considers that the other regions exhibit different epidemiological behavior because they have public policies, aimed at women, that are more developed, solid and broad, which enable greater adherence to prevention actions.⁽¹²⁾

Another relevant aspect is access to screening services, identified as more favorable to women in more developed regions, such as the South, Southeast and Center-West of Brazil. In this way, the profile of women and the provision of the care network show adherence to mortality rates due to CC, given that in the North of the country, which includes less developed territories, mortality rates are higher.⁽²⁷⁾

A study carried out in Peru, when analyzing regional trends in mortality from cervical cancer, identified a downward trend across the country. However, he confirmed that, in the tropical forest region, these rates have remained very high, compared to other countries in Latin America. And he highlighted that it is a territory with characteristics similar to those found in the North of Brazil, especially those related to the territory, socioeconomic indicators, low education, lower accessibility and low adherence to screening services and treatment of the cervical cancer.⁽²⁸⁾

In addition, still in Latin America, concern about health supply has made it possible to highlight geographic inequalities in the country's health coverage, with lower supply in jungle territories in the north

and east of the country.⁽²⁶⁾ These are areas of greater territorial extension and less populated, in which the population is dispersed in difficult to access locations, living with greater socioeconomic inequality, similar to the characteristics found in the Northern region of Brazil, where the municipality of Belém is located, the setting for this study.

The study limitation refers to the human factor capable of resulting in inconsistencies and incompleteness, due to the possible inadequate completion of notification forms and feeding into the Information System.

The contributions of this study refer to the presentation of the epidemiological profile of the city of Belém do Pará in terms of the high mortality rate due to CC, since by knowing this profile it is possible to outline new strategies for greater adherence by women in undergoing the Pap smear. In addition, to outline new actions and care for early treatment of the disease.

CONCLUSION

The evidence obtained points to a higher proportion of deaths from CC among women with low education, housewives, single women, aged from 50 to 69 years old. The findings suggest the improvement of actions to promote women's health and prevent CC, with the improvement of strategies for tracking the disease, aiming at greater adherence to preventive examinations, especially among women aged between 50 and 69 years old.

Intersectorally, it is necessary to invest in public education policies to increase education levels, expanding the provision of formal education for young people and adults, especially for older women, over 50 years old, since the low level of education has been identified in the profile of women who die from this type of cancer, associated with low adherence to recommended treatment.

There is a need to strengthen the cervical cancer control program in the city of Belém, with improved access to health services, prevention, such as vaccination against HPV, early diagnosis through the Pap smear, and adequate treatment to reduce the high mortality rates identified.

This study could contribute to the development of public health actions that meet the needs of the vulnerable population, constituting a source of information to support decision-making policy and help evaluate the impact of implemented preventive measures.

CONTRIBUTIONS

Contributed to the conception or design of the study/research: Nogueira LMV, Silva da RG, Gatinho FG, Silva KR, Santos MRS. Contributed to data collection: Santos MRS. Contributed to the analysis and/or interpretation of data: Silva da RG, Gatinho FG, Silva KR, Trindade LNM. Contributed to article writing or critical review: Nogueira LMV, Silva da RG, Gatinho FG, Silva KR. Final approval of the version to be published: Nogueira LMV.

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