PREVALENCE OF MALIGNANT BREAST LESIONS IN YOUNG WOMEN FROM NORTHEASTERN BRAZIL

PREVALÊNCIA DE LESÕES MAMÁRIAS MALIGNAS EM MULHERES JOVENS DO NORDESTE DO BRASIL

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ABSTRACT

Objective: To analyze the prevalence of malignant breast lesions in women aged 15–34 years in Northeast Brazil between 2014 and 2023. **Methods:** This cross-sectional, descriptive study was based on data from the Cancer Information System (SISCAN), available through the Department of Informatics of the Brazilian Unified Health System (DATASUS). All histopathological breast examinations performed in public healthcare facilities were included, based on the patients' municipalities of residence. Absolute and relative frequencies were calculated. The prevalence of malignant lesions was estimated considering the total number of histopathological examinations (benign and malignant) using the exact binomial test to compute 95% confidence intervals (CI). **Results:** A total of 23,317 histopathological breast examinations were performed in young women from Northeast Brazil. Most tests were performed in women aged 25–34 years (55.18%), and 68% of the patients self-identified as mixed race or Asian. Among all examinations, 92.79% revealed benign lesions, while 7.21% (95% CI: 6.88–7.55) indicated malignancy. The highest prevalences of malignant lesions were observed in the states of Piauí (11.23%; 95% CI: 7.28–16.38), Bahia (10.70%; 95% CI: 9.74–11.72), and Alagoas (10.09%; 95% CI: 8.00–12.52). **Conclusion:** Although benign findings predominated, the occurrence of malignant neoplasms in women under 35 years old underscores the need for careful clinical assessment. These findings highlight the importance of prospective epidemiological studies to better evaluate breast cancer incidence in this population and to strengthen early diagnostic strategies.

Keywords: Breast Neoplasms; Epidemiology; Histopathology; Early Diagnosis; Women's Health Services.

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RESUMO

Objetivo: Analisar a prevalência de lesões mamárias malignas em mulheres com idades entre 15 e 34 anos, do Nordeste do Brasil e no período de 2014 a 2023. **Métodos:** Estudo transversal e descritivo, baseado em dados do Sistema de Informação do Câncer (SISCAN), disponíveis no Departamento de Informática do Sistema Único de Saúde (DATASUS). Foram incluídos todos os exames histopatológicos de mama realizados em unidades do Sistema Único de Saúde (SUS), considerando-se o município de residência das pacientes. Foram calculadas as frequências absolutas e relativas. A prevalência de lesões malignas foi calculada considerando o número total de exames histopatológicos realizados (lesões benignas e malignas), utilizando o teste binomial exato para estimativa do intervalo de confiança de 95%. **Resultados:** No total, foram analisados 23.317 exames histopatológicos de mama em mulheres jovens da região Nordeste. A maior parte dos exames foi realizada em mulheres com idade entre 25 e 34 anos (55,18%), e 68% dessas mulheres se autodeclararam pardas ou amarelas. Do total de exames, 92,79% apresentaram lesões benignas, enquanto 7,21% (IC95%: 6,88–7,55) indicaram malignidade. As maiores prevalências de lesões malignas foram observadas nos estados do Piauí (11,23%; IC95%: 7,28–16,38), Bahia (10,70%; IC95%: 9,74–11,72) e Alagoas (10,09%; IC95%: 8,00–12,52). **Conclusão:** Apesar da predominância de lesões benignas, a presença de neoplasias malignas em mulheres com menos de 35 anos ressalta a necessidade de uma investigação clínica criteriosa. Os achados indicam a importância de estudos epidemiológicos prospectivos para avaliar melhor a incidência do câncer de mama nessa população e otimizar estratégias de diagnóstico precoce.

Palavras-chave: Neoplasias da Mama. Epidemiologia. Histopatologia. Diagnóstico Precoce. Serviços de Saúde da Mulher.

1 INTRODUCTION

Breast cancer (BC) is the most frequently diagnosed neoplasm among women worldwide, representing a significant public health concern due to its high incidence and mortality rates [1]. Studies indicate that one in every eight women develops BC during their lifetime [2,3]. BC is a multifactorial disease, with a high incidence associated with various risk factors, such as advanced age, genetic mutations (particularly in the BRCA1 and BRCA2 genes), and reproductive and hormonal factors, including early menarche (before age 12), nulliparity, first pregnancy after age 30, and late menopause (after age 55) [1].

Furthermore, high body mass index (BMI), physical inactivity, smoking, and unhealthy dietary habits are also associated with an increased risk of BC4. Environmental factors such as frequent exposure to air pollutants, pathogenic microorganisms, and ionizing radiation may also contribute to the development of disease [5-7].

Early detection and appropriate treatment are essential to improve patient prognosis and survival. To this end, strategies such as screening mammography and awareness campaigns have been implemented to increase early diagnosis rates and enable therapeutic interventions at early disease stages [8-10]. The Brazilian Ministry of Health recommends population-based screening for women starting at age 50, while the Brazilian society of mastology and federation of Brazilian gynecology and obstetrics association (FEBRASGO) recommends initiating screening at age 40 [11].

The rationale for not investigating BC in women aged less then 40 years is the globally low incidence in this age group [12]. A study assessing BC incidence in 185 countries from 1990 to 2017 concluded that the global incidence has increased by 1.44% annually since 1990. This increase was significant across all age groups, ranging from 1.28% annually (50-69 years) to 1.55% annually (under 50 years). Regionally, all areas except north America showed increased incidence, with the middle east and north Africa recording the highest annual growth13. A study conducted between 2003 and 2013 in northern Brazil found a prevalence of just over 9% for malignant lesions in women under 40 years of age [14].

However, there is a scarcity of studies on the prevalence of benign and malignant breast lesions in Brazilian women aged ≤ 35 years. Understanding these data may aid in preventing the rise in BC incidence among women aged < 50 years, as observed from 1990 to 2017. In this context, the present study aimed to examine the prevalence of benign and malignant histopathological diagnoses in women aged 15–34 years from northeastern Brazil, who underwent breast lesion biopsies between 2014 and 2023.

2 METHODS

This was a cross-sectional and descriptive study based on secondary data from the cancer information system (SISCAN), made available by the department of informatics of the Brazilian unified health system (DATASUS). All histopathological examinations of breast lesions performed between 2014 and 2023 in women aged 15–34 years residing in the northeast region of Brazil were included based on the residence data recorded in SISCAN.

Only conclusive examination reports classified as benign or malignant according to standardized SISCAN records were included in the analysis. Reports with inconclusive results, missing codifications, or other lesion types were excluded. The variables analyzed included the patient's age, state and municipality of residence, self-reported race/skin color, and the results of the examination (benign or malignant).

Since the dataset is publicly available and does not include personal identification, the study is exempt from review by a research ethics committee in accordance with resolution no. 510/2016 of the Brazilian national health council. Therefore, ethical approval was not required for this study because it was based exclusively on secondary data obtained from the cancer information system (SISCAN) of DATASUS, which are publicly available and de-identified.

Descriptive analysis of absolute and relative frequencies was performed for qualitative variables. The prevalence of malignant lesions and the corresponding 95% confidence intervals (95% CI) were estimated using the exact binomial test, which is appropriate for binary outcomes in large samples. Statistical analyses were performed using Openepi (version 3.01) and SPSS (statistical package for the social sciences, version 28.0, Chicago, USA).

3 RESULTS

Between 2014 and 2023, 23.317 histopathological breast examinations were performed in women aged 15–34 years in northeastern Brazil. Only reports with diagnoses of benign or malignant lesions were included in this analysis. Reports with indeterminate or suspicious results were excluded from the analysis. Table 1 provides a detailed characterization of the examination reports.

Table 1. Characterization of histopathological breast examination reports in women aged 15–34 years, Northeast Region, 2014–2023; Brazil, 2025 (n = 23,317)

Variable	Frequencies *f* (%)
Age range	
15-19 years	4.721 (20,25)
20-24 years	5.730 (24,57)
25-29 years	5.593 (23,99)
30-34 years	7.273 (31,19)
Race	
Asian	9.556 (40,98)
Mixed-race	6.257 (26,83)
White	4.119 (17,67)
No information	2.215 (9,50)
Black	1.111 (4,76)
Indigenous	59 (0,25)
Year of exam	
2014	1.532 (6,57)
2015	1.740 (7,46)
2016	1.810 (7,76)
2017	1.916 (8,22)
2018	1.719 (7,37)
2019	3.724 (15,97)
2020	2.587 (11,09)
2021	2.120 (9,09)
2022	2.876 (12,33)
2023	3.293 (14,12)
Histopathological	
Benign	21.636 (92,76)
Malignant	1.681 (7,21)

Data are expressed as absolute (f) and relative (%) frequencies
Source: Cancer Information System (SISCAN), Ministry of Health, Brazil

In the study population, over 60% of the women self-identified as mixed-race or Asian. Additionally, more than half of the breast biopsies were performed in women aged 25-34 years. Notably, more then 90% of the biopsies were benign.

Table 2 presents the results of histopathological breast examinations for the northeast region and each state individually. The prevalence of malignant breast lesions exceeds 10% in Piauí, Bahia, and Alagoas.

By contrast, the lowest prevalence of malignancy was observed in Paraíba. Figure 1 illustrates the distribution of histopathological reports according to the state of residence. More than 70% of the examinations performed during the study period were concentrated in only four states, while less than 1% were conducted in the state of Piauí.

Table 2. Results of histopathological breast examination reports in women aged 15–34 years, Northeast Region, 2014–2023, Brazil, 2025 (n = 23,317)

Location	n	Result		Malignancy Prevalence	CI 95%
		Malignant	Benign		
Northeast	23.317	1.681 (7,21)	21.636 (92,79)	7,21	6,88 – 7,55
Piauí	187	21 (11,23)	166 (88,77)	11,23	7,28 – 16,38
Bahia	3.739	400 (10,70)	3.339 (89,30)	10,70	9,74 – 11,72
Alagoas	684	69 (10,09)	615 (89,91)	10,09	8,00 – 12,52
Rio Grande do Norte	1.317	124 (9,42)	1.193 (90,58)	9,42	7,93 – 11,08
Sergipe	584	49 (8,39)	535 (91,61)	8,39	6,34 – 10,85
Pernambuco	7.90	625 (7,85)	7.335 (92,15)	7,85	7,28 – 8,46
Maranhão	2.43	145 (5,95)	2.293 (94,05)	5,95	5,06 – 6,94
Ceará	3.316	144 (4,34)	3.172 (95,66)	4,34	3,69 – 5,08
Paraíba	3.092	104 (3,36)	2.988 (96,64)	3,36	2,77 – 4,04

Source: Cancer Information System (SISCAN), Ministry of Health, Brazil
Data are expressed as absolute (f) and relative (%) frequencies. Abbreviations: n, number; CI, confidence interval

Figure 1. Distribution of histopathological breast examination reports among women aged 15–34 years in the Northeast Region of Brazil, 2014–2023 (n = 23.317)

MA = Maranhão; PI = Piauí; CE = Ceará; RN = Rio Grande do Norte; PB = Paraíba; PE = Pernambuco; AL = Alagoas; SE = Sergipe; BA = Bahia
Source: Prepared by the authors based on data from the Cancer Information System (SISCAN) of DATASUS, Ministry of Health, Brazil (accessed in 2025)

4 DISCUSSION

Histopathological breast examinations conducted in women aged 15–34 years at public healthcare facilities affiliated with the Brazilian Unified Health System (SUS) in Northeastern Brazil between 2014 and 2023 showed a benign diagnosis rate exceeding 90%. This finding

reinforces the recommendation by the World Health Organization (WHO) and the Brazilian Ministry of Health against systematic screening in this age group [15,16].

However, during the study period, more than 7% of the examinations recorded in SISCAN confirmed the presence of malignant breast neoplasms, with rates exceeding 10% in the states of Alagoas, Bahia, and Piauí. Although these rates may appear low, they represent a considerable number of cases within a population that is not typically targeted by conventional screening strategies. This highlights the importance of a vigilant clinical approach when evaluating breast lesions in young women despite the expected low incidence.

In Brazil, epidemiological studies have generally focused on the prevalence of malignant lesions in populations recommended for screening, leading to a scarcity of research specifically addressing women under 35 years of age (17,18]. This study is relevant because it reveals that, between 2014 and 2023, over 1,500 cases of malignant breast lesions were diagnosed in this demographic in the northeast region. A similar study using DATASUS data from 2015 to 2020 indicated that approximately 90% of malignant breast neoplasm cases in Brazil occur in women over the age of 40, while 8.9% of reported cases during that period involved women aged 30 to 39 years[19]. Another retrospective study found a 4.4% prevalence of invasive breast cancer in Brazilian women under 35 years of age (18).

These findings underscore the need for increased attention to breast health in the younger population, not necessarily through systematic screening but via timely strategies for early investigation of signs and symptoms. Early diagnosis enables immediate treatment, improved prognosis, and increased survival rate. Although the incidence rises with age, approximately 7%–10% of women diagnosed with the malignant disease are under 40 years of age [20].

Despite the significant number of histopathological confirmations of malignant lesions in women under 35 years of age, few studies have specifically explored the characteristics and prevalence of BC in young women [18]. Moreover, most of the treatments administered to these patients are typically based on protocols developed for older women. It is important to note that young women diagnosed with BC are at a greater risk for sexual and psychological distress, which calls for a comprehensive approach from healthcare professionals, including appropriate support throughout the complex process of diagnosis and treatment [18,20].

Although this study did not directly investigate the etiology of disparities among states, the higher prevalence observed in Rio Grande do Norte and Pernambuco may be related to the higher estimated incidence rates in those areas. According to the report *Breast Cancer Control in Brazil: Data and Statistics (2024)*, published by the National Cancer Institute (INCA), the adjusted and estimated incidence rate of malignant breast neoplasms in the northeast region between 2023 and 2025 was 42.1 per 100,000 women. The states with the highest incidence rates were Ceará (54.1), Rio Grande do Norte (50.1), and Pernambuco (46.4), while Maranhão had the lowest (28.3) [15,17].

This study has some limitations, particularly because it relies on secondary data from a system that has not yet been fully implemented nationwide. According to SISCAN Technical Note 15, data entry may occur at different levels of healthcare service provision and not all facilities perform systematic registration [21]. Therefore, the analyzed data may not fully reflect the reality of the SUS-served population and may underestimate the actual prevalence of breast cancer in young women. Nevertheless, the analysis of SISCAN data for women aged 15 to 34 years in Northeastern Brazil represents an important contribution to understanding the profile of breast lesions in this population. The results provide relevant insights for health service planning and enhancement of clinical strategies for the early diagnosis and management of breast cancer in young women.

5 CONCLUSIONS

The findings of this study underscore the importance of maintaining vigilance regarding breast lesions in young women, even though this population was not included in the screening recommendations established by the Brazilian Ministry of Health. While most histopathological examinations indicate benign alterations, the identification of more than 1,500 malignant cases in women aged 15-34 years in northeastern Brazil highlights the need for healthcare strategies that are sensitive to the specific characteristics of this age group.

Despite the inherent limitations of the SISCAN system, its data enabled the description of a relatively unexplored regional landscape, offering useful evidence for healthcare managers

and professionals. Considering the clinical, psychological, and social impacts of breast cancer in young women, strengthening early detection policies based on signs and symptoms is recommended, along with the development of care protocols focused on comprehensive and individualized approaches. Future prospective studies with broader population coverage are essential to deepen the understanding of the epidemiological and clinical profile of breast cancer in this age group in Brazil.

REFERÊNCIAS

1. Santos TB, Borges AKM, Ferreira JD, Meira KC, Souza MC, Guimarães RM, et al. Prevalence and factors associated to advanced stage breast cancer diagnosis. Cien Saude Colet [Internet]. 2022 [cited 2024 Oct 17];27(2):471–82. Available from: https://www.scielo.br/j/csc/a/gzCw47Cn678y6NmN6CZ9ZYH/abstract/?lang=pt

2. Harbeck N, Penault-Llorca F, Cortes J, Gnant M, Houssami N, Poortmans P, et al. Breast cancer. Nat Rev Dis Primers [Internet]. 2019 Dec 1 [cited 2024 17];5(1). Available from: https://pubmed.ncbi.nlm.nih.gov/31548545/

3. Silva GRP, Guimarães RA, Vieira FVM, Silva GO, Oliveira FDS, Aredes NDA. Trend in breast cancer mortality rate among women aged 20 years or older in Brazil, 2005–2019. Cien Saude Colet [Internet]. 2024 [cited 2024 Oct 17];29(3). Available from: https://www.scielo.br/j/csc/a/5hjZvVH7ZgFrsXVsDsBQDxc/

4. Machado MX, Soares DA, Oliveira SB. Significados do câncer de mama: para mulheres no contexto do tratamento quimioterápico. Physis [Internet]. 2017 Jul 1 [cited 2024 Oct 17];27(3):433–51. Available from: https://www.scielosp.org/article/physis/2017.v27n3/433-451/

5. Camargo JDAS, Santos J, Simões TC, Carvalho JBL, Santos Silva GW, Dantas ESO, et al. Mortality due to breast cancer in a region of high socioeconomic vulnerability in Brazil: Analysis of the effect of age-period and cohort. PLoS One [Internet]. 2021 Aug 1 [cited 2024 Oct 17];16(8). Available from: https://www.arca.fiocruz.br/handle/icict/51747

6. Clinton SK, Giovannucci EL, Hursting SD. The World Cancer Research Fund/American Institute for Cancer Research Third Expert Report on diet, nutrition, physical activity, and cancer: Impact and future directions. J Nutr [Internet]. 2020 Apr 1;150(4):663–71. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0022316622020995

7. Rojas K, Stuckey A. Breast cancer epidemiology and risk factors. Clin Obstet Gynecol. 2016 Dec 1;59(4):651–72.

8. Ferreira MCM, Nogueira MC, Ferreira LCM, Bustamante-Teixeira MT. Detecção precoce e prevenção do câncer de mama: conhecimentos, atitudes e práticas de profissionais da Estratégia Saúde da Família de cidade de porte médio de MG, Brasil. Cad Saude Colet [Internet]. 2023 [cited 2024 Oct 17];31(3). Available from: https://www.scielo.br/j/cadsc/a/hGxJVz6TxjjPw4jVXzXfZqj/

9. Teixeira LA, Neto LAA. Breast cancer in Brazil: Medicine and public health in 20th century. Saude Soc [Internet]. 2020 [cited 2024 Oct 17];29(3):1–12. Available from: https://www.scielosp.org/pdf/sausoc/2020.v29n3/e180753/pt

10. Dourado CARO, Santos CMF, Santana VM, Gomes TN, Cavalcante LTS, Lima MCL. Câncer de mama e análise dos fatores relacionados aos métodos de detecção e estadiamento da doença. Cogitare Enferm [Internet]. 2022 May 27 [cited 2024 Oct 17];27. Available from: https://revistas.ufpr.br/cogitare/article/view/81039

11. Urban LABD, Chala LF, Paula IB, Bauab SDP, Schaefer MB, Oliveira ALK, et al. Recomendações do Colégio Brasileiro de Radiologia e Diagnóstico por Imagem, da Sociedade

Brasileira de Mastologia e da Federação Brasileira das Associações de Ginecologia e Obstetrícia para o rastreamento do câncer de mama no Brasil. Radiol Bras. 2023;56(4):207–14.

12. World Health Organization. Latin America and the Caribbean Code against Cancer [Internet]. Washington (DC): Pan American Health Organization; 2023 [cited 2024 Oct 16]. Available from: https://www.paho.org/en/topics/cancer

13. Lima SM, Kehm RD, Terry MB. Global breast cancer incidence and mortality trends by region, age-groups, and fertility patterns. EClinicalMedicine [Internet]. 2021 Aug 1;38:100985. Available from: https://linkinghub.elsevier.com/retrieve/pii/S2589537021002650

14. Pereira HFESA, Nunes GPS, Viapiana PS, Silva KLT. Profile of care in young women with breast cancer in Amazonas: 11 years study. Mastology [Internet]. 2019 Mar;29(1):20–4. Available from: http://www.mastology.org/wp-content/uploads/2019/04/MAS-v29n1_20-24-1.pdf

15. Instituto Nacional de Câncer. Controle do câncer de mama no Brasil: dados e números 2024 [Internet]. Rio de Janeiro: INCA; 2024 [cited 2024 Oct 18]. Available from: https://antigo.inca.gov.br/publicacoes/livros/controle-do-cancer-de-mama-no-brasil-dados-e-numeros-2024

16. World Health Organization. WHO position paper on mammography screening [Internet]. Geneva: World Health Organization; 2014 [cited 2024 Oct 18]. Available from: https://iris.who.int/bitstream/handle/10665/137339/9789241507936_eng.pdf

17. Santos MO, Lima FCS, Martins LFL, Oliveira JFP, Almeida LM, Cancela MC. Estimativa de incidência de câncer no Brasil, 2023-2025. Rev Bras Cancerol. 2023 69(1):e13700. Available from:https://rbc.inca.gov.br/index.php/revista/article/view/3700/2644

18. Orlandini LF, Antonio MVN, Espreafico CR Jr, Bosquesi PL, Poli-Neto OB, Andrade JM, et al. Epidemiological analyses reveal a high incidence of breast cancer in young women in Brazil. JCO Glob Oncol [Internet]. 2021 Dec [cited 2024 Oct 17];7:81–8. Available from: https://ascopubs.org/doi/10.1200/GO.20.00440

19. Bravo BS, Lopes ABB, Tijolin MB, Nunes PLP, Lenhani T, Junior SFD, et al. Câncer de mama: uma revisão de literatura. Braz J Health Rev. 2021;4(3):14254–64.

20. Rossi L, Mazzara C, Pagani O. Diagnosis and treatment of breast cancer in young women. Curr Treat Options Oncol. 2018;20.

21. Brasil. Nota Técnica nº 15: SISCAN – Histopatológico de Mama [Internet]. Brasília: Ministério da Saúde; 2013 [cited 2024 Oct 17]. Available from: http://tabnet.datasus.gov.br/cgi/SISCAN/doc/nota_tecnica15_histo_mama_residencia.pdf