

ORIGINAL ARTICLE

Myths and truths about breast cancer: an assessment of knowledge before and after educational actions

HIGHLIGHTS

1. Educational actions contribute to the improvement of knowledge.
2. Health education as an essential element in health promotion.
3. Nurses' protagonism in health education.
4. Educational intervention clarified myths about breast cancer.

Dione Seabra de Carvalho¹ 
Daniete da Luz Monteiro Soares² 
Luana Cristina dos Santos Souza² 
Talita Isabel de Sousa Stainki Jeremias² 
Cecília Carvalho da Silva³ 
Mary Elizabeth de Santana³ 
Edila Arnaud Ferreira Moura¹ 

ABSTRACT

Objective: To evaluate women's knowledge of myths and facts related to breast cancer. **Method:** A quasi-experimental study conducted in October 2024 with 32 women in the waiting room of the breast clinic at a Maternal-Child Reference Unit in Belém, Pará. A structured questionnaire was administered before and after two educational sessions. Data were analyzed using descriptive statistics, including absolute and relative frequencies. **Results:** An increase in correct responses was observed for almost all questions following the educational interventions, particularly regarding deodorant use (34.38% to 93.75%), breast trauma (15.62% to 93.75%), silicone (25% to 93.75%), and tight bras (43.75% to 93.75%). There was also a reduction in "I don't know" responses following the educational sessions on risk factors and breast cancer prevention. **Conclusion:** The educational action demonstrated itself to be an effective strategy for expanding women's knowledge about the myths and truths related to breast cancer.

DESCRIPTORS: Health Education; Health Promotion; Breast Neoplasms; Self Care; Nursing.

HOW TO REFERENCE THIS ARTICLE:

de Carvalho DS, Soares DLM, Souza LCS, Jeremias TISS, da Silva CC, de Santana ME, et al. Myths and truths about breast cancer: an assessment of knowledge before and after educational actions. *Cogitare Enferm* [Internet]. 2026 [cited "insert year, month and day"];31:e102595en. Available from: <https://doi.org/10.1590/ce.v31i0.102595en>

¹Universidade Federal do Pará, Programa de Pós-Graduação em Sociologia e Antropologia, Belém, PA, Brasil.

²Faculdade Cosmopolita, Curso de Enfermagem, Belém, PA, Brasil.

³Universidade do Estado do Pará, Programa de Pós-Graduação em Enfermagem, Belém, PA, Brasil.

INTRODUCTION

Breast cancer is the most common malignant neoplasm among women worldwide, representing a significant public health problem¹. It is caused by the disordered multiplication of abnormal breast cells, which form a tumor capable of invading other organs². Early diagnosis is a key factor in increasing survival and reducing mortality.

Among the main risk factors for breast cancer highlight advanced age, associated with cumulative exposure to endogenous and exogenous factors throughout life and with the changes associated with aging. As for reproductive and hormonal history, these include early menarche, late menopause, nulliparity, first pregnancy after age 30, prolonged use of hormonal contraceptives, and postmenopausal hormone replacement therapy. Added to these causes are personal and family history of the disease and genetic alterations related to hereditary cases. Among the modifiable factors, alcohol consumption, smoking, being overweight, physical inactivity, and a high-fat diet stand out as factors that may contribute to the development of the disease³⁻⁴.

According to the José Alencar Gomes da Silva National Cancer Institute (INCA, acronym in Portuguese), the presence of risk factors does not, in and of itself, cause breast cancer, but it does increase the likelihood of cellular changes that can progress to the disease if not identified early. Given this, recognizing how these changes may manifest clinically is essential for strengthening health education efforts, enabling women to identify suspicious signs and symptoms and seek professional care more rapidly⁵.

In this context, it is important to emphasize that there are strategies for the early detection of breast cancer, such as screening, which involves administering a test or examination to a population without signs or symptoms, and early diagnosis, which consists of identifying changes in the breasts and referring women for more detailed investigation¹.

Thus, strategies for breast cancer prevention should begin in Primary Care, where women need to be counseled and informed by health professionals about the signs and symptoms, diagnostic methods, myths and truths about the disease, and modifiable risk factors⁶.

It is worth noting that, despite various initiatives focused on breast cancer prevention actions and strategies, misinformation continues to circulate, perpetuating myths and unfounded beliefs, which generate confusion, doubt, and fear among women. Among these misconceptions, the following stand out: that breast cancer affects only middle-aged or elderly women; that it is an exclusively hereditary disease; that physical trauma to the breast can trigger tumor development; that the use of antiperspirant deodorants is associated with its occurrence; that women with small breasts have a lower risk of developing the disease; or even the belief that nothing can be done to prevent the disease⁷.

Given this scenario, it is essential to debunk the myths and misinformation that still surround breast cancer. Nurses play a fundamental role in this process, as they have the potential to develop and implement educational strategies aimed at prevention and raising awareness about the disease. These include initiatives such as discussion groups, educational workshops, and activities in waiting rooms, which facilitate the sharing of reliable information and strengthen women's knowledge about breast cancer⁸.

Given this context, the objective of this study was to evaluate women's knowledge regarding myths and facts related to breast cancer.

METHOD

This is a quasi-experimental study conducted at a Maternal, Child, and Adolescent Reference Unit (UREMIA) in Belém, Pará. Two educational sessions were held in October 2024 in the waiting room of the breast clinic.

The study participants were patients or companions present in the waiting room of the breast clinic who were 18 years of age or older. Women with cognitive impairments that would compromise their understanding of the questionnaire, severe hearing impairments, or clinical conditions that would prevent their participation in the study were excluded.

Select participants were chosen for convenience, by inviting women who were waiting for previously scheduled breast ultrasound exams. No prior review of medical records was conducted to identify participants. The educational sessions took place in the morning, before the exams began, as a group session held in the service's waiting room. The activities were started when there were, on average, between 12 and 15 women present.

Initially, the participants were provided with information about the study's objectives and were invited to participate in the study. After expressing interest, they were briefed on the Free and Informed Consent Form (FICF), which involved reading the document, addressing any questions, and signing it. For illiterate participants, the FICF was read in its entirety by the researchers in accessible language, ensuring that the information was understood and any questions were answered before consent was formally given.

Data collection took place in three stages. The first stage involved inviting participants, having them read and sign the Free and Informed Consent Form (FICF), and administering the pretest. The second stage consisted of conducting the health education session and the interactive "Myth or Truth" activity. The third stage involved administering the questionnaire again (post-test) and distributing the educational brochure (Figure 1).

For illiterate participants, the questionnaire was administered with assistance: one of the researchers read the questions aloud and recorded the responses provided verbally by the participants. Figure 1 illustrates how data collection was conducted.

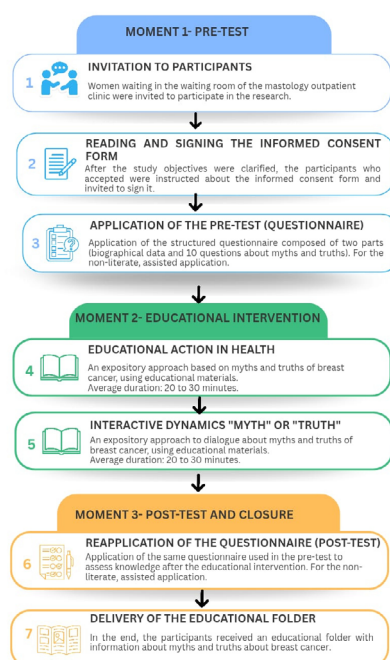


Figure 1. Flowchart of the three moments of data collection. Belém, PA, Brazil, 2024

Source: The authors (2024).

After Moment 1, a structured questionnaire (pre-test) consisting of two parts was administered: Part 1: demographic data such as age, religion, city of residence, and level of education; Part 2: 10 multiple-choice questions related to myths and facts about breast cancer, namely: 1) Does breast cancer only occur in people with a family history of the disease? 2) Does breastfeeding reduce the risk of breast cancer? 3) Does using deodorant cause breast cancer? 4) Can breast cancer be caused by trauma to the breast? 5) Can silicone implants cause breast cancer? 6) Does physical activity help prevent breast cancer? 7) Does wearing a tight bra cause breast cancer? 8) Can long-term use of birth control pills cause breast cancer? 9) Can obesity contribute to the development of breast cancer? 10) Do women who perform breast self-exams not need to have a mammogram? For each question, participants were asked to select one of the following options: "myth," "fact," or "I don't know."

The questionnaire was developed by the researchers based on information provided in the booklet "Breast Cancer: Let's Talk About It?" published by INCA⁹, using simple and simple and objective language to facilitate the participants' understanding. The questionnaire was completed by hand, with an estimated completion time of 20 to 30 minutes.

Subsequently, a health education session was conducted using an interactive presentation format in the waiting room, in easy-to-understand language, highlighting the main questions and answers related to the first questionnaire.

To help participants understand and clarify their understanding during the activity, several educational materials were used, such as: a serial album with 10 questions about myths and facts regarding breast cancer, produced by the researchers using images created in the Canva app (Figure 2); four laminated A4 sheets featuring eight real images of the signs of breast cancer, and an apron with crocheted breasts to facilitate the explanation of self-examination; illustrative "myth" and "truth" signs used in the interactive activity; and an educational brochure containing information about the myths and truths regarding breast cancer.



Figure 2. Cover of a serial album used during the educational activity on breast cancer. Belém, PA, Brazil, 2024

Source: The authors (2024).

During the educational session, various educational materials were used to support the presentation of the content and encourage the women's participation. To discuss myths and facts related to breast cancer, a series of picture cards was used, supplemented by an interactive activity with cards labeled "myth" and "fact." In addition, laminated sheets with real images were used to demonstrate the main signs of the disease, while an apron with crocheted breasts was used to provide guidance on breast self-examination. At the end of the activity, participants were given an educational brochure prepared by the researchers, with the aim of reinforcing the guidance provided during the educational session.

An interactive activity was also conducted using illustrated signs bearing the words "myth" and "truth"; for each question, participants were instructed to hold up the signs corresponding to their answers. The activity lasted an average of 20 to 30 minutes. At the end of the health education action, the same questionnaire (post-test) used previously to the educational session was administered again, allowing for a comparison of the participants' knowledge before and after the implementation of the educational actions.

After completing the questionnaire, the participants received a brochure (Figure 3), created by the researchers, featuring images generated using the Canva app and information about myths and facts regarding breast cancer. For illiterate participants, the questionnaire was administered with assistance: one of the researchers read the questionnaire aloud and recorded the responses provided verbally.



Figure 3. Educational folder used after the educational intervention in health. Belém, PA, Brazil, 2024

Source: The authors (2024).

After data collection, a descriptive statistical analysis of the responses was conducted before and after the educational interventions. The data were organized in *Microsoft Word and Excel 2010* and analyzed using *Bioestat 5.5* software. To present the results, absolute and relative frequencies were used, arranged in comparative tables between the pre- and post-intervention periods.

To perform this study at UREMIA, authorization was requested from the unit’s director. Afterward, the project was submitted to the Research Ethics Committee (CEP, acronym in Portuguese) of the University Center of Pará (CESUPA), which approved it under opinion No. 7,243,942.

RESULTS

The sample consisted of 32 women, with a predominance in the 38- to 47-year-old age group, followed by participants between the ages of 48 and 57. Regarding educational attainment, high school was the most common level, while elementary school and higher education were equally represented. The Catholic religion was reported by 25 (78.1%) of the participants, and the majority resided in the municipality of Belém, with participants also representing other municipalities in the state of Pará. The complete distribution of sociodemographic variables is presented in Table 1.

Table 1. Sociodemographic characterization of the study participants (N=32). Belém, Pará, Brazil, 2024

Variable	n	%
Age Group		
22 f- 28	5	15.6
28 f-34	2	6.3
34 f-40	5	15.6
40 f-46	11	34.6
46 f-52	7	21.9
52 f-58	2	6.3
Religion		
Catholic	25	78.1
Christian	03	9.3
Evangelical	02	6.3
Did not declare	02	6.3
Municipality		
Belém	20	62.5
Ananindeua	04	12.6
Igarapé-Açu	02	6.3
Other municipalities	06	18.7
Education Level		
Elementary School	06	18.7
High School	20	62.5
Higher Education	06	18.7
Total	32	100

Legend: Other municipalities and the number of participants: Mosqueiro (1), Santo Antônio do Tauá (1), São Caetano de Odivelas (1), Marajó (1), Acará (1) and Gurupá (1).

Source: The authors (2024).

Table 2 shows the distribution of the participants' knowledge regarding myths and facts related to breast cancer before and after the educational activities. Overall, there was an increase in the frequency of correct responses to virtually all the statements evaluated after the educational intervention, accompanied by a decrease in "I don't know" responses, indicating an improvement in the participants' knowledge of risk factors, preventive measures, and strategies for early detection of the disease. The results demonstrate that the educational activities helped to clarify doubts and correct misconceptions related to breast cancer, fostering a better understanding of the aspects involved in the prevention and screening for the disease.

The greatest improvements were observed in questions related to deodorant use, breast trauma, silicone implants, and wearing tight bras, where 30 (93.75%) participants demonstrated adequate knowledge after the intervention. Improvements were also identified in statements regarding breastfeeding, with an increase in correct responses among 11 participants following the educational session; as well as in statements regarding long-term contraceptive use, obesity, and physical activity, indicating greater awareness among participants of the protective and risk factors related to breast cancer.

Although improvements were observed across all topics addressed, the statement regarding the need for mammograms, even among women who perform breast self-exams, had the lowest percentage of correct responses following the educational intervention, correctly classified by 27 (84.38%) women.

Table 2. Women's knowledge before and after the educational activities (N=32). Belém, Pará, Brazil, 2024

QUESTIONS	Before the educational action			After the educational action		
	A	E	NSR	A	E	NSR
	%(n)	%(n)	%(n)	%(n)	%(n)	%(n)
Does breast cancer only appear in those who have a family history?	87.5% (28)	9.38% (3)	3.12% (1)	100% (32)	—	—
Does breastfeeding lower the risk of breast cancer?	56.25% (18)	28.12% (9)	18.75% (6)	90.62% (29)	9.38% (3)	—
Does using deodorant cause breast cancer?	34.38% (11)	9.38% (3)	56.25% (18)	93.75% (30)	6.25% (2)	—
Can breast cancer be caused by trauma to the breast?	15.62% (5)	53.13% (17)	31.25% (10)	93.75% (30)	6.25% (2)	—
Does silicone use cause breast cancer?	25% (8)	37.5% (12)	37.5% (12)	93.75% (30)	6.25% (2)	—
Does the practice of physical activities help prevent breast cancer?	90.62% (29)	—	9.38% (3)	93.75% (30)	6.25% (2)	—
Does wearing a tight bra cause breast cancer?	43.75% (14)	21.87% (7)	34.38% (11)	93.75% (30)	6.25% (2)	—
Can long-term use of contraceptives cause breast cancer?	59.38% (19)	9.38% (3)	31.25% (10)	93.75% (30)	6.25% (2)	—
Can obesity contribute to the onset of breast cancer?	65.63% (21)	6.25% (2)	28.13% (9)	90.62% (29)	6.25% (2)	3.12% (1)
Who does self-examination does not need to have a mammogram?	87.5% (28)	3.12% (1)	9.38% (3)	84.38% (27)	15.62% (5)	—

Legend: A = Adequate classification; E= Inadequate classification; NRS= Did not know how to answer (doubts);%= Percentage.

Source: The authors (2024).

DISCUSSION

The findings of this study showed that myths about breast cancer still persist among women, even in specialized care settings, which indicates a lack of information on the subject. This conclusion reinforces data from the national and international literature. Despite widespread access to information, misconceptions about risk factors and ways to prevent the disease continue to influence women's self-care behaviors^{7, 10–11}.

Before the intervention, a high frequency of questions and conflicting beliefs was observed regarding the use of deodorants, tight bras, silicone implants, and breast trauma, highlighting the persistence of misinformation about factors associated with breast cancer. These findings corroborated studies pointing to the persistence of culturally constructed explanations — often passed down from generation to generation — that link the onset of cancer to daily habits or external causes without scientific evidence^{12–13}. Following the educational intervention, an increase in the frequency of correct answers to these questions was observed, indicating that educational interventions contribute to debunking misconceptions related to breast cancer.

The results showed that women had satisfactory prior knowledge about certain risk factors and protective measures, such as the role of breastfeeding and physical activity in preventing the disease, as well as aspects related to screening and the importance of mammography as an essential test. These findings were consistent with other studies highlighting advances in the dissemination of information about breast cancer, especially as a result of awareness campaigns such as "*Pink October*"^{6,14}.

However, the fact that significant doubts still exist regarding topics such as long-term contraceptive use and obesity reinforces the need for ongoing educational strategies tailored to the sociocultural reality of each group¹⁵.

The significant improvement observed between the pre- and post-tests indicated that educational interventions, when planned in a participatory manner and using accessible language, are effective in expanding knowledge and promoting preventive behaviors. This finding corroborates the literature, which indicates that educational interventions can positively influence women's health management, helping to reduce the incidence and severity of breast cancer through effective surveillance and health education¹⁶.

However, although the results are important, it was observed that doubts regarding screening and early detection strategies still persist among some of the participants, indicating the need to strengthen educational efforts aimed at differentiating between breast self-examination and mammography, as well as clarifying the complementary roles of these methods in the early identification of breast cancer.

It is worth noting that the use of visual aids and participatory activities, such as the sequential album and the use of crocheted breasts to demonstrate self-examination, contributed to the participants' engagement and to a better understanding of the information. The use of active methodologies and playful materials enhances humanized, participatory learning focused on the autonomy and reflection of health service users^{17,8}.

Nursing, as a profession that works directly in health promotion, plays a strategic role in debunking beliefs and myths, as well as in strengthening self-care. Nurses, in carrying out their educational roles, must recognize the cultural representations that shape popular perceptions of cancer and work with women to build a teaching-learning process grounded in dialogue and respect for individual experiences^{18,16}.

In this context, Madeleine Leininger's Transcultural Theory offers an important framework for understanding how cultural beliefs and values influence the way women perceive breast cancer and adopt self-care practices. Furthermore, care becomes

effective only when it is culturally congruent—that is, when it recognizes and integrates the experiences, meanings, and sociocultural patterns of the group being served. Thus, the myths identified in this study should not be understood merely as gaps in knowledge, but as historically shared cultural constructs that need to be embraced and addressed in a sensitive and contextualized manner. By incorporating principles of transcultural care, nursing expands its capacity to develop educational interventions that engage with women's realities, encourage adherence to preventive practices, and promote more lasting changes in health-related behavior¹⁹.

Thus, the results of this study confirm that educational interventions are effective tools for correcting misconceptions and expanding women's knowledge about breast cancer. However, it is important to note that confronting myths requires continuous, intersectoral actions supported by public health education policies to ensure equitable access to information and strengthen women's active role in the prevention and early detection of the disease.

Overall, the findings of this study demonstrate that educational initiatives contributed to expanding participants' knowledge about the myths and truths related to breast cancer. An increase in the frequency of correct answers was observed for most questions following the educational intervention, indicating that the activities helped debunk misconceptions and reinforce self-care and prevention practices.

Among the study's limitations were the small number of participants and the fact that the study was conducted at a single health care facility—factors that may limit the generalizability of the results to other contexts. Also noteworthy were the anxiety caused by waiting times and the stress associated with medical appointments and tests, as some participants were experiencing these situations during data collection. Such circumstances may have created an environment less conducive to interaction between researchers and participants, compromising the quality of communication. These factors possibly contributed to lapses in attention and to potential inconsistencies in the questionnaire responses.

CONCLUSION

The educational interventions developed in this study proved to be an effective strategy for clarifying and expanding women's knowledge about myths and facts related to breast cancer. There was an improvement in the identification of actual risk factors and in debunking widely held misconceptions, especially those related to the use of silicone, deodorant, tight bras, and trauma to the breasts.

The results reinforce that educational interventions planned and conducted by nurses, using understandable language, collaborative methodologies, and educational materials, are essential tools for promoting women's autonomy and empowerment in managing their own health. Such interventions facilitate early detection of the disease and help reduce behaviors based on misinformation, thereby strengthening the role of nursing in health promotion and breast cancer prevention.

It is also important that these efforts be continuous and contextualized to the sociocultural realities of women, in a way that consolidates the knowledge acquired and ensures lasting changes in self-care practices. It is recommended that future research explore the impact of educational strategies across different age groups and social contexts, expanding the evidence base regarding the effectiveness of these practices in women's health.

In terms of implications for nursing practice, this study offers insights into educational interventions as a strategy for promoting health and preventing breast cancer in women.

REFERENCES

1. Instituto Nacional de Câncer José Alencar Gomes da Silva (INCA). Detecção precoce. Rio de Janeiro: INCA [Internet]. 2024 [cited 2024 May 10]. Available from: <https://www.gov.br/inca/pt-br/assuntos/gestor-e-profissional-de-saude/controlado-cancer-de-mama/acoes/deteccao-precoce>
2. Instituto Nacional de Câncer José Alencar Gomes da Silva (INCA). Estimativa 2023: incidência de câncer no Brasil. Rio de Janeiro: INCA [Internet]. 2022 [cited 2024 May 25]. 162 p. Available from: <https://www.inca.gov.br/publicacoes/livros/estimativa-2023-incidencia-de-cancer-no-brasil>
3. Xu H, Xu B. Breast cancer: epidemiology, risk factors and screening. Chin J Cancer Res [Internet]. 2023 [cited 2026 Mar 31];35(6):565-83. Available from: <https://doi.org/10.21147/j.issn.1000-9604.2023.06.02>
4. Instituto Nacional de Câncer José Alencar Gomes da Silva (INCA). Câncer de mama. Rio de Janeiro: INCA [Internet]. 2025 [cited 2026 Mar 31]. Available from: <https://www.gov.br/inca/pt-br/assuntos/cancer/tipos/mama>
5. Instituto Nacional de Câncer José Alencar Gomes da Silva (INCA). Câncer de mama: fatores de risco e como prevenir. Rio de Janeiro: INCA [Internet]. 2023 [cited 2025 Nov 20]. 11 p. Available from: <https://ninho.inca.gov.br/jspui/handle/123456789/15225>
6. Araújo-Gomes RC, Ferreira AGN, Dutra RP, Pereira ALF, Santos Neto M. Estratégias de prevenção do câncer de mama: revisão integrativa. Saúde Desenvolv Hum [Internet]. 2021 [cited 2024 Nov 26];9(3):1-9. Available from: <https://doi.org/10.18316/sdh.v9i3.7319>
7. National Cancer Institute. Common cancer myths and misconceptions [Internet]. Bethesda (MD): National Cancer Institute. [Internet]. 2024 [cited 2024 Nov 9]. Available from: https://www.cancer.gov/about-cancer/causes-prevention/risk/myths?utm_source
8. Ferreira DS, Bernardo FMS, Costa EC, Maciel NS, da Costa RL, Carvalho CML. Knowledge, attitude and practice of nurses in the detection of breast cancer. Escola Anna Nery [Internet]. 2020 [cited 2024 Oct 23];24(2):e20190054. Available from: <https://doi.org/10.1590/2177-9465-EAN-2019-0054>
9. Instituto Nacional de Câncer José Alencar Gomes da Silva. Câncer de mama: vamos falar sobre isso? [Internet]. Rio de Janeiro: INCA; 2022 [cited 2026 May 15];7:12. Available from: <https://ninho.inca.gov.br/jspui/handle/123456789/14286>
10. Assad NTC, de Carvalho Filho AXC, Freire MES, Pereira BA, Rezende BJM, Costa GK, et al. Perception of the population of the city of Passos about the factors that determine the emergence of cancer: myths and truths. Revista de Medicina (São Paulo) [Internet]. 2022 [cited 2024 Oct 24];101(4):e-190135. Available from: <https://doi.org/10.11606/issn.1679-9836.v101i4e-190135>
11. Agência Brasil de Saúde. Pesquisa mostra mitos e desinformações sobre o câncer de mama. Brasília: EBC [Internet]. 2022 [cited 2024 Nov 5];Saúde:[about 7 screens]. Available from: <https://agenciabrasil.ebc.com.br/saude/noticia/2022-09/pesquisa-mostra-mitos-e-desinformacoes-sobre-o-cancer-de-mama>
12. dos Santos TB, Borges AKM, Ferreira JD, Meira LC, de Souza MC, Guimarães RM, et al. Prevalência e fatores associados ao diagnóstico de câncer de mama em estágio avançado. Ciênc Saúde Coletiva [Internet]. 2022 [cited 2024 Apr 10];27(2):471-82. Available from: <https://doi.org/10.1590/1413-81232022272.36462020>
13. Faryabi R, Daneshi S, Davarani ER, Yusefi AR, Arabpour M, Ezoji K, et al. The assessment of risk factors and risk perception status of breast cancer in Northern Iran. BMC Womens Health [Internet]. 2023 [cited 2024 Nov 11];23:268. Available from: <https://doi.org/10.1186/s12905-023-02422-z>
14. Santos DS, da Silva Filho WSS. O conhecimento das mulheres sobre o exame de mamografia e o câncer de mama na zona urbana do município de Lagoa do Mato, Maranhão. Somma: Rev Científica do IFPI [Internet]. 2024 [cited 2026 Mar 20];10:e161024. Available from: <https://doi.org/10.51361/somma.v10i1.317>
15. Boeno PX, do Amaral Júnior OL. O uso de contraceptivos orais e sua relação com o câncer de mama:

uma revisão de literatura. Rev Ciênc Saúde - REVIVA [Internet]. 2023 [cited 2024 Oct 13];2(2):34-52. Available from: <http://revistas.uceff.edu.br/reviva/article/view/468/772>

16. Moura TS, Magalhães PAP, Feltrin AFS, Silva TA. Percepção dos enfermeiros acerca da detecção precoce e prevenção do câncer de mama na atenção primária à saúde. Cuid Enferm [Internet]. 2022 [cited 2026 Mar 11];16(1):93-100. Available from: <https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1428390>

17. Gontijo LPT, Finkler M. Preparing health educators: the role of active teaching-learning methodologies and interprofessional education. Rev Iberoam Estud Educ [Internet]. 2025 [cited 2026 Mar 11];20:e20284. Available from: <https://doi.org/10.21723/riaee.v20i00.2028401>

18. Martins TDG, Weller M, Sousa CSM, Batista JDL. Breast cancer prevention in Primary Health Care: an analysis on the performance of nurses. Saúde Pesqui [Internet]. 2022 [cited 2024 Nov 12];15(2):1-16. Available from: <https://doi.org/10.17765/2176-9206.2022v15n2.e10193>

19. Leininger M. Culture care diversity and universality: a theory of nursing. New York: National League for Nursing Press; 1991. 432 p.

Received: 18/12/2025

Approved: 10/07/2026

Associate editor: Dra. Luciana de Alcantara Nogueira

Corresponding author:

Dione Seabra de Carvalho

Universidade Federal do Pará

R. Augusto Corrêa, 01 - Guamá, Belém - PA, 66075-110

E-mail: diseabra10@gmail.com

Role of Authors:

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **de Carvalho DS, Soares DLM, Souza LCS, Jeremias TISS**. Drafting the work or revising it critically for important intellectual content - **de Carvalho DS, Soares DLM, Souza LCS, Jeremias TISS, da Silva CC, de Santana ME, Moura EAF**. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **de Carvalho DS, Soares DLM, Souza LCS, Jeremias TISS**. All authors approved the final version of the text.

Conflicts of interest:

The authors have no conflicts of interest to declare.

Data availability:

The authors declare that all data are fully available within the article.

ISSN 2176-9133



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).