Original article

# Health education about the prevention of breast carcinoma: a look at older age

# Educação em saúde acerca da prevenção do carcinoma mamário: um olhar sobre a terceira idade

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**ABSTRACT | OBJECTIVE:** To evaluate the contribution of educational actions to the secondary prevention of breast cancer in old age. **METHODS:** It is a quasi-experimental trial of the type before and after the research-intervention, exploratory-descriptive with a quantitative approach, passed in the city of Pereiro - CE, with 18 members of the group "Idade Feliz" ("Happy Age") of the Centro de Referência da Assistência Social (Reference Center for Social Assistance), in 2023. The research took place in two meetings: in the first, participants answered a structured form in three stages, the last being intended for the prior assessment of knowledge on the subject. In the second meeting, an educational intervention aimed at the prevention of breast carcinogenesis with relevance to screening exams was carried out, followed by the reapplication of the third stage of the form to measure post-intervention knowledge. The analysis was carried out through descriptive statistics in the Microsoft Office Excel (2016) program. **RESULTS:** It was observed that 63.3% of the participants were between 60 and 70 years old, 66.7% had incomplete elementary education, and only 50% had undergone some type of early detection exam. It was also noted that after the implementation of the educational action, there was a significant advance in the participants' knowledge about the importance of mammography even after performing the clinical breast exam or self-exam. **CONCLUSION:** Thus, it is evident that health education stands out as a fundamental tool to promote awareness for the elderly to adhere to breast exams.

**KEYWORDS:** Health Education. Breast Cancer. Elderly. Nursing.

**RESUMO | OBJETIVO:** Avaliar a contribuição de ações educativas para a prevenção secundária do câncer de mama na terceira idade. **MÉTODOS:** Trata-se de ensaio quase experimental do tipo antes e depois, a pesquisa-intervenção, de natureza exploratória-descritiva com abordagem quantitativa, transcorreu no município de Pereiro - CE, com 18 integrantes do grupo "Idade Feliz" do Centro de Referência da Assistência Social, no ano de 2023. A pesquisa ocorreu em dois encontros: no primeiro, os participantes responderam a um formulário estruturado em três etapas, sendo a última destinada à avaliação prévia do conhecimento sobre o tema. No segundo encontro, foi realizada a intervenção educativa direcionada à prevenção da carcinogênese mamária com relevância aos exames de rastreamento, seguida da reaplicação da terceira etapa do formulário para mensurar o conhecimento pós-intervenção. A análise procedeu-se através da estatística descritiva no programa *Excel* (2016) da *Microsoft Office*. **RESULTADOS:** Observou-se que 63,3% dos participantes situavam-se na faixa etária de 60 a 70 anos, 66,7% possuíam ensino fundamental incompleto, e apenas 50% haviam realizado algum tipo de exame de detecção precoce, notou-se ainda, que após a implementação da ação educativa, houve um avanço significativo no conhecimento dos participantes sobre a importância da mamografia mesmo após a realização do exame clínico das mamas ou do autoexame. **CONCLUSÃO:** Dessa maneira, evidencia-se que a educação em saúde se destaca como uma ferramenta fundamental para promover a sensibilização para a adesão da terceira idade aos exames mamários.

**PALAVRAS-CHAVE:** Educação em Saúde. Câncer de Mama. Idosos. Enfermagem.

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## 1. Introduction

Breast Cancer (BC) is characterized by a disease resulting from the disordered multiplication of epithelial cells of the breast tissue, generating a malignant tumor that causes harmful effects to the patient's health.[1] In Brazil, breast cancer is considered a public health problem due to the progressive increase in its incidence and mortality, demographic aging and growth, and socioeconomic degeneration.[2]

According to the Instituto Nacional de Câncer - INCA (National Cancer Institute), 73,610 new breast cancer diagnoses are expected per year in the three-year period of 2023-2025[3], which represented an increase in incidence compared with the 66,280 cases in 2022.[2] According to the Atlas de Mortalidade no Brasil (Mortality Atlas in Brazil), there were 18,295 deaths from this carcinoma in 2019, including 18,068 women and 227 men. Although it is predominant in women, the male population corresponded to 1% of this rate.[4]

According to Falcão, Cardoso and Gomes, between 2010 and 2019, there were 153,951 deaths by BC in the national territory. Of this total, 81,322 occurred with the elderly population, representing 52.82% of deaths, whose highest frequency of hospitalizations was in the age group from 60 to 69 years, corresponding to 41.60% of cases, and 70 to 79 years with 31.02% of hospitalizations.[5]

The aging process causes cell changes that amplify the predisposition to malignant mutations due to exposure to risk factors throughout life.[6] Recent studies have shown that elderly people with malignant breast neoplasms living below the poverty line, such as Illiterate, without access to drinking water or who have greater dependence, have higher mortality rates.[7]

A study on the prevention of breast cancer found that the knowledge of participants was still very limited and restricted, reflecting the sharp increase in cases of the disease. This finding only serves to support the hypothesis that this unfortunate reality is closely related to unawareness of breast cancer, early detection and screening methods.[8]

Based on these considerations, the development of health education about secondary prevention, corresponding to early detection of breast cancer, becomes relevant and fundamental, considering that the finding of the disease in its initial stage favors the chance of cure and survival.[9] According to Alves et al., there is a relationship between motivation in relation to health and the development of actions for increasing knowledge about breast cancer and steps to identify it, positively providing awareness and promotion of early diagnosis, generating possibility of new perspectives, such as full recovery.[10]

Prevention is the most effective strategy in coping with breast cancer, and nurses play an essential role in this context, especially in disease screening. Its performance is directly linked to the identification of risk factors and the orientation of the population regarding preventive measures. In addition, in primary health care, nurses assume an educational role and are empowered to promote awareness campaigns. Therefore, its role is crucial in the dissemination of information on breast cancer prevention and in the early detection of factors that may increase the incidence of the disease.[11]

Thus, the educational practice related to breast cancer is intended to promote knowledge and awareness of the importance of self-examination of breasts, clinical examination and mammography for both sexes. Therefore, the following guiding question was elaborated: How can health education contribute to the adherence of the elderly public to breast exams?

Considering the context addressed and the fundamental importance of early screening, along with the analysis of the epidemiological panorama associated with this condition, the objective of this study is to evaluate the contribution of educational actions for secondary prevention of breast cancer in the elderly.

## 2. Method

The present study is a quantitative and descriptive intervention research, developed in 2023 at a Centro de Referência de Assistência Social - CRAS (Reference Center for Social Assistance), located in the municipality of Pereiro-CE. The research was carried out in two stages with the group "Idade Feliz" ("Happy Age"), linked to the Serviço de Convivência e Fortalecimento de Vínculos - SCFV (Service of Coexistence and Strengthening of Bonds) of the elderly, which is offered by the institution, whose purpose is to stimulate the active participation of users in society, promoting protagonism, development and overcoming social vulnerability.

The process of choosing the study audience was through non-probabilistic sampling, accessed by convenience. To determine the sample quantity, participants aged 60 years or older and of both sexes were included, while those who did not constitute the priority group or who lived in rural areas were excluded. The choice by urban public was motivated by the geographic proximity to the research site, which facilitated the recruitment and operationalization of educational interventions, considering the limitations of displacement and access to rural areas.

Therefore, the SCFV had 93 users who were part of the "Idade Feliz" ("Happy Age") group, of these 71 were removed from the sample based on exclusion criteria. Of the remaining 22 participants, all met the inclusion requirements. However, during the research, 4 participants were eliminated in data collection due to absence in the second phase, thus obtaining a final quantity of 18 study participants.

The data collection was developed through two meetings. In the first, the project objective was presented, followed by obtaining signatures of the Informed Consent and Use of Image Forms. Then, an instrumental developed by the researcher herself was applied, composed of closed and multiple choice questions, containing three distinct stages: 1) Sociodemographic characterization of participants; 2) Self-care and screening practices; 3) Questions on the subject to analyze the previous knowledge of the public about breast cancer.

The forms were applied individually, in the CRAS' facilities. Some participants filled out the answers themselves, while those with reading and writing difficulties answered orally, and the answers were recorded by the researcher. The average length of each interview was approximately seven minutes.

In the second meeting, the Health education intervention was carried out through a lecture accompanied by slide presentation, lasting 30 minutes, on the prevention and importance of breast exams, in which the correct form of breast palpation was demonstrated, as well as guidance on morphological aspects and changes from carcinogenesis. At the end of the educational moment, participants again answered the form of the third stage to evaluate the contribution of the intervention in the knowledge about breast carcinogenesis and the aforementioned tests.

The collection took place directly and individually, in August of 2023 during the service hours of the SCFV, intended for the elderly, from 18:00 to 21:00 on Tuesdays.

The analysis was carried out through interpretation and transcription of variables, using descriptive statistics. Thus, the data obtained from this study were tabulated and organized in tables containing the variables with the help of the Excel program (2016) of Microsoft Office Home and Student and discussed in light of the literature.

The study was submitted to the evaluation of the Research Ethics Committee (REC) of the Universidade do Estado do Rio Grande do Norte - UERN (University of the State of Rio Grande do Norte) by Plataforma Brasil, and approved under the CAAE nº 71228123.6.0000.5294, through opinion 6.194.146, of July of 2023.

## 3. Results

According to the socioeconomic data presented in Table 1, the predominant age group of participants was between 60 and 70 years old, representing 61.1% of the total, being 12 (66.7%) female and 6 (33.3%) male. Regarding the ethnic-racial self-declaration, 9 (50%) identified themselves as brown, followed by 5 (27.8%) white and 4 (22.2%) black.

As for the level of schooling, 12 (66.6%) have incomplete elementary school education, while 1 individual (5.6%) completed this educational phase. It is also noted that 1 (5.6%) has incomplete secondary education, another (5.6%) completed secondary education, and 3 (16.6%) are illiterate. Regarding family income, 11 (61.1%) receive up to 2 minimum wages. In addition, 7 (38.9%) have a partner, while another 7 (38.9%) are widows and widowers.

**Table 1.** Socioeconomic profile of participants (N=18). Pereiro, CE, Brazil 2023

| Variables | n | % |
|---|---|---|
| **Age** | | |
| 60 - 70 years | 11 | 61.1% |
| 71 - 80 years | 04 | 22.2% |
| ≥ 81 years | 03 | 16.7% |
| **Sex** | | |
| Female | 12 | 66.7% |
| Male | 06 | 33.3% |
| **Color** | | |
| White | 05 | 27.8% |
| Black | 04 | 22.2% |
| Brown | 09 | 50% |
| **Schooling** | | |
| Incomplete Elementary School | 12 | 66.6% |
| Complete Elementary School | 01 | 5.6% |
| Incomplete High School | 01 | 5.6% |
| Complete High School | 01 | 5.6% |
| Illiterate | 03 | 16.6% |
| **Family Income** | | |
| Up to one minimum wage | 07 | 38.9% |
| 1 - 2 minimum wages | 11 | 61.1% |
| **Marital Status** | | |
| Single | 03 | 16.6% |
| Married | 07 | 38.9% |
| Widowed | 07 | 38.9% |
| Divorced | 01 | 5.6% |

Source: the authors (2023).

Table 2 shows that 15 (83.3%) of the participants have no family history of breast cancer and that only 6 (33.3%) received information about BC in the last two years. When asked where they obtained this information, 4 (22.2%) mentioned having acquired it through newspapers and TV. Among the investigations, it was found that 9 (50%) had already performed breast examinations, of which 9 (50%) had mammographies, 5 (27.7%) clinical examinations and 4 (22.2%) self-examinations of the breasts.

When asked if they found any breast changes during breast self-examination (MSA) in the last two years, 14 (77.8%) answered that they do not perform it. In addition, 13 (72.2%) said that their breasts were never examined by a professional at the basic health unit, and 5 (27.7%) never heard about breast exams.

**Table 2.** Information on self-care and practices on methods for early detection (N = 18). Pereiro, CE, Brazil 2023

| Variables | n | % |
|---|---|---|
| **Family history of breast cancer?** | | |
| Yes | 03 | 16.7% |
| No | 15 | 83.3% |
| **Information about breast cancer in the last 2 years?** | | |
| Yes | 06 | 33.3% |
| No | 09 | 50.0% |
| Cannot remember | 03 | 16.7% |
| **If positive, where?** | | |
| Health Unit | 02 | 11.1% |
| Newspapers and TV | 04 | 22.2% |
| Relatives and acquaintances | 00 | 0 % |
| Cannot remember | 00 | 0 % |
| **Previous breast examination?** | | |
| Yes | 09 | 50.0% |
| No | 09 | 50.0% |
| **If positive, which one?** | | |
| Breast self-examination | 04 | 22.2% |
| Breast clinical examination | 05 | 27.7% |
| Mammography | 09 | 50.0% |
| **Any breast alteration during the BSE in the last 2 years?** | | |
| Yes | 00 | 0% |
| No | 04 | 22.2% |
| Cannot remember | 00 | 0% |
| No performance of BSE | 14 | 77.8% |
| **How often did a health professional exam your breasts in the last 2 years?** | | |
| Once | 02 | 11.1% |
| Twice | 02 | 11.1% |
| Three time or more | 01 | 5.6% |
| None | 13 | 72.2% |
| Cannot remember | 00 | 0% |
| **In case of no breast examination, what is the reason?** | | |
| Neglect | 00 | 0% |
| Disbelief in the examinations | 00 | 0% |
| Don't know what to look for | 01 | 5.6% |
| Unable to do the examination | 02 | 11.1% |
| Never heard about the examinations | 05 | 27.7% |
| Fear of finding a tumor | 01 | 5.6% |

Source: the authors (2023).

Table 3 shows the comparative data of the percentages related to the knowledge of the target audience about breast cancer before and after intervention. The results indicate significant differences in responses after health education and post-test application, especially in favorable statements about breast examinations.

**Table 3.** Accuracy rates before and after breast cancer intervention (N=18). Pereiro, CE, Brazil 2023

| Variables | Pre % | Post % |
|---|---|---|
| **What is breast cancer for you?** | | |
| It's just a lump | 33.3% | 16.7% |
| It's a disease developed by the disordered multiplication of breast cells | 5.6% | 38.9% |
| A disease caused by aging | 22.2% | 11.1% |
| A disease caused by bad habits | 5.6% | 22.2% |
| Don't know | 33.3% | 11.1% |
| **Can breast cancer be cured?** | | |
| Yes | 50% | 83.3% |
| No | 50% | 16.7% |
| **Do you know the signs and symptoms of breast cancer?** | | |
| Yes | 44.4% | 77.8% |
| No | 55.6% | 22.2% |
| **Do you know the risk factors for breast cancer?** | | |
| Yes | 27.8% | 61.1% |
| No | 72.2% | 38.9% |
| **Do you know the most prevalent cancer types?** | | |
| Yes | 0% | 44.4% |
| No | 100% | 55.6% |
| **Do you know the examinations for screening breast cancer?** | | |
| Yes | 55.6% | 83.3% |
| No | 44.6% | 16.7% |
| **How often should the self-examination be done?** | | |
| Annually | 5.6% | 5.6% |
| Monthly | 11.1% | 61.1% |
| Every six months | 0% | 11.1% |
| Don't know | 83.3% | 22.2% |
| **How often should the breast clinical examination be done?** | | |
| Annually | 11.1% | 44.4% |
| Monthly | 0% | 5.6% |
| Every six months | 0% | 22.2% |
| In case of any alteration | 0% | 5.6% |
| Don't know | 88,9% | 22.2% |
| **How often should mammography be done?** | | |
| Annually | 22.2% | 16.7% |
| Every six months | 0% | 0% |
| Every two years | 11.1% | 72.2% |
| Don't know | 66.7% | 11.1% |
| **Which of these mentioned examinations is the most indicated for the early diagnosis of breast cancer?** | | |
| Breast self-examination | 0% | 0% |
| Breast clinical examination | 0% | 5.6% |
| Mammography | 44.4% | 72.2% |
| Don't know | 55.6% | 22.2% |
| **Is there need for mammography even in case of an examination by a health professional or breast self-examination?** | | |
| Yes | 38.9% | 61.1% |
| No | 44.4% | 27.8% |
| Don't know | 16.7% | 11.1% |

Source: the authors (2023).

There was a growth in the understanding that breast cancer develops by disordered multiplication of breast cells with 38.9% of participants agreeing with this definition, compared to the decrease in the idea that it is only one nodule with 16,7%, or 11.1% related to aging. In addition, there was a reduction in the number of participants who answered "Don't know" after the intervention, falling to 11.1%.

In the question whether breast cancer can be cured, there is an increase in the number of members who believe that breast neoplasm is treatable, with 83.3% expressing this conviction. In the subsequent questioning, 77.7% demonstrated to know the signs and symptoms, whereas previously 44.4% marked the affirmative. Regarding the risk factors, 61.1% declared to have understanding about them.

Regarding the most prevalent types of breast cancer, the percentages revealed that initially 100% had no knowledge. After the educational intervention, this number decreased to 55.6%. Concerning the recommended screening tests, there was a change in responses with 83.3% of participants pointing to learning.

In relation to the frequency of self-examination, participants recognized the importance of doing it monthly, going from 11.1% to 61.1%. Regarding the clinical examination of breasts, the change is also evident, with more users indicating an annual periodicity from 11.1% to 44.4%. The perception about the periodicity of mammography also improved, with 72.2% now understanding the recommendation to perform it every two years.

Moreover, they identified mammography as the most appropriate test for early diagnosis of breast cancer, going from 44.4% to 72.2%. In the last question, 44.4% said that it was not necessary to have a mammogram if they already performed other types of examinations. However, this perception has changed, with 61.1% now recognizing the importance of mammography even after performing a clinical breast examination or self-examination.

The intervention contributed significantly to improving participants' knowledge about breast cancer and its early recognition actions. After the implementation of the study, most participants correctly defined breast cancer as well as recognized the signs and symptoms of chronic disease. Furthermore, almost all participants learned about the types of screening tests for the disease and that mammography was the most appropriate, as well as the frequency of its use.

## 4. Discussions

The representativeness of participants belonging to the age group that ranged from 60 to 70 years old in this study represents a significant data, since it is related to demographics and risk factors for breast cancer. This finding is in line with the INCA[12] data, which indicate a higher mortality due to this neoplasm in older women, and approximately 45% of deaths occur between 50 and 69 years. In addition, an increase in mortality has been observed among those over 80 years of age.

The gender disparity highlights the difference between the sexes of the research participants. This percentage composition reinforces a finding consistent with a previous research, evidencing the urgent need to consider gender diversity when exploring issues related to this complex disease, especially in the male public.[13]

Regarding the level of schooling, the presence of incomplete elementary education of the participants is aligned with the conclusions of Silva[14], who argues that low levels of education make it difficult to obtain essential information related to disease prevention and early detection. Supporting this perspective, a previous study also identified a greater tendency of women with lower education levels to neglect breast examinations.[15]

As highlighted by the Sociedade Brasileira de Mastologia - SBM (Brazilian Society of Mastology), lack of information still represents a significant obstacle to the effectiveness of prevention and diagnosis of breast cancer in Brazil.[16] Notably, the results of this study resemble the evidence found, since a significant portion of respondents stated that they had not received information on the subject in the last two years. A survey conducted by the Reuters Institute for the Study of Journalism on the global dissemination of news found that approximately two-thirds (66%) of the Brazilian population use social media as a source of information.[17]

According to a time-series study, there was an increase in the coverage of mammography screening in Brazil between 2007 (71.1%) and 2018 (78.0%), showing progress in access to and adherence to this screening strategy.[18] Despite these advances, the prevalence of self-reported mammography in the present investigation indicated that half of the participants performed this screening examination. Nevertheless, it is observed that there is still room for improvement, since the other participants can benefit from the promotion and awareness of the practice of mammography.

In the last two years, when asked if their breasts were examined by a health professional, 66.7% of those involved in this survey reported that this did not occur at all. This finding is worrying, since early detection of breast cancer through clinical examinations is crucial to increase the chances of successful treatment, thus reducing mortality.[19]

A review article by Brazilian researchers emphasized that, in South Africa, 69% of the participants had never heard about carcinogenesis, which means that 94.7% of women have never undergone a screening examination.[20] At these analyses, the present investigation identified that some participants do not know how to perform any breast examination, and the others never heard about such procedures, when asked about the reasons for not performing them.

According to the National Coordination for Oncological Diseases (CNDO), a portion of the population lacks information about the origin of cancer and the carcinogenesis process.[21] This statement is consistent with the results of the present study, since the lack of understanding about what is breast cancer, its signs and symptoms, risk factors and the most prevalent types of cancer, presented lower percentages before the intervention.

The literature highlights an advance in understanding neoplasm and methods of early diagnosis after a health action, also emphasizing that the improvement of knowledge related to detection practices stimulates adherence to health promotion and examination.[11] In accordance with these data, the implementation of the educational strategy had a positive impact on participants' perceptions about the periodicity of examinations in the current analysis, especially in the case of self-examination and mammography, which registered an increase in the level of knowledge.

Currently, mammography is recognized as the standard examination for breast cancer screening and recommended by national and international guidelines as the most effective method for early detection.[22] In line with this guidance, users highlighted that, among the mentioned tests, it is the most suitable for early diagnosis. This data shows an increase in this perspective, considering that previously, less than half of the participants agreed with this statement.

Therefore, nurses should develop screening measures to identify breast cancer early, aiming to reduce mortality associated with this disease.[23] Pontes and their team[24] reiterate that nursing plays an essential role in the screening and early detection of BC, acting on communication and information provision. Its activities include the identification of target groups and development of initiatives to promote adherence of the population to mammography examinations.

A limitation of the study concerns its development exclusively in a health promotion group at the CRAS, which restricted the geographic coverage of the sample, and limited the generalization of results to more remote rural populations. Moreover, the reduced number of participants due to absence at the second meeting may have compromised the representativeness and statistical robustness of the findings.

However, the results of this research showed that health orientation assumes a key role in primary care services, as it seeks to promote knowledge and interest in the population to promote care, thus enabling cancer prevention, as evidenced by the results of this research. In addition, guidance contributes to strengthening the relationship between professionals and the community, establishing a constructive interaction and a solid basis for the prevention and effective management of various health conditions.[25]

## 5. Conclusion

The educational action aimed at secondary prevention of breast cancer in the elderly population has proved to be an effective strategy for the expansion of knowledge and the promotion of adherence to early screening practices. The analysis of the data points out that personalized educational strategies, adapted to the needs and characteristics of this specific demographic, considering the diversity of experiences and levels of education, can be fundamental to increase knowledge and, consequently, encourage the regular practice of screening examinations.

The limited number of articles aimed at the elderly and the male gender emphasizes the scarcity of research dedicated to this public, underlining the relevance and innovation of this study, which aims to fill this gap by providing updated and diversified insights. The absence of works in this field reinforces the need to direct efforts to understand and meet particular needs, thus optimizing preventive efforts.

Therefore, this study presents a significant contribution to science by highlighting the importance of educational strategies directed at the elderly population, emphasizing the impact of knowledge on breast health promotion. Furthermore, it provides subsidies for the performance of health professionals and future researchers, highlighting the need for innovative and playful methodologies that favor the assimilation of information and the engagement of this public in preventive practices.

Finally, the results show the importance of continuous investments in research and interventions aimed at reducing morbidity and mortality due to breast cancer in this population segment. The expansion of these initiatives can be enhanced through partnerships between health institutions, civil society organizations and community groups, strengthening the support network and promoting a positive impact on adherence to preventive measures.

### Authors' contributions

The authors stated that they made substantial contributions to the work in terms of research design or design; data acquisition, analysis or interpretation for the work; and writing or critical review of relevant intellectual content. All authors approved the final version to be published and agreed to take public responsibility for all aspects of the study.

### Competing interests

No financial, legal or political conflict involving third parties (government, companies and private foundations, etc.) has been declared for any aspect of the submitted work (including but not limited to grants and funding, participation in advisory board, study design, manuscript preparation, statistical analysis, etc.).

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