Original Article

Association between sociodemographic characteristics and adherence to early detection of breast cancer*

Associação entre características sociodemográficas e adesão à detecção precoce do câncer de mama

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*Extracted from the thesis entitled "Avaliação de estratégias para detecção precoce do câncer de mama em mulheres atendidas na atenção básica em saúde: enfoque na estrutura e processo do serviço", Universidade Federal do Ceará, 2019.

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Conflict of interest: the authors have declared that there is no conflict of interest.

EDITOR IN CHIEF: Viviane Martins da Silva
ASSOCIATE EDITOR: Renan Alves Silva

ABSTRACT

Objective: to verify the association between sociodemographic characteristics and the performance of actions for early detection of breast cancer. **Methods**: a cross-sectional study was carried out in six primary health care units, with 400 women considered a target population for actions for early detection of breast cancer. The Chi-square test of independence (2x2) was used for inferential analysis. **Results**: most women were between 60 and 64 years old, married, had low education and lacked an occupation or health insurance. A significant association was found between marital status and the interval between requesting and performing a mammogram ($X^2(1)$ = 208.185, p<0.001, Phi-coefficient= 0.902; Confidence Interval: 0.0308–0.0928). Women without a partner had a 0.95 times higher prevalence of having a mammogram. **Conclusion**: there was an association between the sociodemographic variable marital status and the performance of mammography in a shorter period, and not having a partner was a protective factor. **Contributions to practice**: the elucidation of factors related to the performance of actions for breast cancer screening can signal patients who need greater vigilance regarding the presence of signs and symptoms suggestive of breast cancer.
Descriptors: Primary Health Care; Observational Studies; Health Prevention; Breast Neoplasms; Early Detection of Cancer.

RESUMO

Objetivo: verificar a associação entre as características sociodemográficas e a realização das ações de detecção precoce do câncer de mama. **Métodos:** estudo transversal, realizado em seis unidades de atenção primária à saúde, com 400 mulheres consideradas população-alvo para ações de detecção precoce do câncer de mama. Para análise inferencial foi utilizado o Teste de Qui-quadrado de Independência (2x2). **Resultados:** a maioria das mulheres estava entre 60 e 64 anos, eram casadas, com baixa escolaridade, sem ocupação ou plano de saúde. Foi encontrada associação significativa entre o estado civil e o intervalo entre a solicitação e a realização da mamografia ($X^2(1)$ = 208,185, p<0,001, *Phi-coefficient*= 0,902; Intervalo de Confiança: 0,0308–0,0928). Mulheres sem companheiro apresentaram prevalência 0,95 vezes maior de realizar mamografia. **Conclusão:** houve associação da variável sociodemográfica estado civil com a realização da mamografia, em um intervalo menor de tempo, tendo como fator de proteção não possuir companheiro. **Contribuições para a prática:** a elucidação de fatores que podem estar relacionados com a realização das ações para rastreio do câncer de mama pode sinalizar para os profissionais de saúde as pacientes que necessitam de uma maior vigilância no que concerne à presença de sinais e sintomas sugestivos do câncer de mama.
Descritores: Atenção Primária à Saúde; Estudo Observacional; Neoplasias da Mama; Detecção Precoce de Câncer.

Introduction

Among the most relevant public health problems today, cancer stands out for its epidemiological magnitude, although the disease represents at least one-third of potentially preventable cases. The International Agency for Research on Cancer stated that there were 2,261,419 new breast cancer cases in 2020, corresponding to an estimate of 47.8 cases per 100,000 inhabitants, the highest rate compared to other types of cancer, and 513,525 deaths in the female population[1]. In Brazil, breast cancer deserves to be highlighted because it is the most frequent type of cancer, except for non-melanoma skin cancer, in the female population, corresponding to 29.7% of new cases annually. The estimate for the triennium 2020-2022 in Brazil is 66,280 new breast cancer cases. Furthermore, the number of deaths from breast cancer is high in Brazil, which in 2019 recorded 16,068 deaths from female breast cancer[2].

Unfortunately, in Brazil, even after the implementation of the Breast Cancer Screening Program, a study carried out in 28 treatment centers for this type of neoplasm identified that 39% of women who developed the disease in the public service already had a degree of advanced impairment (III or IV), and 17% of the evaluations performed were inconclusive, which suggests possible gaps in the screening of breast cancer. However, it is noteworthy that the control of breast cancer through early detection strategies is a priority on the agenda of the Ministry of Health[3].

Therefore, it is observed that despite the development and implementation of public policies progressively aimed at reducing mortality from breast cancer in the country, and despite some advances having already been made, mortality remains high, especially in economically disadvantaged women[4-5].

It is noteworthy that the screening and early diagnosis of breast cancer are part of Primary Healthcare. Therefore, health professionals who are inserted at this level of public health must be aware of the methods, frequency, and target population in its territory since poor knowledge of these procedures can contribute to failure in breast cancer screening[6].

Therefore, the need for new recommendations in the early detection of breast cancer in the country has been observed, signaling the indispensability of changes regarding the regulation of care, financing, and the implementation of a shared decision-making process in Primary Healthcare. However, it is recognized that the success of this implementation depends both on the training of professionals and users of the health system[7].

Concerning users, some scholars still seek to understand the reasons for adherence or non-adherence, that is, whether to perform exams such as clinical breast examination, mammography, and self breast examination at the frequency recommended by the Ministry of Health, which correspond to the actions of early detection of breast cancer by the target population. Sociodemographic factors may be related to adherence to the above actions, such as age and economic status[8]. Thus, researchers in the area are interested in identifying which factors are associated with the difficulty of performing screening and early detection of breast cancer.

Nurses play a key role in this process, as they are responsible in Primary Health Care for guiding patients about self breast examination, performing a clinical breast exam, and referring patients to a mammogram[9]. The identification of sociodemographic factors could signal which patients would be more prone to adherence or non-adherence to actions for early detection of breast cancer. Thus, nurses and other professionals could develop mechanisms or strategies to carry out an organized screening aimed at the target population, especially patients with greater vulnerability.

Although some studies indicate that there may be an association between social determinants, such as age and income, with the performance of actions to control breast cancer, these data are still controver-

sial. Thus, the concern arises to investigate the relationship with other factors, such as education, marital status, and health insurance. The present study aimed to verify the association between sociodemographic characteristics and the performance of actions for early detection of breast cancer.

Methods

This is a cross-sectional study carried out following the recommendations of the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. Women over 50 years of age were included, as they fit into the target population for early breast cancer diagnosis[2,10]. These, in turn, should be registered in the selected Primary Healthcare Units and present at the unit on the days on which the interviews took place.

The study was carried out in six Primary Healthcare Units in Fortaleza-CE, from March to December 2018, each belonging to one of the Regional Executive Secretariats of the capital. The units were selected through simple random sampling, in which the respective names of the locations were placed in envelopes and drawn. One primary health care unit per region was selected, totaling six.

The finite population calculation was used to estimate the sample size, adopting an error of 5%, a confidence level of 95%, assuming a proportion for the phenomenon studied of 12%[2], and a population size (N) of 198,000, which corresponded to the total number of women who were within the selected age group, thus totaling 383 interviewees. In the study period, 407 women were invited to participate in the research, of which 400 agreed to participate. As the health units did not have a list of patients who were classified as the target population for the research, the most effective way of capturing these possible participants was through an active search within the services. Patients were selected by convenience non-random sampling and recruited at the waiting rooms of the units. After consenting to participate in the study, the participants were sent to a reserved room for the application of the data collection instrument.

The instrument used in data collection consisted of a questionnaire to assess screening and early detection actions recommended by the National Breast Cancer Control Program in Primary Healthcare. This questionnaire was built and validated in 2015 in Brazil and is considered adequate with a Content Validity Index (CVI) of 78.8%[11]. The instrument consists of 83 items, of which 20 are related to the patients' identification, sociodemographic and economic information, such as marital status, education, having a health insurance plan, occupation, color, and educational level of the head of the family, among others.

The other 63 items were structured according to the recommendations of the National Breast Cancer Control Program, organized according to the following actions: clinical examination, ultrasound and self breast examination, and mammography. For example, Item 43 – In the last four years, have you had a mammogram through the Unified Health System annually or every two years? (1) annually, (2) every 2 years, (3) every 3 years, (4) > 3 years, (5) <1 year, (6) non-periodically, (0) had not had a mammogram, or (99) I do not remember; Item 70 – Has any health professional from this unit oriented you about the age recommended for self breast examination? (1) yes, (0) no, or (99) I do not remember.

The answers to the questionnaire items are qualitative and do not follow a pattern, so the instrument does not present a final score or classification. Thus, some questionnaire items were selected for analysis using inferential statistics for categorical variables.

The application of the data collection instrument lasted on average 30 minutes and was conducted by the main researcher in a single moment. The independent sociodemographic variables analyzed were schooling, marital status, occupation, and having a health insurance plan. These variables con-

sisted of sociodemographic data covered by the instrument. Actions for early detection of breast cancer were evaluated, including history of clinical breast examination, time interval between the request and the performance of the mammogram, and frequency of performing the self breast examination, which corresponded to the dependent variables or composite outcome measures.

Data were organized and compiled in Excel version 16.48 and R version 35.1. Initially, a descriptive analysis of the data was carried out in terms of simple and percentage frequency; later, a bivariate analysis was conducted to test the association of sociodemographic data with the performance of actions to control breast cancer in the target population. The Chi-square test of independence (2x2) was used, considering p<0.05 as a cutoff for statistical significance. The Kolmogorov–Smirnov test was used to assess whether the data followed a normal distribution or not. The prevalence ratio (PR) and the respective confidence intervals (CI)

were calculated using the PEDRo calculator[12].

The study was approved by the Research Ethics Committee under opinion No. 2,521,544/2018 and certificate of presentation for ethical appreciation No. 82571618.1.0000.5054, meeting all ethical precepts.

Results

Four hundred women were interviewed in six Primary Healthcare Units. Of these, 130 (32.5%) were aged between 60 and 64 years, 153 (38.2%) were married, 124 (31%) had finished grade 1 elementary school or had grade 2 elementary school in progress, 193 (48.3%) had no occupation, and 359 (89.8%) had no health insurance.

The Chi-square test of independence (2x2) was performed to investigate whether there was an association between sociodemographic variables and the performance of actions for early detection of breast cancer (Table 1).

Table 1 – Association of sociodemographic data with the annual clinical breast examination. Fortaleza, CE, Brazil, 2018

Variables	Annual clinical breast examination		X²(df)*	p†	Prevalence ratio	Confidence Interval (95%)	
	No	Yes				Lower limit	Upper limit
Marital status			0.529(1)	0.467	0.5455	0.4434	0.6709
Without partner	138	100					
With partner	83	70					
Education (years)			0.162(1)	0.688	0.3233	0.2573	0.4063
3 to 7	97	80					
11 – 15	125	95					
Occupation			0.070(1)	0.791	0.4649	0.3765	0.5741
No	126	97					
Yes	96	78					
Health insurance			11.300(1)	<0.001	0.9461	0.7773	1.1515
No	193	169					
Yes	29	6					

*Degrees of freedom; †Chi-square test of independence (2x2)

A significant association was found between marital status and the interval between requesting and performing a mammogram ($X^2(1)$ = 208.185, p<0.001, Phi-coefficient = 0.902; IC 95% 0.0308 - 0.0928). Women without a partner had a 0.95 times higher prevalence of having a mammogram with an interval of less than one month between the request and the performance compared to those with a partner (Table 2).

No statistically significant association was identified between the frequency of self breast examination and any sociodemographic variable (Table 3).

Table 2 – Association of sociodemographic data with the time interval between requesting and performing a mammogram. Fortaleza, CE, Brazil, 2018

Variables	Interval between requesting and performing a mammogram		X^2 (df)*	p†	Prevalence ratio	Confidence Interval (95%)	
	> 1 month	< 1 month				Lower limit	Upper limit
Marital status			208.185(1)	<0.001	0.0535	0.0308	0.0928
Without partner	13	105					
With partner	138	0					
Education (years)			1,410(1)	0.235	0.4321	0.3244	0.5518
3 to 7	77	47					
11 – 15	74	61					
Occupation			2,199(1)	0.138	0.6188	0.4819	0.7945
No	99	61					
Yes	52	47					
Health insurance			0.002(1)	0.964	1.1949	0.9363	1.5250
No	141	101					
Yes	10	7					

*Degrees of freedom; †Chi-square test of independence (2x2)

Table 3 – Association of sociodemographic data with the frequency of self breast examination. Fortaleza, CE, Brazil, 2018

Variables	Frequency of performing a self breast examination		X^2 (df)*	p†	Prevalence ratio	Confidence Interval (95%)	
	> 1 month	Monthly				Lower limit	Upper limit
Marital status			2.041(1)	0.153	0.5612	0.4446	0.7085
Without partner	110	76					
With partner	61	59					
Education (years)			0.203(1)	0.652	0.3220	0.2489	0.4167
3 to 7	76	63					
11 – 15	99	74					
Occupation			3.077(1)	0.079	0.3805	0.2970	0.4875
No	86	81					
Yes	89	56					
Health insurance			0.079(1)	0.778	1.0526	0.8435	1.3137
No	160	124					
Yes	15	13					

*Degrees of freedom; †Chi-square test of independence (2x2)

Discussion

Although no significant association was identified between having a health insurance plan and performing a clinical breast exam annually, it is believed that, because this exam is performed periodically by the Primary Healthcare nurse without the need for a medical request or referral, patients who are treated exclusively by the Unified Health System have easier access to these professionals. The dynamics in the private health network are different, and the clinical examination of the breasts is primarily performed by physicians[13].

Marital status was significantly associated with having performed a mammogram, and not having a partner was a protective factor. However, the literature shows that there is a significant contrast in the performance of breast cancer control actions among women living in the Northeast and South regions of the country due to social stigma and prejudice on the part of their partners, as well as the predominance of a culture of obedience of women concerning men in the Northeast region. Therefore, it is believed that the finding of this study concerning the protective effect of not having a partner may be related to regional and cultural influences found in women living in the Northeast Region[14-16]. It is emphasized that, in general, the existence of a social support network, which includes both the husband and other family members, positively influences the search for health services and the performance of screening tests[17].

It is noteworthy that although the present study did not identify an association between education and performance of actions for the early detection of breast cancer, other studies show that a high educational level makes women more likely to make better decisions regarding issues related to their health, since knowledge provides a greater understanding of the health-disease process, and, consequently, the adoption of attitudes that will impact on its improvement[11]. Likewise, concerning the occupation variable, the literature shows that the practice of self-examina-

tion is greater in economically active women[18-19].

Regarding self breast examination, no association was identified with any sociodemographic variable; however, it is noteworthy that since the 1990s, scientific evidence shows that self breast examination does not reduce mortality from breast cancer. Therefore, since then, this method is no longer guided or encouraged as a form of early diagnosis or screening for breast cancer but as a way for women to be more aware of their breast health through self-knowledge and self-care. Women must understand and recognize the usual changes that occur in the breasts at different times in the life cycle and differentiate them from suspected signs and symptoms of breast cancer. Therefore, the importance of early breast cancer diagnosis is highlighted through a mammogram, the gold standard exam[20].

It is observed, therefore, that the social determinants brought by the present study were not associated with the performance of screening actions and early detection of breast cancer by the target population, emphasizing the need to reflect on other extrinsic aspects that can interfere in the process of adherence and raising questions such as: Is the health structure offered to this population adequate? Is there a sufficient number of CT scanners for the demand of this population? Is the process of scheduling exams, such as mammography and breast ultrasound, optimized within the recommendations of the Ministry of Health? Is the current screening method used by health professionals the most appropriate for our population? These reflections and questions can be addressed to assess the need for future research on the adopted health model and the health units' organization and structure.

Study limitations

One of the limitations of this research is the need to include additional sociodemographic variables for a more complete and in-depth analysis since there is a lack of new instruments with sufficient in-

formation for more robust analyses. In addition, there are methodological limitations of the cross-sectional approach and the statistical analysis performed, which assesses the presence of a statistical association between the variables and not a causal relationship.

Contributions to practice

The present study brings the knowledge about factors that may be related to the performance of actions for screening and early detecting breast cancer in the target population, given that this condition still has a high mortality rate among women, mainly due to a late diagnosis. Thus, the elucidation of these factors can signal patients who need greater vigilance regarding the presence of signs and symptoms of breast cancer and a more rigorous follow-up concerning the accomplishment of actions of early detection of breast cancer. So, it is necessary to investigate factors related to the process of carrying out or not the breast cancer screening actions so that health professionals can consider tools or mechanisms that overcome existing difficulties. The adversities that these professionals may have in being able to identify these aspects of vulnerability in their assisted population are also mentioned, and there is, therefore, the need to include these discussions in the planning of the unit's health actions so that the team thinks and reflects on ways to make this organized tracking possible.

Conclusion

It was concluded that there was an association between the sociodemographic variable marital status and the performance of mammography by women in a shorter period and that not having a partner was a protective factor.

Authors' contribution

Project design, analysis, and interpretation of data: Oliveira RDP.

Writing and critical review for important intellectual content: Ferreira IS.

Final approval of the version to be published: Ferreira IS, Castro RCMB, Fernandes AFC.

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: Oliveira RDP, Ferreira IS, Castro RCMB, Fernandes AFC.

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