Revista
Brasileira
de Enfermagem
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Public actions for control of breast cancer in Brazil: integrative review

Ações públicas para o controle do câncer de mama no Brasil: revisão integrativa

Las acciones públicas para el control del cáncer de mama en Brasil: una revisión integradora

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ABSTRACT

Objective: to analyze the scientific production on "breast cancer" in the period from 2002 to 2013 and determine the public policies for screening and early diagnosis of breast cancer. **Method:** this is an integrative literature review conducted in the databases MEDLINE, LILACS, SciELO and Google Scholar. Inclusion criteria: year and period of publication; availability of the full article; publication in Brazil; and the cross-check of the keywords Breast Cancer, Primary Health Care, Screening Programs, and Early Detection of Cancer. **Results:** after analysis, four thematic categories were obtained: breast self-examination, clinical examination of breast, mammography, and factors that hinder the adherence to the screening. **Conclusion:** health professionals have deficits of knowledge on the area, indicating the need for other studies on the subject addressed and greater investment in continuing education of professionals.
Descriptors: Breast cancer; Primary Health Care; Screening programs; Early Detection of Cancer.

RESUMO

Objetivo: analisar a produção científica sobre "câncer de mama" no período de 2002 a 2013 e identificar quais são as políticas públicas de rastreamento e diagnóstico precoce para o câncer de mama. **Método:** trata-se de uma revisão integrativa da literatura realizada nas bases de dados MEDLINE, LILACS, SciELO e Google Acadêmico. Utilizou-se como critérios de inclusão: ano e período de publicação; disponibilidade do artigo na íntegra; publicação no Brasil; e o cruzamento entre os descritores Câncer de Mama, Atenção Primária à Saúde, Programas de Rastreamento e Detecção Precoce de Câncer. **Resultados:** após análise, obtiveram-se quatro (4) categorias temáticas: autoexame das mamas, exame clínico das mamas, mamografia e fatores que dificultam a adesão ao rastreamento. **Conclusão:** há déficits de conhecimento dos profissionais de saúde sobre a área, indicando a necessidade de realização de outros estudos sobre a temática abordada e maior investimento na educação continuada dos profissionais.
Descritores: Câncer de Mama; Atenção Primária à Saúde; Programas de Rastreamento; Detecção Precoce de Câncer.

RESUMEN

Objetivo: este estudio tuvo como objetivo analizar la producción científica sobre "cáncer de mama" en el período 2002-2013 y identificar cual son las políticas públicas de el rastreo y el diagnóstico precoz de lo cáncer de mama. **Método:** se trata de una revisión integradora de la literatura llevada a cabo con las bases de data MEDLINE, LILACS, SciELO y Google Scholar. Fueran utilizados los siguientes criterios de inclusión: año de publicación, período, artículo disponible en su totalidad y la publicación en el Brasil y el cruce entre cáncer de mama descriptores, atención primaria de salud, programa de rastreo y detección precoz

del cáncer. **Resultados:** después de análisis se obtuvo cuatro (4) temas: el autoexamen de mama; examen clínico de los senos; mamografía y factores que dificultan la adherencia al cribado. **Conclusión:** llegamos a la conclusión de que hay déficit de conocimiento de los profesionales de la salud sobre el tema, lo que indica la necesidad de nuevos estudios sobre el tema seleccionado, y una mayor inversión en la continúa educación de los profesionales.
Descriptores: Neoplasias de la mama, Atención de salud primaria, Programa de rastreo y detección precoz del cáncer.

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INTRODUCTION

Cancer is the leading cause of death in the world and, among women, breast tumor is the most prevalent, including in Brazil. It is the leading cause of death by cancer in women around the world, with about 520 thousand deaths estimated for 2012, being the second most common cause of death by cancer in developed countries, second only to lung cancer, and the leading cause of death by cancer in developing countries[1-3].

Approximately 22% new cases of breast cancer occur each year, excluding nonmelanoma skin cancer, being responsible for a significant number of deaths among adult women. It is the most frequent type of cancer in the Southeast (69/100,000), South (65/100,000), Midwest (48/100,000), and Northeast (32/100,000) regions. Only in the North it appears as the second most prevalent tumor (19/100,000)[2-3].

In 2014, estimates point to 57,120 new cases of breast cancer, with risk assessed in 56.09 cases for each group of 100 thousand women. Mortality rates due to this type of tumor in Brazil remain high, late diagnosis being one of the main reasons. In 2012, deaths by breast cancer were the leading ones in the country, representing 15.2% of total deaths[1-2].

The development of breast cancer is due to several factors, such as biological and environmental ones, especially those related to age and endocrine and genetic aspects. Breast cancer of hereditary character (genetic predisposition) corresponds to approximately 5-10% of the total cases. In relation to age and endocrine factors, increased risk is associated with history of early menarche (age of first menstruation less than 12 years), late menopause (after 50 years), first pregnancy after 30 years, nulliparity, and postmenopausal hormone replacement therapy, especially if prolonged for more than five years[4-5].

Other factors include exposure to ionizing radiation at age less than 40 years, regular intake of alcoholic beverage, even in moderate amount (30 g/day), obesity, especially when weight gain occurs after menopause, and sedentary lifestyle. The practice of physical activity and exclusive breastfeeding are considered protective factors[5-6].

It is known that primary prevention of breast cancer is directly related to the control of these risk factors, especially to those related to lifestyle, and to early diagnosis through screening in women with signs and symptoms of the disease. When identified in the early stages, breast cancer has more favourable prognosis and high percentage of cure[4-7].

The prevention of breast cancer can be divided into primary and secondary prevention. In primary prevention, there are the simplest measures, related to life habits, control of obesity, sedentary lifestyle, fatty diet, and alcohol intake in excess. It also consists in the guidance for women to perform breast self-exam whenever they feel comfortable, without the use of specific techniques[5,7].

Secondary prevention consists of the clinical breast examination (CBE) performed by trained physicians or nurses and of screening conducted through mammography. After 40 years of age, every woman should undergo clinical breast examination annually. Women classified at high risk should undergo annual CBE from 35 years of age[5].

Primary prevention of breast cancer still has limitations, as it still does not have a defined cause. Most breast tumors are, initially, detected by the woman herself, which points to the importance of self-examination. However, there is still no consensus about its recommendation, since it does not contribute effectively to reducing mortality by breast cancer.

Breast self-exam may also cause negative effects, such as increased number of biopsies of benign lesions, false feeling of security, because, due to the self-exam, a woman may trust the result and feel safe, therefore not seeking other methods that are more reliable[6,8].

Studies indicate that lesions found through self-examination tend to be smaller (approximately 0.6 cm on average) than those found by accident and, unfortunately, less than 50% of women in general perform self-examination periodically. For this reason, the self-examination is not considered as a means of early diagnosis, although it is understood that this method should be taught and disseminated during health education activities that encourage self-care and self-awareness of the body[8-11].

Breast cancer in young women is, in the vast majority of cases, diagnosed too late mainly due to its difficult diagnosis and absence of screening, but also by lack of breast examination in gynecological appointments due to its low index of suspected cases[4].

Thus, breast cancer has been one of the greatest challenges to public health policies that affects much of the brazilian population, requiring the development of programs and actions for health promotion and prevention, for treatment and control of the disease, as well as a network of appropriate and integrated services that rely on competent professionals who can act in different regions of the country.

In Brazil, historically, women's health has been linked to national health policies from the first decades of the 20th century, focusing on care directed to pregnancy and childbirth. Health programs of the time focused on actions geared towards mother and child, as children and pregnant women

were the most vulnerable population group. These programs had no connection to other federal government programs and were not specific to the needs of each region of the country[12].

In the early 1980s, the Ministry of Health launched in Brazil the Program for Integral Assistance to Women's Health, bringing many innovations to women, because it was centered on the concept of completeness, in that women, in all age groups and in all cycles of life, in their various roles in society and in all their health problems and needs, were now considered. This program one of the first of its kind in the world and, from then on, changes were initiated regarding policies related to women's health, which were no longer only focused on the gravid-puerperal cycle[13].

Later, by the end of the 1990s, the Ministry of Health, together with the National Cancer Institute José Alencar Gomes da Silva (INCA), created a pilot project of a program for control of gynecological cancer which was tested in Curitiba, Brasília, Recife, Rio de Janeiro, Belém, and in the State of Sergipe. This project originated the *Programa Viva Mulher*, which was deployed and extended to the whole country, with the aim of reducing effects of cervical cancer in women in Brazil, offering tests for prevention (PAP test) and early detection and, if necessary, submitting the patients to secondary and tertiary services for treatment and rehabilitation[14].

After the implementation of this program, there was the formulation of guidelines and formation of the care network for early detection of breast cancer, which fostered the development of public policies in this area.

With the increase in the actions of the Ministry of Health, in 2005, the National Policy for Oncology Care was launched, which advocates the promotion, prevention, diagnosis, treatment, rehabilitation, and palliative care, covering all states of the country. This policy was reaffirmed in 2011 with the Plan to Strengthen the actions for prevention and improvement of the diagnosis and treatment of cervix cancer and breast cancer[3].

In recent years, the organization of the control actions for this type of cancer has been improved due to the introduction of the Breast Cancer Information System - SISMAMA, due to the increase in the availability of mammography by the Ministry of Health, and to the publication of documents by INCA. Today, the perspective in the field of early detection is to promote the diagnosis and screening in areas with high prevalence of the disease[4,15-16].

Considering the reality presented and the experience in the fields of practice, there is the motivation to investigate the scientific production on public policies for the prevention of breast cancer in Brazil and the effects of these policies on the actions of health professionals in the field. Thus, this study aimed to analyze the scientific literature on the topic "breast cancer" in the period from January 2002 to April 2013 and identify, in these publications, public policies for breast cancer screening and early diagnosis.

METHOD

This study is an integrative literature review on the topic of breast cancer. The integrative review consists in an analysis of relevant researches, enabling the synthesis of knowledge in a given subject, in addition to showing the gaps to be filled with further studies[17-18].

To complete this study, we followed the following steps: choosing the subject, establishing inclusion and exclusion criteria for the studies, categorization of the studies, analysis of the studies, interpretation of results and presentation[17].

The choice of subject was motivated by the practice during the program in Nursing, when we observed the high incidence of morbidity and mortality of women victims of breast cancer.

We consulted the following databases: MEDLINE (Medical Literature Analysis and Retrieval System on-line), LILACS (Latin American and Caribbean Literature on Health Sciences) and search for scientific publications by means of SciELO (Scientific Electronic Library Online), BVS (Biblioteca Virtual em Saúde), and Google Scholar.

The criteria established for selection of articles were: articles published in English and Portuguese during the period from January 2002 to April 2013. For the active search, we used the keywords Breast Cancer, Primary Health Care, Screening Programs, and Early Detection of Cancer.

As inclusion criteria, we established articles that address the public actions aimed at breast cancer control, indexed in the databases MEDLINE, LILACS, SciELO and Google Scholar, published in English and Portuguese, in the period from 2002 to 2013, with abstracts available in Portuguese and English, with the full text available online.

As exclusion criteria, we did not consider articles non related to the subject proposed, published in languages other than Portuguese, no full text available online, published prior to 2002, with other forms of presentation non related to scientific article .
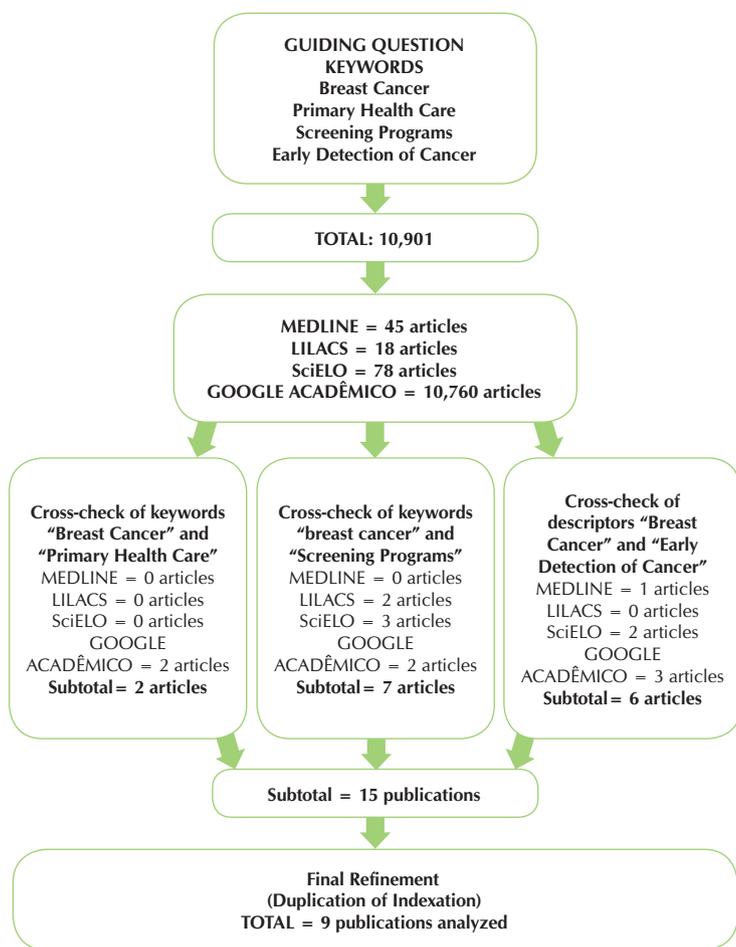
We used a data collection instrument containing the identification of the article (title, keywords, objective, method, region, year of publication, journal, results, and recommendations/conclusions) to answer the guiding question: *"What are the public actions aimed at breast cancer control?"*.

For the prior assessment of the studies, we conducted complete reading of abstracts and articles. This review gathered and synthesized nine (9) scientific articles[19-27], and the interpretation of the results found was organized and presented as tables, in searching the public actions aimed at breast cancer control.

RESULTS

The following result was obtained: 45 publications in the database LILACS, 18 in MEDLINE, 78 in SciELO, and 10,760 in Google Scholar, totaling 10,901 articles that could be related to the research subject. After reading the abstracts, of this total, 10,892 had no direct relation to the subject of the study or were indexed in more than one database.

To refine the search, we paired 2 keywords, and the keywords "breast cancer" were the main theme of research focusing on identifying the relation between these keywords and the others investigated: Primary health care, Screening Programs, and Early detection of cancer. (Figure 1).

GUIDING QUESTION
KEYWORDS
Breast Cancer
Primary Health Care
Screening Programs
Early Detection of Cancer

↓

TOTAL: 10,901

↓

MEDLINE = 45 articles
LILACS = 18 articles
SciELO = 78 articles
GOOGLE ACADÊMICO = 10,760 articles

Cross-check of keywords "Breast Cancer" and "Primary Health Care"
MEDLINE = 0 articles
LILACS = 0 articles
SciELO = 0 articles
GOOGLE ACADÊMICO = 2 articles
Subtotal = 2 articles

Cross-check of keywords "breast cancer" and "Screening Programs"
MEDLINE = 0 articles
LILACS = 2 articles
SciELO = 3 articles
GOOGLE ACADÊMICO = 2 articles
Subtotal = 7 articles

Cross-check of descriptors "Breast Cancer" and "Early Detection of Cancer"
MEDLINE = 1 articles
LILACS = 0 articles
SciELO = 2 articles
GOOGLE ACADÊMICO = 3 articles
Subtotal = 6 articles

↓

Subtotal = 15 publications

↓

Final Refinement
(Duplication of Indexation)
TOTAL = 9 publications analyzed

Source: Databases Searched (2013).

Figure 1 - Flow chart representing the selection of articles included in the integrative review, 2013

Cross-check of the keywords "breast cancer" and "primary health care" resulted in 2 articles related to the subject, both from the Google Scholar database.

Cross-check of the keywords "breast cancer" and "screening" produced the greatest result, with a total of 7 articles from most of the databases searched, except only for the MEDLINE database. Cross-check of keywords "breast cancer" and "early detection of cancer" produced a total of 6 articles from all databases searched, except for LILACS.

Considering all articles selected (15 articles), there was a need for further refinement as for duplication of indexation and the keywords used. Thus, we obtained a final number of 9 (nine) items to be analyzed, as they met the inclusion criteria previously established for this study, since they addressed the actions for screening and early diagnosis of breast cancer[18-26].

Subsequently, the articles were reviewed in full in accordance with the following variables: title, region where the study was conducted, journal in which the study was published, year of publication, keywords, objective, results, recommendations and conclusions. They were grouped according to language of publication by using the letter "P" for articles published in Portuguese (P1; P2; P3; P4; P5; P6; P7; P8) and "E" for the article published in English (E-1) (Box 1).

As for categorization of the articles according to journal, we note that the journal with the highest number of articles published on the subject studied was the *Revista Brasileira de Ginecologia Obstétrica* [Brazilian Journal of Obstetric Gynecology], with 44.4% of the total publications, followed by the *Revista Brasileira de Cancerologia* [Brazilian Journal of Oncology] and the *Caderno de Saúde Pública* [Journal of Public Health], with 22.2% of the publications. With only one publication (11.1%), we have the journal Cancer Epidemiology, Biomarkers & Prevention.

As for the year of publication, 2010 was prominent, with 3 (33.33%) articles in two different journals, followed by 2008 and 2011, with 22.2% of the publications in two different journals. In 2006 and 2012, 11.1% of the articles were published in two different journals. The Northeast region has the largest number of publications on the subject, with 4 (44.4%) articles, followed by the Southeast region, with 3 (33.3%), and the South region, with 2 (22.2%).

In analyzing the relation among the objective, the result, and the recommendation/conclusion of the articles selected, we observe that all have cohesion, facilitating the understanding of the ideas presented by the authors.

As to reference to the public health actions aimed at breast cancer control, the articles discuss, mostly, about the need for training of health professionals for the care of this population, increase in the availability of mammography on the part of public bodies, and improvement in health education for women with regard to adherence to preventive practices, such as Breast Self-Examination and Mammography, that take into account socioeconomic, local, and regional specificities of this population. For that purpose, the publications recommend the deployment and consolidation of the National Policy of Permanent Education in Health (PNEPS) in the various regions of the country, having in its program the detection of breast cancer, primarily aimed at professionals in the basic health care, increase in the availability of mammography for basic care, and divulgation of these health actions in Basic Health Units of municipalities, and promotion of health education campaigns for the population, raising awareness to self care through breast health.

Box 1 - List of articles included in the study according to the study variables, São Paulo, Brazil, 2013

Title	Region	Journal	Year	Keywords	Objective	Results	Recommendations/ conclusions
P1. Detecção do câncer de mama: conhecimento, atitude e prática de médicos e enfermeiros da Estratégia Saúde da Família de Mossoró, RN, Brasil [Breast cancer detection: knowledge, attitude, and practice of physicians and nurses of the Family Health Strategy of Mossoró, RN, Brazil].	Northeast	Revista Brasileira de Cancerologia	2011	Neoplasias da mama, Conhecimentos, atitudes e práticas em saúde, Médicos; Enfermeiros, Sistema Único de Saúde, Mossoró.	Investigate the knowledge, attitudes, and practices of physicians and nurses of the Family Health Strategy of Mossoró (RN) with respect to the early detection of breast cancer.	There is a valuation of the clinical examination of the breast, in detriment to the request of mammography, in seeking the early diagnosis of breast cancer and insufficient number of qualified professionals, in addition to the ignorance of the population.	There is a need for training the professionals in the area of health, increasing the availability of mammography, and increasing the education of the population on the subject.
P2. Conhecimento, prática e atitude sobre o autoexame das mamas de mulheres de uma cidade do Nordeste do Brasil [Knowledge, practice, and attitude concerning breast self-examination of women of a city in Northeast Brazil].	Northeast	Revista Brasileira de Ginecologia Obstétrica	2010	Autoexame, Programas de rastreamento, Conhecimentos, atitudes e práticas em saúde, Mama/patologia, Neoplasia da mama/diagnóstico.	Assess the knowledge, attitude, and practice of breast self-examination (BSE) in women of the city of São Luís and associated sociodemographic factors.	The majority of the population studied (2/3) was informed and had appropriate knowledge, attitudes, and practices. A third of the population was not aware of BSE. Family history of breast cancer was not associated to knowledge and preventive practices in relation to this type of cancer. The media proved important for the acquisition of this knowledge.	The majority of the population of the study knows and practices breast self-examination. The media had a major participation in the dissemination of knowledge on this subject.
P3. Opportunistic screening of breast cancer in young women in the state of Maranhão, Brazil.	Northeast	Caderno de Saúde Pública	2011	Detecção precoce de câncer, Prevenção secundária Câncer de mama.	Study on preventive practices related to early detection of breast cancer in the state of Maranhão in women of childbearing age.	Most women undergo no preventive practices for early detection of breast cancer. The higher the education level, the more frequent is the adoption of prevention measures against this type of cancer.	It was proved necessary the existence of strategies for prevention of breast cancer that consider specificities related to local, region, and socioeconomic factors.
P4. Rastreamento mamográfico do câncer de mama em serviços de saúde públicos e privados [Breast cancer mammography screening in public and private health services].	Southeast	Revista Brasileira de Ginecologia Obstétrica	2006	Mamografia, Neoplasias mamárias, Rastreamento para câncer, Acesso aos serviços de saúde.	Evaluate the use of mammography in breast cancer screening in public and private health services.	The mean age of women interviewed in both public and private services was the same. The screening of women is greater in private services, and 25% of the women aged over 50 years underwent no regular screening.	Access to screening services was greater in the private network, being influenced by the form of access. In both services, mammography screening was initiated at a lower age in relation to current recommendations, and in both services there was failure of adherence to this screening.

To be continued

Box 1 (concluded)

Title	Region	Journal	Year	Keywords	Objective	Results	Recommendations/conclusions
P5. Avaliação de uma estratégia para ampliar a adesão ao rastreamento do câncer de mama no Nordeste brasileiro [Evaluation of a strategy to improve the adherence to breast cancer screening in Northeast Brazil].	Northeast	Revista Brasileira de Ginecologia Obstétrica	2012	Avaliação em saúde, Programas de rastreamento, Cobertura de serviços de saúde, Neoplasias da mama, Fidelidade a diretrizes.	Evaluate the actions of the program developed in a city in Northeast Brazil to improve the adherence to breast cancer screening in women enrolled in the Family Health Strategy.	Considering the women interviewed, 62.1% are covered by the strategy for early detection of breast cancer. Of these, most is in the age group from 40 to 49 years, and 58.9% of the study population had undergone clinical examination of breasts and 49.0% had undergone mammography.	The program is adequate according to the standards set in this evaluation; however, the percentage of women who underwent clinical examination of breasts and mammography is far from the expected.
P6. Adesão ao rastreamento mamográfico oportunístico em serviços de saúde públicos e privados [Adherence to opportunistic mammography screening in public and private health services].	Southeast	Revista Brasileira de Ginecologia Obstétrica	2010	Mamografia, Neoplasias mamárias, Programas de rastreamento, Implementação de planos de saúde, Fidelidade a diretrizes.	Evaluate the adherence to recommendations for opportunistic mammography screening of breast cancer.	Most of the women interviewed used public services. Correct adherence to recommendations of the screening was very low in both groups studied. Lack of prior screening is one of the factors of failure of the adherence to the screening.	To achieve the reduction of mortality rates in our country, it is crucial that we achieve and maintain high rates of adherence that represent obedience to intervals between repetitions of exams, properly defined as less than 24 months.
P7. Perfil das mulheres no município de Jundiaí quanto ao hábito do autoexame das mamas [Profile of women in the municipality of Jundiaí as for the habit of breast self-examination].	Southeast	Revista Brasileira de Cancerologia	2008	Mama, Neoplasias da mama, Prevenção e controle, autoexame de mama, Diagnóstico precoce.	Establish the profile of women using the public health service of Jundiaí, concerning the habit of breast self-examination, and determine the associated factors.	Most of the women interviewed performed no breast self-examination (BSE) and were aged under 35 years. Women aged over 50 years had higher adherence to the BSE. This adherence is closely related to undergoing mammography exams.	Breast self-examination is known by the women interviewed, although more than half of them perform no examination. The social factor and the medical education in health were fundamental in the habit of this examination, as well as in the practice of mammography.
P8. Exame Clínico das mamas em consultas de pré-natal: análise da cobertura e de fatores associados em município do Rio Grande do Sul, Brasil [Clinical examination of breast in prenatal care: analysis of coverage and associated factors in a municipality of Rio Grande do Sul, Brazil].	South	Caderno de Saúde Pública	2008	Cuidado pré-natal, Aleitamento materno, Bem-estar materno.	Evaluate the coverage of clinical examination of breast during prenatal care and describe characteristics associated with failure to comply with this norm.	Of the recent mothers included in the study, 59.8% underwent no clinical examination of breast during prenatal care. Most women received prenatal care from SUS. Non-white women showed higher probability of not having their breasts examined and recent mothers with partner were the most examined.	There is low prevalence of clinical breast examination during prenatal care, indicating serious problems related to quality of care in prenatal care and differences in access to public and private services.
E9. Adherence to a breast cancer screening program and its predictors in underserved women in southern Brazil	South	Cancer Epidemiology Biomakers & Prevention	2010	Breast cancer, Screening program, Adherence.	Evaluate adherence to a screening program and the factors that lead to this adherence in women in need in southern Brazil.	Mean time between triage appointments was 16.5 months and the mean number of appointments was 3 at mean intervals of 18 to 24 months. The most important independent factors of adherence were illiteracy, parity, and smoking.	Adherence to the biennial screening was high, especially when the low socioeconomic level of the sample is considered.

Source: Databases Searched (2013).

DISCUSSION

Correlating the subject of the articles with the public policies and screening programs, it is observed that there is no failproof method as primary prevention against breast cancer. However, there are three secondary prevention strategies for early detection: breast self-examination (BSE), clinical breast examination (CBE), and bilateral mammography (MMG), the latter being considered the method of choice for screening in populational programs due to its effect on mortality[20].

In this sense, the following subcategories of analysis will be discussed: Breast self-examination; Clinical breast examination; Mammography; and Factors that hinder the adherence to screening.

Breast self-examination

Although in the literature researched in this study there is no conclusive evidence concerning the decrease in mortality by breast cancer through its use, Breast Self-Examination (BSE) is recommended for early detection of mammary alterations, especially in underdeveloped and developing countries, where diagnosis is late[20].

BSE has many advantages and is closely linked to the relation of self-care of women, who come to know better their body and perceive any existing change, which can lead to seeking a health professional. Thus, it becomes an important means of detecting tumors in places where health resources and access to diagnostic methods are scarce.

Women, in general, are aware of the existence of the BSE, but the fact of knowing it does not mean they are informed as to its proper practice or as to its conduct. Studies indicate that the best practices in health, in relation to the conduct of the BSE, have been associated with educational level and presence of partner. It is believed that the higher the educational level, the greater the opportunities for access to health services and the better will be the knowledge gained about methods of prevention[20-21,25].

Although the BSE is easy to perform and have no financial cost, and can be performed by women belonging to any cultural segment, it is still not performed by the population in general, and the two main reasons for nonperformance are neglect and lack of information[25].

BSE is a practice that depends on the predisposition and motivation of women in conducting it, which makes essential the participation of health professionals in helping the patient understand its importance and providing correct information as to its conduct. However, it is observed that unfortunately the health professional is not adequately prepared to instruct the general public about the BSE, either due to neglect or lack of adequate training on the subject[20,23].

Providing information is not enough to change behavior, since the practice of BSE depends on the woman's decision and understanding of the importance of preventing the disease. The instruction should assume that women perform breast self-exam whenever they feel comfortable to do so during everyday life, at the time of the bath or change of clothes, without any recommendation of specific technique, seeking to value the discovery of small mammary alterations[5].

Data indicate that most women with breast cancer cancer identified it by occasional palpation compared with self-examination, and approximately 65% of women identify breast cancer undeliberately and 35%, through self-examination[5].

In this sense, it is necessary that women be encouraged to seek clarification with health professionals whenever there is doubt regarding the findings of the breast self-exam. Thus, the health system, through its professionals, need to adapt to provide, instruct, and conduct the relevant diagnostic exams with the competence required, since that moment of instruction is important to disseminate information related to breast cancer and stimulate self-care[5].

Clinical breast examination

Clinical breast examination (CBE) is a fundamental part of the propaedeutics for the diagnosis of cancer, and should be conducted as part of the physical and gynecological exam, which, in conjunction with other propaedeutic methods, such as mammography, can increase the sensitivity and specificity of the diagnosis, being fundamental for the request of additional exams.

Conducted by physicians and nurses, the CBE has an important role in the secondary prevention of breast cancer, especially due to easy access and low cost and higher effectiveness than breast self-examination. It should include the following steps for proper conduct: static and dynamic inspection of breasts, palpation of armpits and supraclavicular and infraclavicular regions, and palpation of breasts with the patient in supine position[5,12].

During examination, health professionals have the possibility of informing women on the risk factors for breast cancer and alterations that occur to breasts over the years. This situation is considered a positive time to conduct health education.

Studies show that CBE is one of the most performed early detection practices, with prioritization by basic care professionals in relation to mammography, since the number of this exam made available to the public health service does not meet the demand needed for a proper screening policy[19,24].

However, it was observed that health professionals lack knowledge as for the best period for clinical breast examination, as well as the age recommended for requesting the first mammogram[19,20].

It is recommended that women with risk factors for breast cancer undergo CBE and mammography annually from 35 years and the others from 40 years, because there is accelerated increase in the incidence rate of this disease in this age group, with a decrease from 50 years[5,19,20].

CBE during prenatal care is also recommended, since breast cancer is the second most common neoplasia in pregnancy[2]. Despite this recommendation, it was found in one of the studies analyzed that there is low prevalence of CBE during prenatal care, especially when performed in public services[26].

Mammography

Mammography is considered the most effective method for early detection of breast cancer, because it is directly associated with the reduction of mortality caused by this cancer. However, the program for breast cancer screening through

mammography in Brazil has opportunistic character, because only the spontaneous resort to any medical service will prompt a request for this examination[24].

The World Health Organization (WHO) defines as a priority the screening of breast cancer in women aged 50 to 69 years. Brazil seeks to follow this policy, as other European countries, such as Germany, France, United Kingdom, in addition to Canada and Japan[28].

The Ministry of health (MS) ensured the provision of bilateral mammography to women in this age group in Ordinance No. 1,253/2013, which establishes the right to this examination without the need for medical request or symptoms, or even if a patient has no family history of breast cancer. However, this Ordinance has been criticized by experts, since it contradicts law No. 11,664, of 2009, which established the right to free annual mammography through SUS for all Brazilian women from 40 years[23].

In Brazil, the reference bodies for breast cancer, as well as the entities representing the professionals, such as the INCA, the Brazilian Federation of Gynecology and Obstetrics Associations (FEBRASGO), the Brazilian Society of Mastology (SBM), the Brazilian Medical Association (AMB), and the Federal Council of Medicine (CFM), recommend not following the government Ordinance and continuing to recommend biannual bilateral mammography screening from 40 years for women without risk, annual exam from 35 years for women with high risk, and biannual exam from 50 years[4-5,21-22].

Randomized studies conducted from 1976-1990 showed that breast cancer screening based on mammography can reduce mortality by breast cancer on average 25% in women aged 50-69 years. More recently, analysis of screening programs of population-based services conducted with women aged 40-69 years has demonstrated that triage during care and regular mammography can result in a 40-45% reduction in mortality by breast cancer[28].

The studies reviewed here showed that most Brazilian women aged over 35 years have never undergone mammography exam. This is due to lack of information, difficulty of implementation, lack of request, and impaired demographic condition. They also demonstrated the ignorance of health professionals regarding the proper age to initiate screening[21-23].

Thus, it is evident the professionals' lack of training in relation to the need of requesting this examination as one of the causes of low adherence to breast cancer screening through mammography. Another noteworthy factor is the influence that political issues may have both in relation to the doubts that these professionals may have concerning the need of its indication due to diverging positions between the government policy and recommendations from the scientific entities of the area and, in addition, in relation to non-compliance with resolutions from the Ministry of Health due to unavailability of this examination because of insufficient equipment and structure to meet the demands of the population.

Data for 2011, of the Unified Health System (SUS), show that less than 30% of the population that, according to the Ministry of Health Ordinance, should undergo mammography were submitted to the exam. For reduction in mortality by

the disease, at least 70% of women aged 50-69 years would need to adhere to screening, according to recommendation from the WHO[29].

The significant increase in the incidence of breast carcinoma *in situ* seems to be directly related to the availability of mammography, since this form of breast cancer is difficult to detect by clinical methods[28].

Despite this fact and the lack of sufficient evidence to support the effectiveness of clinical breast examination or of teaching breast self-examination as public health strategies to reduce mortality by breast cancer in the population, these methods are still used for triage in low-income countries, where the majority of patients seek medical services for treatment in very late stages[28].

Factors that hinder the adherence to screening

We observed that most of the studies analyzed showed agreement concerning the factors related to the population served that hinder the adherence to screening. The main factors found associated with the target population were educational level lower than eight years, low income, social support network, and difficulty of access to health services[20-21,24-25,27].

It is known that there are many barriers to adherence to preventive practices, among them there are the population's socioeconomic issues and access to health services. Studies show that sociodemographic factors, such as family income, employment, and educational level, are related to the type of access to health services and contribute definitely to the adherence to mammography screening, and the lower the educational level and income, the greater this population's difficulty of access to health care services.

Low educational level is directly related to low-income professional activities, thus indicating the need of action from public health services to intervene more effectively in the segments of the population that are the most vulnerable to the development of breast cancer, to ensure preventive screening.

Being an unmarried woman is also considered a risk factor for no adoption of preventive practices or no conduct of periodic exams. Studies show that the main sources of support for women with breast cancer are the husbands and family members, with physicians and nurses also cited, especially in the period of hospitalization and it may inferred that, depending on the social network to which the patient is connected, there may be influences in relation to greater adherence and resort to health services[30].

Another aspect also observed was the lack of properly trained health professionals. The lack of proper training of these professionals leads to deficiency in instruction as for the breast self-examination and clinical breast examination, as well as for the recommended age for request for mammography exams[19].

This can be one of the factors that determine the ignorance of the population about the need for the BSE and CBE, culminating in the reduced number of mammograms performed, both in public and private services[19,24].

Despite the proposition of Government screening programs that determine that biennial mammography exams should be

performed from 50 years of age, studies indicate no increase in the rates of adherence to mammographic screening in public health services in this age group[24,26-27].

The fact that the screening program has an opportunistic character has been related to the non adherence of women by lack of monitoring, convening, information about the disease and the importance of prevention[24].

CONCLUSION

Although there is a public policy for screening and early detection of breast cancer in Brazil, the articles analyzed evidenced Brazilian women's difficulty in adhering to preventive practices, indicating that the screening programs are falling short of what is recommended. Analysis of the scientific articles used in this research indicates a shortage of resources for health. Thus, it is observed that the recommendations of reference bodies as for breast cancer screening are not followed properly in the country.

This study also shows that the BSE should not be used as the sole method for early detection of breast cancer, noting the need for fostering its practice to promote the increase of self-care and the self-knowledge in the female population.

Although it should not be prioritized at the expense of other screening methods, we believe that BSE is an important tool for detecting lesions and should be enhanced mainly in regions where there is difficult access to other methods that are more comprehensive and effective for diagnosis of breast cancer.

We observed that, despite the easy access, low cost, and proven efficiency of CBE, the number of exams performed is low, mainly because there is a shortage of trained professionals. As a result, there are few requests of mammograms by professionals, thus demonstrating the need for investment in continuing education in this area for the health specialists.

The opportunistic character of the prevalent breast cancer screening, when a woman seeks health service for some other reason and a health care professional takes advantage of the moment to screen some disease or risk factor, becomes a hindering factor for its effectiveness and applicability.

Thus, we believe that screening should be carried out systematically in the context of a preventive program, with special attention to the planning and training of health professionals, identification and invitation of the target population in the frequency recommended by the program, in addition to the multidisciplinary management of lesions detected, through coordination, monitoring, and evaluation of the actions proposed. For that purpose, health professionals should introject the idea that this is a screening policy, being necessary the conduct of active search.

More comprehensive studies in this area of research are necessary to promote improvements in health promotion and prevention, minimizing the deleterious effects of late detection, both with regard to aspects of physical and psychological nature concerning the care of women and to political and financial issues that lead to decrease of costs related to the prevention and treatment of the disease.

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