



Breast cancer related perceptions and practices of health professionals working in Brazil's network of primary care units[☆]



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ABSTRACT

In 2004 the Brazilian National Cancer Institute (INCA) established breast cancer screening guidelines for women in Brazil: annual clinical breast exam for women age 40–49 and biennial mammogram for women age 50–69. Healthcare provider's adherence to these guidelines is currently unknown. The objective of this study is to describe the perceptions and practices related to breast cancer screening among physicians, nurses, and health unit coordinators working in the network of primary healthcare units (HCUs) in Brazil.

In 2011, 1600 primary HCUs were randomly sampled from all regions in Brazil. At each HCU the coordinator and one health professional were asked to participate in a telephone survey to gathered information on their knowledge, attitudes, and practices related to breast cancer screening. Participation rates for coordinators, physicians, and nurses were 78%, 34%, and 65% respectively.

Health unit coordinators identified numerous barriers that prevent patients from receiving appropriate screening, many (44%) were unaware of INCA cancer screening guidelines. Despite a high perceived impact of INCA guidelines, a majority of physicians and nurses did not follow them. Most physicians and nurses recommended mammograms on an annual basis (~75%) and 50.9% of nurses and 25.1% of physicians initiated routine breast cancer screening in women under age 40.

Physicians and nurses in Brazil screen at younger ages and more frequently than recommended by INCA guidelines. Given that primary HCUs are the source of health care for many women, interventions that educate healthcare providers on the appropriate ages and intervals for breast cancer screening may prove useful.

1. Introduction

Breast cancer is the most common cancer in women worldwide and 70% of deaths from breast cancer occur in low and middle-income countries (Mathers et al., 2008). The incidence of breast cancer in Latin American countries is generally lower compared with high-income countries (Curado et al., 2007), whereas the mortality rate is higher (Pisani et al., 2002). In 2012, approximately 52,000 new cases of breast cancer were reported in Brazil (Silva et al., 2011), and the mortality rate has increased from 9.2 per 100,000 women in 1980 to 11.3 per 100,000 women in 2009 (Freitas-Junior et al., 2012). The highest rates of breast cancer are noted in southern Brazil (INCA, 2012).

All Brazilian citizens have the right to procure free medical assistance from the public healthcare system called the Unified Health System (SUS). Cancer care services are provided within the network of primary healthcare units (HCUs) known as the Family Health Program (M.d. Saúde Brasil and d.N.d. Câncer, 2009). These services have been expanded through the public system into state or regional referral centers that are responsible for providing diagnosis and treatment (Política nacional de atenção oncológica, 2010). A multidisciplinary team including physicians, nurses and community health workers play a crucial role in conducting cancer prevention and control activities (Política nacional de atenção oncológica, 2010).

Screening guidelines established by Brazilian National Cancer

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Institute (INCA) recommend breast cancer screening initiation at age 40 for asymptomatic women at average risk, and 35 for high-risk women (Precoce, 2004). An annual clinical breast exam (CBE) is recommended for women aged 40 to 49 years and screening mammography every two years for women aged 50 to 69 years (Lima-Costa and Matos, 2007). Health care provider's adherence to breast cancer screening guidelines is unknown. Literature has reported that only 35% of Brazilian women aged 50 to 69 years receive appropriate breast cancer screening, and 50% of women older than 50 years have had at least one mammogram (Lima-Costa and Matos, 2007), but few receive regular screening (Marinho et al., 2008). In addition, 45% of screening mammograms in Brazil were undertaken in women younger than 50 years (Simon et al., 2009; Marchi and Gurgel, 2010). Few users of public health services in Brazil are aware or receive information about breast cancer screening methods and practices (i.e., mammography) (Gonçalves-Silva et al., 2010).

Physicians and nurses are a direct source of health information for the population, the information they provide must be accurate and the recommended screening procedures appropriate (Gonçalves-Silva et al., 2010). Since the most common reported barrier to mammography is the absence of referral by providers working in health care settings, it is important to determine which factors may influence provider's adherence to breast cancer screening guidelines in Brazil. The identification of these factors could be useful to develop strategies to improve early diagnosis and treatment of breast cancer.

The objective of our study is to describe the demographic characteristics, perceptions and practices related to adherence of breast cancer screening guidelines among physicians and nurses working in the network of primary HCUs in Brazil, and determine which factors may influence their adherence to these screening guidelines.

2. Methods

As part of the Guide for Useful Interventions for Physical Activity in Brazil and Latin America (GUIA) project, a telephone survey was administered to health unit coordinators and health professionals in Brazil. Two surveys were developed (one for unit coordinators, one of health professionals) as part of the GUIA project (www.projectguia.org), focusing on gathering information on individual's knowledge, attitudes, and practices related to physical activity, nutrition, and cancer. Of the 42,486 HCUs in Brazil, 1600 primary HCUs were randomly sampled for inclusion in the GUIA project. At each selected HCU, phone interviews were conducted with the health unit coordinator and one health professional (physician, nurse, or community health worker). The original sample included 1600 health unit coordinators, 534 physicians, 533 nurses, and 533 community health workers. There were no exclusion criteria and participation was voluntary. In total 1251 coordinators (78%), 347 nurses (65%), 182 physicians (34%), and 273 community health workers (51%) agreed to participate. The present analysis relied only on data from coordinators, physicians, and nurses, as they are responsible for breast cancer screening activities in Brazil, and community health workers were not asked breast cancer screening questions. More details about the design and sampling methods can be found elsewhere (Perin et al., 2015; Stormo et al., 2014). This study was reviewed and approved by the Research Ethics Committee of the Federal University of Pelotas, and the institutional review boards of Washington University in St. Louis and the U.S. Centers for Disease Control and Prevention.

The survey for health unit coordinators contained questions related to the coordinator's knowledge of breast cancer screening, the health units' capacity to provide breast cancer screening services, and barriers patients faced in receiving appropriate screening services. The survey for physicians and nurses focused on the perceived effectiveness of

breast cancer screening measures, their breast cancer screening practices, and their adherence to INCA's breast cancer screening guidelines. The six questions included in this study from the coordinator survey, and the nine questions included in this study from the physician and nurse survey can be observed in Table A.1 and Table A.2 respectively. Information on survey development, implementation, and pilot testing has been previously described (Perin et al., 2015; Stormo et al., 2014).

2.1. Statistical analyses

For the coordinator survey we summarized responses pertaining to breast cancer screening practices and barriers that were reported by health unit coordinators. For the health professional survey, we conducted bivariate analyses to examine differences between nurses and physicians regarding gender, age, race, region, patients seen per week, hours worked per week, years since graduation, and breast cancer related perceptions, practices and adherence to INCA screening guidelines. We used Pearson chi-square to test statistical differences ($\alpha = 0.05$).

To determine if breast cancer knowledge or attitudes impacted health professional's breast cancer screening practices, we limited the analysis to individuals who self-reported that they partook in breast cancer screening and compared individuals knowledge and attitudes with their screening practices using Pearson chi-square to test for statistical differences ($\alpha = 0.05$).

3. Results

3.1. Implementation and barriers to breast cancer screening at HCUs — coordinator survey

In the coordinator survey, 45% of health unit coordinators reported that they were unaware of INCA recommendations for cancer screening. Among health unit coordinators that were aware of INCA screening guidelines, 98% reported that their unit followed the INCA recommendations for the early detection of breast cancer. Coordinators identified a number of barriers to breast cancer screening including; difficulty in performing mammograms (47.8%), difficulties in making or re-scheduling appointments (47.4%), long wait times on exam days (46.0%), difficulty in marking X-rays (37.7%), and difficulty scheduling appointments to discuss mammography results (29.6%; Table 1).

3.2. Provider characteristics and attitudes, perceptions, and practice of breast cancer screening

When compared to nurses, physicians were more likely to be male, older (mean age 40.5 vs. 32.6), out of school longer, work fewer hours and see more patients per week. Reflective of the general population distribution, most physicians and nurses were practicing in the southeast or northeast of Brazil (Table 2).

The majority of physicians and nurses perceived the INCA breast cancer screening recommendations as very influential in their health care unit (62.7%). More often than physicians, nurses perceived the clinical breast exam ($p = 0.02$), self-breast exam ($p < 0.001$), and mammograms for women between 40 and 49 years old ($p < 0.001$) as very effective at reducing breast cancer mortality. Film mammography for women 50 years and older was perceived as very effective by 98% of physicians and 95% of nurses. Doctors felt more prepared to talk about breast cancer with patients when compared to nurses ($p = 0.0043$; Table 3).

Nurses were more likely to report that they initiated clinical breast exams or mammograms in women under 40 years old when compared to physicians ($p < 0.0001$), with 50.9% of nurses and 25.1% of

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