


# Effectiveness of Brazilian national health policy for mammogram screening in women aged over 50 years

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Breast cancer screening programs are currently carried out in over 26 countries throughout the world, although there are discussions on whether these programs are effective, which sections of the population should be screened, and at what age screening should be carried out.<sup>1</sup>

In Brazil, public health policy establishes screening mammography beginning at the age of 50 and recurring every two years. Nevertheless, the Brazilian Mastology Society and the National Commission of Quality in Mammography claim that mammography should be carried out annually from the age of 40, underscoring benefits such as the reduction of death risk from breast cancer, as well as less aggressive adjunctive surgeries and therapies due to an earlier diagnosis.<sup>2</sup>

This study aimed to determine the age of patients assisted at a regional pole university hospital, through the Brazilian Public Health System (SUS), when diagnosed with breast cancer. Moreover, we aimed to correlate age with tumor characteristics, in order to verify the effectiveness of mammogram screening in women aged 50 years or older, as this is the policy currently adopted in SUS patients in Brazil.

Data collection began after approval by the institutional ethics committee, and all participants signed a consent form. All patients diagnosed with breast cancer, who followed up in the mastology outpatient clinic of UNIVAS university hospital from March 2016 to March 2018, were assessed for eligibility. Female patients with an anatomopathological diagnosis of breast cancer were included. Patients who underwent surgeries at another center and patients with tumors other than primary breast cancer were excluded.

Patients were stratified into two groups: under 50 years old, and 50 years old and older.

A total of 3,264 patients were assessed for eligibility, and 220 were included. Patients aged between 27 and 89 years (median: 54.5 years), with 79 (35.9%) aged under 50 years and 141 (64.1%) aged 50 years or older. Twenty-nine patients (13.2%) were nulligravid, and 60% (132) declared to be postmenopausal (9.1% took hormone replacement therapy). Seventy-two patients (34.9%) had a positive family history of breast cancer; and there was only one case (0.4%) of bilateral breast cancer.

Tumors were initially detected by palpation in 155 patients (70.4%), by mammography in 52 (23.6%), by breast ultrasound in 10 (4.5%), and by chest tomography in three patients (1.3%). A higher proportion of patients aged under 50 had tumors detected by palpation, 84.8% (67/79) versus 62.4% (88/141) among older patients (chi-squared test;  $P = .0005$ ). On the other hand, more patients aged 50 years or older had tumors initially detected by mammography (42/141 = 29.8%), versus 12.6% (10/79) under 50 years (chi-squared test;  $P = .0041$ ).

Twelve patients (5.4%) had tumors in situ, and 208 (94.5%) had invasive tumors. There was no difference between the two age-groups regarding clinical staging (chi-squared test;  $P = .0802$ ). Quadrantectomies were carried out in 46.1% and mastectomies in 53.4% of the patients. There was no difference between the two groups regarding type of surgical treatment performed (chi-squared test;  $P = .4167$ ) or pathological staging (chi-squared test;  $P = .0650$ ).

Breast cancer screening with mammograms is the best method of secondary prevention in the general population.<sup>3</sup> The Health Insurance Plan (HIP) demonstrated, with an 18-year follow-up, that breast cancer mortality rate was 25% lower among women aged from 40 to 50 years and from 50 to 59 years who underwent mammogram screening.<sup>4</sup>

The *United States Preventive Services Task Force* (USPSTF) revised the evidence on the effectiveness of breast cancer screening and concluded that, for women at medium risk of breast cancer, the greatest benefit of mammography comes from screening carried out every two years in women aged between 50 and 74. The USPSTF identified a decrease in mortality of 15% in women aged from 40 to 49, based on meta-analysis of randomized clinical trials, and concluded that the benefits of mammogram screening in this age-group, although positive, are minimal.<sup>5</sup>

In our study, among women aged under 50, palpation was the main method for initial tumor detection, with statistical difference in relation to the group of older patients. Among women aged 50 years or older, a higher proportion of patients had tumors initially identified by mammography, with statistical significance as well. Moreover, although the most frequent method for an initial diagnosis in the group of women aged under 50 was palpation, this group did not present any significant difference in relation to tumor size, types of surgeries performed, and clinical and pathological staging of the tumor, when compared to women aged 50 or older, corroborating the recommendations from USPSTF.<sup>5</sup>

A study on the effect of three decades of screening mammography in women aged 40 years or older showed that screening did not reduce the number of women with breast cancer diagnosed at an advanced stage. They concluded that mortality rate reduces largely due to better treatments, not screening. Furthermore, despite an increase in the number of breast cancer cases detected at an

early stage, screening mammography only slightly reduced the rate of women with advanced cancer, suggesting the occurrence of an excess of diagnoses. They thus observed that the effect of screening on mortality rates due to breast cancer is small.<sup>6</sup>

This study represents a case-by-case approach of a university hospital that is a tertiary reference for 54 cities of southern Minas Gerais, Brazil. A multicenter study could possibly show different results. However, the data collected corroborate the effectiveness of current public health policy for mammogram screening practiced in Brazil, as there was no statistical difference between the two age-groups in terms of tumor size, types of surgery, or staging.

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