

Pink October's success in Brazil: good news for breast cancer control in the country?

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In an article published in this edition, Baquero et al. ¹ evaluated the time trend and seasonality of searches for the terms “breast cancer” and “mammography” in Google Trends from 2004 and 2019 and their correlation with mammography exams in the Brazilian Unified National Health System (SUS). The data show a clear seasonal pattern with peaks of the two search terms in October. The temporality strongly suggests a causal relationship with the Pink October campaign. The results also show a similar spatial distribution between the two terms, with a strong correlation, as well as an increase in seasonality in more recent years. Other studies have been performed in recent years using Google Trends to assess interest in cancer screening in other countries and have shown the same seasonality as in the Brazilian study ^{2,3}. This is clear evidence of Pink October's success. Still, what might be good news for a public health campaign in fact reveals a complex and worrisome scenario.

Since screening in Brazil is opportunistic, without an individualized invitation to the target population, media campaigns play an important role in mobilizing women ⁴. Pink October's greatest benefit in routine tests would thus be to contribute to increased coverage of biennial screening in the 50 to 69-year age group ⁵. Data from the *Brazilian National Health Survey* published in September 2021 indicate an evolution of coverage in 2019, especially in regions with worse results in 2013 and suggesting a reduction in the proportion of women in the target population who had never undergone the test, when compared to 2013 (24.2% vs. 31.5%) ⁶. Considering that two years is the minimum interval according to the current recommendation of periodicity, the coverage would be greater than with the question in the survey ⁴. Meanwhile, since this is self-reported information, the coverage may be overestimated due to response bias. At any rate, the data are more representative than those in either the *Risk and Protective Factors Surveillance System for Chronic Non-Communicable Diseases Through Telephone Interview* (Vigitel) telephone survey or the Cancer Information System ⁷. Although the campaign must have some positive influence on coverage, there are many reasons for concern over the content that has been communicated predominantly in Brazil over the years.

Erroneous inferences from the use of such outcomes as relative risk and survival overestimate the benefits of screening and have been used exhaustively in the campaigns ⁸.

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There is also a central idea that tumor size is the only prognostic factor, a hypothesis based on Halsted's paradigm, developed in the 19th century. The theory is based on the concept that a cancer originates from a single site, grows in this same site, and over time migrates to lymph nodes and later spreads to distant organs. The theory was highly important for understanding the natural history of cancer and is one of the basic elements in cancer staging classification. However, it is not capable of explaining all the heterogeneity in the biological behavior of breast cancer or such phenomena as micro-metastases or overdiagnosis, and its hypotheses have not been borne out in the follow-up of mammographic screening randomized clinical trials or in observational studies in countries with widespread screening ⁹.

Screening mammography outside the 50 to 69-year age group and with screening intervals shorter than two years is associated with an important increase in risk, without conclusive proof of additional benefit ⁵. Still, the content in the campaign's message has not contributed to adherence to these guidelines. Generally focusing on young women, Pink October is clearly a vector for the introduction of screening outside the guidelines' target population. The campaign's annual characteristic further reinforces the practice of intervals shorter than those recommended ⁴. In a study that assessed the content of journalistic articles published in Brazil in October, screening mammography appeared in about 80% of the stories, but predominantly recommending that screening should be started at 40 years of age ¹⁰. The study also showed that the official recommendation of biennial screening in the 50 to 69-year group was only cited in 17.5% of the articles, and that only 3.3% cited the risks of screening, 1.5% mentioned the importance of shared decision, and only 11.8% listed all the main suspicious signs and symptoms of breast cancer ¹⁰. Elsewhere in the world, there has been a strong movement for more than a decade to change this type of biased communication, but in Brazil such attempts are still incipient and counterhegemonic ^{4,10}.

The inadequacies of screening practice in the SUS are even greater than those reported by Baquero et al. ¹. Even the screening that the authors consider "in compliance" does not address the issue of screening intervals, due to the limitation of the indicators used in the analysis. In addition, the former recommendation of anticipating mammography for the high-risk population has no longer been in force since 2015 ⁵. The result is a screening pattern with low efficiency and efficacy, producing various unnecessary harms for women. Various factors besides the campaign itself explain these screening inadequacies in Brazil, such as defensive medicine ⁴ and the existence of guidelines with lower methodological rigor based on expert consensus ⁸. These two factors are reinforced by the fact that the principal harms of screening are perceived paradoxically as benefits by women and attending physicians ⁴. The time trend in the number of mammographies by age group in the SUS presented by the authors ¹ has other determinants associated with the new guidelines on early detection and forms of financing, among others, and which are in permanent tension ⁴. Although the data reported by the authors are highly representative ¹, the time series may also have been affected by using search engines such as Yahoo and Bing, or by changes in search patterns since the last decade, with a growing search for videos or even the use of social networks like Facebook, Instagram, or Twitter for search purposes. Nevertheless, the results presented by Baquero et al. ¹ point to even greater reductionism in the Brazilian campaign than in the United States, with a heavier focus on mammography exam. But what might replace mammography testing as the campaign's principal slogan?

Although Baquero et al. ¹ cite screening methods that could be more promising, there is still no evidence that another test could replace mammography. Clinical breast exami-

nation was encouraged historically in Brazil as an alternative to mammography screening, especially in young women, due to various problems with mammography screening in this group. But even the role of clinical breast examination has been challenged. The method was questioned in the current guidelines while awaiting the publication of results of randomized clinical trials ^{4,5}. A publication in 2021 reported on the results of 20 years of follow-up of a randomized clinical trial with clinical breast examination screening in Mumbai, India, but it was not possible to show a statistically significant reduction in mortality ¹¹. Based on a post hoc subgroup analysis, the authors claim that clinical breast examination only appears effective in women over 50 years, but even if we consider these results, they apply to clinical breast examination as a single screening method and not in parallel with mammography ¹¹.

Rather than attempting to replace a screening method, the ideal approach in the Brazilian context would be to strengthen strategies for early diagnosis, focused on streamlining diagnostic workup in women with initial signs and symptoms of the disease ¹². The guidelines for early detection of breast cancer in Brazil recommend three strategies for early diagnosis: an awareness-raising strategy, a protocol for priority referral of cases with suspicious signs and symptoms, and diagnostic confirmation in a single service ⁵. These strategies depend heavily on the healthcare system's organization, regulation of care, network planning, and logistics for process optimization ⁴. That is why countries such as Denmark have succeeded in reducing the mean size of breast tumors in 10 years by 9mm more than in mammography screening trials ¹³. This is further reinforced by the reduction in case-fatality from palpable tumors in recent decades, through improvements in breast cancer treatment, thereby decreasing the relative effectiveness of screening ¹⁴. However, these strategies display less media appeal, and it is certainly a huge challenge to include them on the agenda of the mass media, policymakers, legislators, civil society advocacy, and the general population. This is reflected not only in the campaigns, but even in the research, with little attention given to early diagnosis, thereby creating a vicious circle of low generation of evidence ^{4,5}.

The COVID-19 pandemic has not only reduced cancer screening worldwide due to multiple factors but has also decreased the volume of Google searches for the topic by 76%, an even larger reduction than in searches for chronic diseases in general ¹⁵. The progressive return to interest in Pink October creates an opportunity to attempt to redefine the campaign, focusing on more effective strategies to reduce the pandemic's inevitable impact on delays in cancer diagnosis.

In its current format, Pink October's success in Brazil probably brings more harms than benefits for women's health. Even so, the great interest awakened by the campaign, as clearly demonstrated by Baquero et al. ¹, and the growing access to internet among older age groups are windows of opportunity to promote high-quality and relevant information that can overcome the prevailing reductionist and erroneous paradigm, replacing it with the dissemination of correct information to allow women's empowerment in shared decision-making on screening, but also the necessary shift in focus towards actions for early diagnosis. We should always remember that such actions begin with the strategy of women's awareness-raising, but that they should be matched by strengthening the SUS.

Additional information

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