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Pink October and mammograms: when health communication misses the target

Outubro Rosa e mamografias: quando a comunicação em saúde erra o alvo

Octubre Rosa y mamografías: cuando la comunicación en salud confunde el objetivo

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Abstract

Breast cancer is the most frequently diagnosed type of cancer and is the leading cause of death from cancer in the female population. Screening mammograms and early treatment are the most frequently used means to attempt to reduce this mortality and are promoted during Pink October, an annual awareness-raising campaign. However, recent studies have correlated the increase in screening with higher morbidity and mortality, due to overdiagnosis and overtreatment. The current study assessed searches related to breast cancer and mammogram in Google Trends from 2004 to 2019 in terms of trend, seasonality, and distribution in Brazilian states. The study also evaluatedH the correlation between the number of searches in Google Trends and the number of screening mammograms. The two series showed a seasonal pattern with peaks in October, and there was an excess in tests performed outside the recommended age bracket. Pink October transmitted and popularized health information and induced behaviors related to this information, which are three desirable aspects in health communication and education. However, the campaign also generated an excess in screening mammograms and did not encourage autonomy and free and informed consent. Pink October revealed both the potential of mass communication in health and the need for messages to be aligned with the best available scientific evidence.

Mammography; Breast Neoplasms; Communications Media

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Introduction

Breast cancer is the most frequently diagnosed type of cancer and the leading cause of death from cancer in the female population worldwide [1]. In Brazilian women, according to the National Cancer Institute (INCA), it is the second most frequent type next to nonmelanoma skin cancer [2] and the leading cause of death from cancer [3]. In Brazil, from 1980 to 2016, the standardized mortality rates increased from 9 to 12 deaths per 100,000 women. The lowest rates in all the periods were in the North and Northeast of Brazil, while the highest were in the South and Southeast [4].

Early detection and treatments are generally the most widely used means to attempt to reduce breast cancer mortality [5]. Brazil has policies for early detection of this cancer [6], based mainly on screening mammogram, which has been considered for some time as the test of choice among the available imaging methods [7]. However, recent studies have correlated the increase in this type of screening with adverse events due to overdiagnosis and overtreatment, raising questions on the effectiveness of screening for reducing mortality [8,9,10,11,12] and even proposals for new and potentially more promising screening methods [13].

The Brazilian national guidelines for early detection, drafted by INCA based on extensive systematic reviews of the best evidence on effectiveness and safety [5], recommend biennial screening mammogram for breast cancer in the 50-69-year age bracket [14]. According to another older guideline from the same institute, in the other age brackets, screening mammogram should only be performed in women at high risk, who represent about 1% of the female population [15].

The month for breast cancer awareness-raising, otherwise known as "Pink October", is an initiative conceived by Imperial Chemical Industries (United Kingdom) in 1985, financed and promoted by the Zeneca pharmaceutical company starting in 1993, and later assuming a multistakeholder configuration [16]. The annual campaign has insisted on the importance of screening mammogram, clinical physical examination, and breast self-examination, which some interpret as prevention mediated by the population's participation [17] and others see as commercially biased communication strategies in which users' participation is limited to obeying the physician's instructions, where the decision-making does not include women's effective and informed participation [16].

The first initiative in the Pink October campaign in Brazil was in 2002, when a group of women who wanted to bring the movement to the country obtained private sponsorship to illuminate in pink the Mausoleum of the Constitutionalist Soldier, known as the Ibirapuera Obelisk, in São Paulo, throughout the month. In October 2008, various organizations related to breast cancer illuminated monuments and buildings in pink in their respective cities, an initiative that was repeated in October 2009. Since 2010, INCA has participated in the movement, promoting discussions on breast cancer and publicizing and distributing its informational materials to health professionals and society [18].

If Pink October has effects on the population's behavior, one of the first effects tends to be the search for information on the topic (breast cancer) on the Internet, which may or may not lead to screening procedures. If this is the case, the type of information searched and/or the screening may display seasonality associated with the month of October.

The Google search mechanism is widely used throughout the world, and it is possible to access trends in target search terms using the Google Trends tool (https://trends.google.com). These trends can be filtered by date and location to assess their association with Pink October. Data on screening mammograms can also be characterized by test date, thus allowing to assess their seasonality.

The current study assessed searches pertaining to breast cancer and mammogram in Google Trends in terms of trend, seasonality, and distribution across the states of Brazil. We also assessed the association between the time series of these searches and the time series of screening mammograms performed in public services in the Brazilian Unified National Health System (SUS) and their alignment with the official evidence-based guidelines.

Methods

In Google Trends, the total volume of searches for a specific term according to a given date and location is divided by the total volume of searches for this date and location. The resulting relative search volume (RSV) is distributed on a scale from 0 to 100, dividing all the values by the highest value and multiplying them by 100 [19]. Low RSV are excluded. For a given country and period, Google Trends informs the RSV time series for the entire country, a single RSV for the chosen geographic divisions, and a list of related consultations related to the search terms. For periods longer than a year, the resulting time series appears with monthly resolution.

In Brazil, the trends in Google are available for states and cities. For the current study, we chose states since at the municipal level there was little information available. The study period was January 1, 2004, to December 31, 2019, using the keywords *"câncer de mama"* + *"cancer de mama"* ("breast cancer" in Portuguese, with and without the correct spelling of cancer with a circumflex accent on the a) and *"mamografia"* (mammogram, in Portuguese), using all the search categories available in Google Trends. The searches were performed on March 16, 2020.

To assess the coverage and alignment of the supply of screening mammograms with national guidelines, we considered only the procedures performed in the SUS. The total number of screening mammograms (code: 0204030188, amount approved) with monthly resolution per state of residence from February 1, 2010, to December 31, 2019, was obtained from the Outpatient Information System of the SUS (SIA/SUS; https://datasus.saude.gov.br/acesso-a-informacao/producao-ambulatorial-sia-sus/, accessed on 02/Mar/2020).

The female population that uses the SUS was calculated as the total female population (Brazilian Institute of Geography and Statistics; https://datasus.saude.gov.br/populacao-residente, accessed on 02/Mar/2020) minus the number of women with private health plans (Brazilian National Agency for Supplementary Health Care; http://www.ans.gov.br/anstabnet/cgi-bin/dh?dados/tabnet_br.def, accessed on 21/Jan/2020) by age bracket, year, and state of Brazil. The following indicators were used:
(1) Screening mammogram ratio [20]:

$$\frac{\textit{Number of screening mammogram in the 50-69 years-old bracket among residents of a given location and period}}{\textit{Half of the female population in this age bracket, from the respective location and period}}$$

A ratio of 1 indicates that the supply of tests is sufficient to serve the target population. Given the recommendation by INCA for biennial screening, the denominator calculated as half the respective population. It is used as a proxy for coverage, since in the available data the procedures are not individualized per woman (there may be more than one test per woman in the same year).
(2) Screening mammogram ratio in the high-risk population:

$$\frac{\textit{Number of screening mammogram per age bracket among residents of a given location and period}}{\textit{1\% of the female population in this age bracket, from the respective location and period}}$$

The denominator here was 1% of the total female population that uses the SUS, due to a previous guideline for annual coverage of screening in the high-risk population, estimated at 1% of the female population 35 years or older in European and North American populations [15] (approximately 5% of cases occur in women at high risk for the development of this cancer [21]). According to the INCA, no differentiated and efficacious screening strategies have been identified to date to reduce mortality in this subgroup, so the institute recommends individualized clinical follow-up for these women.
(3) Screening mammogram ratio in off-guideline age brackets:

$$\frac{\textit{Number of screening mammogram per off-guideline age bracket among residents of a given location and period}}{\textit{Half of the female population in this age bracket, from the respective location and period}}$$

For purposes of comparison with the first indicator, we calculated the annual ratio of screening mammogram tests in the off-guideline age brackets, namely 35-49 years, 70-74 years, and 75 or older, considering half the population in these brackets. The mean values for the period were also estimated.

We also calculated the difference between the number of bilateral screening mammograms in Brazil and the expected number for the estimated target population per age bracket (half the population 50-69 years of age and 1% of the population 35 and over belonging to the high-risk population).

The analyses of times series trend and seasonality and the association between the searches in Google Trends and screening mammograms in the Brazilian states were descriptive, complemented with Pearson's correlation coefficient (statistical significance, 5%). For correction of age differences between states, mammogram ratios were standardized by age, using the standard world population of the World Health Organization (WHO).

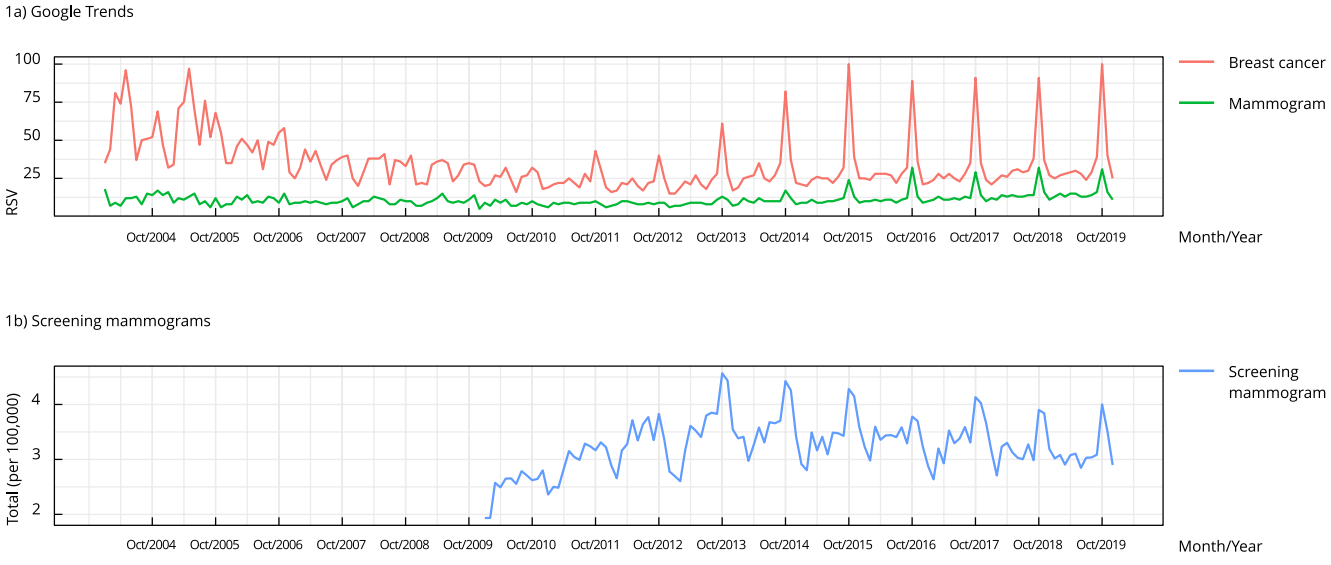
Results

The trend in Google searches for breast cancer decreased from 2005 to 2009. There was an increase in the seasonal pattern, with peaks in October since 2010 for breast cancer and since 2013 for mammogram. The peaks were particularly high starting in 2014 (Figure 1a). Screening mammograms increased from 2010 to 2013, and since then they presented a seasonal pattern with peaks in October and a slight downward trend since 2014 (Figure 1b).

In relation to the number of screening mammograms per age bracket, many tests were performed outside the recommended age bracket. The mean annual screening mammogram ratio per age bracket (indicators 1 and 3) was 0.18 from 35 to 49 years, 0.34 from 50 to 69, 0.17 from 70 to 74, and 0.07 in women 75 years or older. For the entire period, the 35-49-year age bracket accounted for 13,879,836 screening mammograms, or 35.5% of the total. Meanwhile, 22,925,815 (58.6%) complied with the

Figure 1

Relative search volume (RSV) in Google Trends for breast cancer and mammogram from 2004 to 2019 and number of screening mammograms in the Outpatient Information System of the SUS (SIA/SUS) database. Brazil, 2010 to 2019.



Source: Google Trends (https://trends.google.com, accessed on 16/Mar/2020) and SIA/SUS (https://datasus.saude.gov.br/acesso-a-informacao/producao-ambulatorial-sia-sus/, accessed on 02/Mar/2020).

guidelines, that is, they were performed in the 50-69-year bracket. There were also 2,294,771 screening mammograms in women 70 years or older, or 5.9% of the total.

From 2010 to 2014 there was an upward trend in the number of screening mammograms in women 50 to 69 years of age, stabilizing thereafter. There was also an upward trend in the 35-49-year age group, but less sharp from 2010 to 2013 and turning downward thereafter (Figure 2).

The monthly number of screening mammograms in all the age brackets displayed seasonality, with peaks in October, especially since 2013, but the seasonality was not as evident in the 35-49-year group (Figure 2).

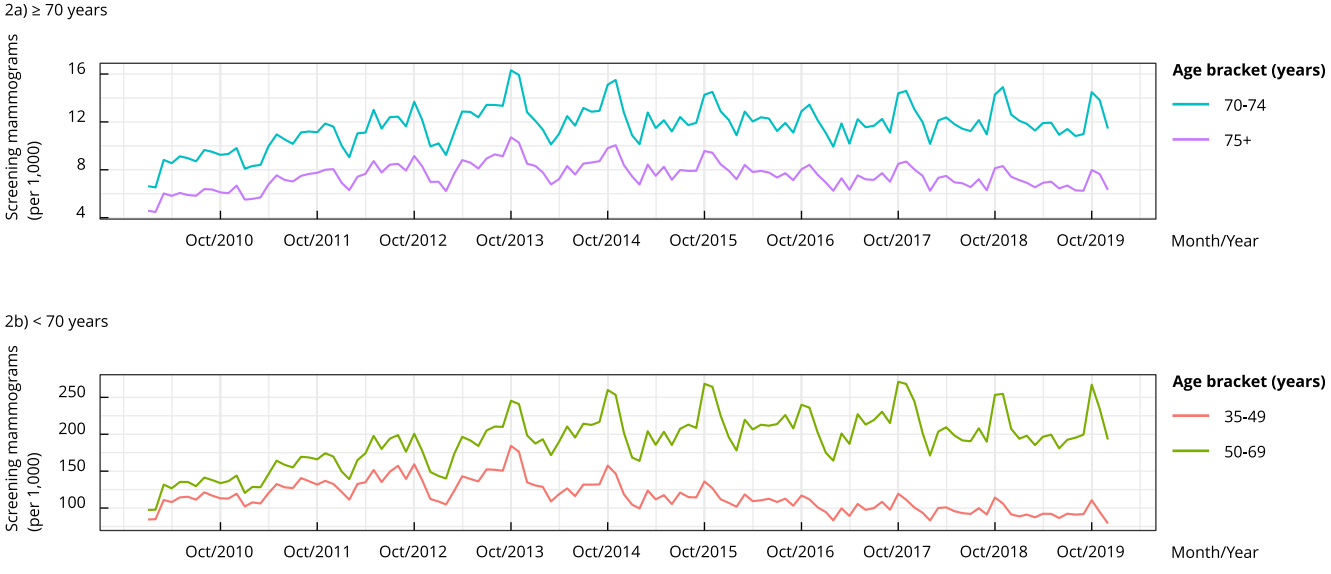
As observed, in the recommended age bracket for screening (50 to 69 years), the mean annual ratio of screening mammogram in relation to the estimated need for the test in this age bracket (indicator 1) was less than 0.35, that is, 35 tests were performed for every 100 women in the target population; the ratio has decreased slightly in the last five years. However, for the estimated screening mammogram ratio to cover the high-risk population (indicator 2), the values greatly exceeded the expected levels if the mammograms were performed only in the high-risk population, estimated at 1% of the total female population, especially in the 35-49 and 70-74-year age groups, although this trend has also decreased in more recent years (Figure 3).

The difference between the number of bilateral screening mammograms performed in Brazil and the expected number per age bracket shows that on average there was an annual deficit of 4.5 million screening mammograms in the recommended age bracket (50 to 69 years) and a surplus in the other age brackets, considering the high-risk population. The annual surplus in the off-guideline age brackets was over one million (1.42 million per year on average).

In relation to Google searches, the RSV for breast cancer varied from 66 to 100 among the states of Brazil, and the RSV for mammogram varied from 61 to 100 (Figure 4). The distributions of RSV did not include the state of Roraima or the Federal District, which had lower RSV for breast cancer and mammogram, respectively, than the minimum RSV yielded by Google Trends.

Figure 2

Total screening mammograms performed monthly in the population of Brazilian women that use the Brazilian Unified National Health System (SUS) according to age bracket. Brazil, 2010 to 2019.



Source: Outpatient Information System of the SUS (SIA/SUS; https://datasus.saude.gov.br/acesso-a-informacao/producao-ambulatorial-sia-sus/, accessed on 02/Mar/2020).

Figure 3

Screening mammogram ratio in the population of women that use the Brazilian Unified National Health System (SUS), for the target population (indicator 1) and for the high-risk population by age bracket outside the guidelines (indicator 2). Brazil, 2010 to 2019.

Source: Outpatient Information System of the SUS (SIA/SUS; https://datasus.saude.gov.br/acesso-a-informacao/producao-ambulatorial-sia-sus/, accessed on 02/Mar/2020).

The RSV for breast cancer and mammogram showed similar spatial distributions (Figure 4). The coefficients of variation were 0.12 and 0.14, respectively, while the correlation coefficient between the two variables was 0.98 (95%CI: 0.96-0.99, $p < 0.001$).

The highest screening mammogram ratios were in the states of the Southeast and South regions of Brazil (Figure 5). There was no statistically significant correlation between the mammogram RSV and the screening mammogram ratios in the different age brackets.

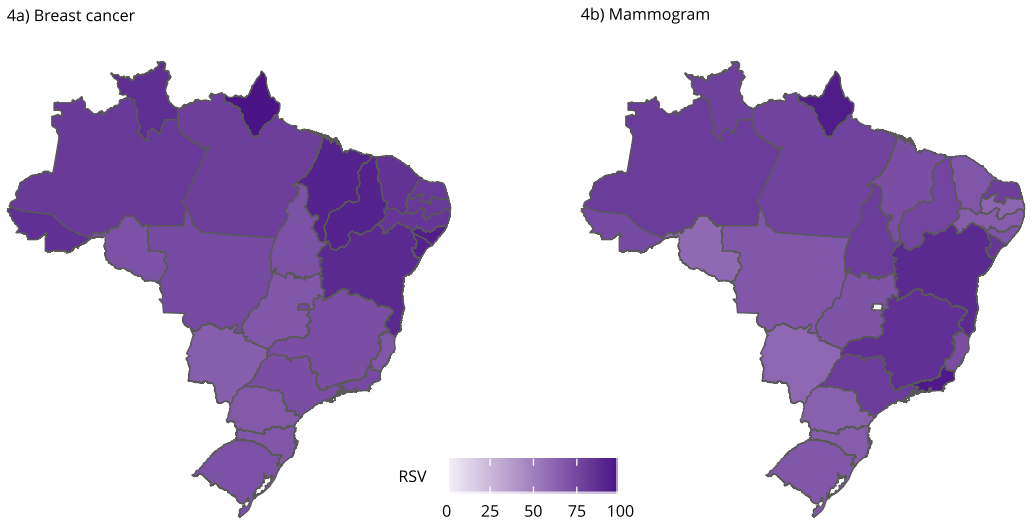
Discussion

The time series of Google searches for breast cancer and mammogram, as well as the time series of screening mammograms, showed seasonality and peaks in October. This pattern had been reported in previous studies based on Google Trends [22,23,24]. Assuming that there were no unknown factors capable of generating such large peaks in October, this reveals both the effectiveness of Pink October for altering the interest in breast cancer and the short-term nature of the effect.

Pink October's effect differs from that of other awareness-raising campaigns. In the United States and Brazil, the search volumes and size of the peaks in the respective breast cancer awareness-raising campaigns were larger than in the prostate cancer campaigns [22,24]. The greater visibility of breast cancer may explain part of this differential effectiveness, but the existence of other campaigns on this cancer that are not concentrated in October [2,5,25] and are not manifested in the time series with the same intensity of the peaks in October indicates that the differential effectiveness is not due simply to the type of cancer. At any rate, the effectiveness demonstrated by these studies refers to the capacity to

Figure 4

Relative search volume (RSV) in Google Trends for breast cancer and mammogram in the states of Brazil, 2004 to 2019.



Source: Google Trends (https://trends.google.com, accessed on 16/Mar/2020).

induce the search for information on breast cancer on the Internet, which is potentially related but not necessarily capable of stimulating behaviors associated with early detection or of reducing morbidity and mortality rates from the disease.

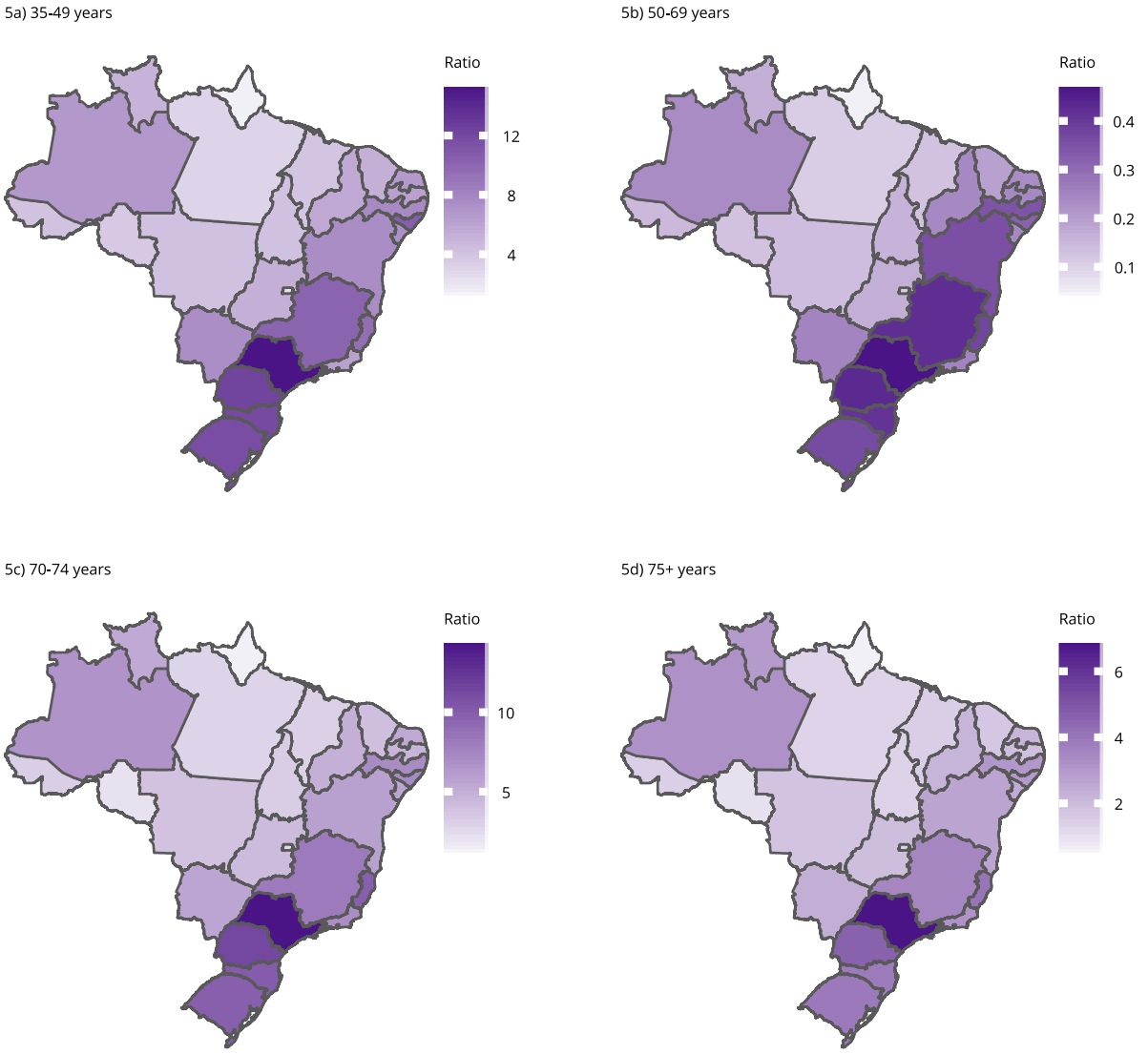
In Brazil, Pink October induced the search for information on both breast cancer and mammogram in Google [23]. In the United States, from 1994 to 2003, there was seasonality in the number of screening mammograms, with peaks in October, but only in the first four years [26]. These peaks in mammograms in the United States were smaller than the peaks in Google searches for mammograms in Brazil, so one can conclude that Pink October's effect is not as strong for performing mammograms in the United States. However, these are two sets of evidence with different information sources, places, and moments, and the data do not rule out that from 1998 to 2003 Pink October encouraged the performance of mammograms in the United States, although not seasonally.

The current study showed seasonality, with peaks in October, both in Google searches for mammogram and in the actual performance of screening mammograms. Google searches for breast cancer showed a downward trend from 2004 to 2009. At the end of this period and in the following years, Pink October received multistakeholder institutional support, including from the INCA, and there was an upward trend in the number of screening mammograms. The seasonality in Google searches appeared after this institutional support was established and after the above-mentioned upward trend. This is consistent with the hypothesis that the campaign's effects were not mediated exclusively by the internet, and that the campaign's inter-sector institutionalization, with the increased supply of tests, was decisive in consolidating the screening systems by various means.

Google searches for breast cancer and mammogram were highly correlated and were relatively homogeneous across the states of Brazil. However, the actual performance of screening mammograms showed more variable distribution, probably due to the heterogeneous access to health services with mammogram machines [27]. It is thus possible that in some places there is a higher proportion of women who perceive the need but are unable to access mammogram tests. In other words, Pink October and inequalities in access to health services may create a heavier emotional burden on more vulnerable populations. Nevertheless, according to some studies, screening mammograms do not lead consistently to lower mortality rates [8,9] and tend to be less common in women with more vulnerable

Figure 5

Screening mammogram ratio in the population of women that use the Brazilian Unified National Health System (SUS), standardized by age bracket, according to target population (indicator 1) and according to the high-risk population outside the guidelines (indicator 2) in the states of Brazil, 2010 to 2019.



Source: Outpatient Information System of the SUS (SIA/SUS; https://datasus.saude.gov.br/acesso-a-informacao/producao-ambulatorial-sia-sus/, accessed on 02/Mar/2020).

socioeconomic status [28,29]. In addition, evidences shows a positive association between breast cancer mortality rate and socioeconomic status [9,30,31]. Thus, Pink October may have unfavorable effects, mediated not only by mammogram testing itself and its spinoffs [11,12,32] but also by the emotional burden generated by the perception of the need to undergo the test, combined with the inability to access it.

It is possible to measure the excess amount of screening tests outside the recommended age bracket, considering that only 1% of the female population is considered at high risk of developing

breast cancer [5,14]. Thus, in the age brackets in which the INCA guidelines are contrary to screening, the target population would only be the high-risk group; however, the screening mammogram ratios in Brazilian women that use the SUS varied from 2010 to 2019, from 2.66 to 11.43, depending on the age bracket (the ratio was higher in younger women, 35 to 49 years of age).

In addition, of all the tests performed from 2010 to 2019 in Brazilian women that used the SUS, 35.5% were in the 35-49-year group and 58.6% in the 50-69-year group. Another study found that in 2010 and 2011, 51.2% of mammograms were performed in the recommended age bracket (50 to 69 years) and 44.6% were performed yearly [33].

Nevertheless, there has been a decrease in the number of mammograms performed in Brazilian women under 50 or over 69 years of age, possibly reflecting the change in orientation for high-risk women as to the test's periodicity and the guidelines by INCA and the International Agency for Research on Cancer (IARC) starting in 2013 [34].

Additionaly to the multi-sector participation in Pink October's media popularization, another key aspect was the structure created to encourage mammogram testing and facilitate the test in many places in both public and private services. A study with data from 2016 revealed an excess of mammogram machines in Brazil in both the private and public sectors [27], which may favor mammogram testing in off-guideline situations. To guarantee access to the test, the Brazilian Ministry of Health determines that there should be one mammogram machine for every 240,000 inhabitants, so the approximate national demand for screening would be 869 machines. In 2016, there were 5,310 machines in operation, that is, more than five times the projected number [27].

The excess of mammogram machines in Brazil does not mean an excess supply to the entire population. In the current study, the ratio for the population that used the SUS in the recommended age bracket varied from 0.27 to 0.38 in the target years (27 to 38 tests for every 100 women). Despite the comparison's limitations, due to the methodological differences, the values were lower than the ratio found in the Vigitel telephone survey (*Risk and Protective Factors Surveillance System for Chronic Non-Comunicable Diseases Through Telephone Interview*), which showed a mean coverage of 76.9% in Brazil in 2019 [35]. Our result contrasts with the 86% coverage in the private sector [36] and is below that found by Xavier et al. [37] (43.7% for Brazil in 2012). However, the latter considered coverage in women 40 to 69 years of age and without private health plans. The excess number of mammogram machines is probably concentrated in specific geographic regions and socioeconomic strata and coexists with deficient access to healthcare services in other regions and for different groups [38,39].

Another reason for the differences in mammogram coverage in the current study compared to the previous studies cited here [35,36,37,38] may lie in the type of procedure that is tabulated. Two procedures are recorded in the outpatient recording system: bilateral screening mammogram (code: 0204030188) and mammogram (code: 0204030030), the latter used for follow-up of high-risk patients or with some previously diagnosed alteration in the breasts [39].

Thus, some services or researchers may be erroneously tabulating these mammograms as if they were screening mammograms, which should only be used for the asymptomatic population without a prior breast cancer diagnosis, or they may be recording screening mammograms as if they were follow-up mammograms (code: 0204030030) [39]. In both cases it is important to verify the technical standards and quality of records, both for those conducting the recording and those using this information.

One limitation to this study is that it was not possible to calculate the real mammogram screening coverage, due first to the unavailability of the number of procedures performed in the private health system and because in the data in the SIA/SUS database, the procedures are not individualized by patient. The Cancer Information System (SISCAN), would be preferable for calculating screening coverage, but its implementation is still partial in Brazil [20].

From an institutional perspective, we note a misalignment between the mammogram screening guidelines issued by public institutions such as INCA [5,14,21] and other professional bodies [40], a situation that has also been reported in other countries [32,41].

While INCA recommends biennial mammogram screening for women 50 to 69 years of age (weak favorable recommendation) and is against screening mammograms in age brackets below 50 (strong contrary recommendation) and over 69 years (weak contrary recommendation from 70 to 74 years and strong contrary recommendation over 74 years) [5,14], the Brazilian College of Radiology and Imaging Diagnosis, together with the Brazilian Society of Breast Disease and the Brazilian Federation of

Associations of Gynecology and Obstetrics, recommend annual mammogram screening for women 40 to 74 years of age, preferably with the digital technique (category A – strong evidence). These same bodies recommend mammogram screening after 75 years, preferably digital, for women with life expectancy greater than seven years, based on comorbidities (category D – expert consensus), and annual screening starting at 30 years of age for women with high risk (depending on the risk, categories from B to C and D, with evidence varying from expert consensus to limited scientific evidence) [40].

A systematic review [42] that assessed evidence on the harms and benefits of breast cancer screening showed that mammograms in women 50 to 69 years of age result in a decrease in breast cancer-specific mortality, but not in all-cancer mortality or all-cause mortality. For women under 50 years and over 69 years, the conclusions are not consistent as to the reduction in mortality, and screening has no impact on all-cause mortality.

Preventive health behaviors help reduce the suffering and costs associated with diseases [43]. The promotion of the behaviors requires effective communication at the population level, and this effectiveness requires awareness-raising on the diseases and clear descriptions of the preventive health behaviors. Therefore, breast cancer screening interventions with their delicate balance between the potential benefits and harms require compliance with guidelines on the periodicity and target population [5]. In this sense, the consensuses on the best available evidence are expressed in the current Brazilian national guidelines from INCA [14,21], in line with the international guidelines by IARC [34]. In the Brazilian national guidelines, the only recommended screening strategy is biennial mammogram in the 50-69-year age bracket. Even so, this should be considered a conditional recommendation, since each woman's preferences and values need to be considered, acknowledging the reasonability of the decision not to undergo screening, as stated by INCA on its webpage [44]: "*Mammogram screening, even in the recommended age bracket, involves risks on which women need to be informed. In addition to false-positive and false-negative results, screening can identify indolent cancers that do not threaten the woman's life and that end up being treated (overdiagnosis and overtreatment), exposing her to the associated risks and harms. Women should be oriented on the risks and benefits of mammogram screening so that they can decide with the physician on performing routine tests and exercise their autonomy*".

Transparency and clear indication of the scientific evidence and its significance contrast with the fundamental antecedents of the popularization of screening mammograms. Klawiter (2008, apud Briatte [16]) discusses the role of the Breast Cancer Demonstration Project (BCDP), designed to promote screening with mammograms and physical examination in asymptomatic women and which failed to consider the technical recommendations and evidence of unfavorable effects of screening in women under 50 years of age. The author also discusses the financing and publicity influence on Pink October from the Zeneca pharmaceutical company, a subsidiary of Imperial Chemical Industries (which originally conceived Pink October), the producer of tamoxifen (formerly the most widely sold breast cancer drug), and one of the leading producers of pesticides whose carcinogenic effect and contribution to breast cancer are the focus of debates. BCDP and Zeneca's participation are elements in the criticism of Pink October as a marketing strategy to promote mammograms [16].

In Brazil, despite the INCA guidelines, some campaigns in Pink October, both in the private sector [45] and even in some activities organized by the SUS [46,47,48], have encouraged the inappropriate use of mammograms for screening purposes, which can further overburden a health system already in precarious conditions.

Pink October transmitted and popularized health information and induced specific behaviors such as the search for information in Google and performance of mammograms, three desirable aspects in health communication and education. However, the campaign also generated excess screening mammograms and failed to encourage autonomy and free and informed consent. Pink October revealed both the potential of mass communication in health and the need for messages to be aligned with the best scientific evidence.

Finally, there may be conflicts of interest in public health policies, reflected in the mismatch between evidence-based guidelines by the Brazilian Ministry of Health and recommendations issued by professional societies that receive financing from the pharmaceutical and medical equipment industry. This mismatch can be reduced by clear information to users of the health system on the scope and limits of prevention campaigns, as well as the right to informed choice on the risks and benefits of interventions.

Contributors

O. S. Baquero contributed to the study conception, collection and preparation of the Google Trends data, data analysis, writing and review. E. A. S. Rebolledo, A. G. Ribeiro, P. M. M. Bermudi, A. C. G. Pellini, M. A. Failla, and B. S. Aguiar contributed to the collection and preparation of data from screening mammograms, data analysis, writing and review. C. S. G. Diniz and F. Chiaravalloti Neto contributed to the data analysis, writing and review.

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Resumo

O câncer de mama é o tipo de câncer mais diagnosticado e a principal causa de morte por câncer na população feminina. As mamografias de rastreamento e o tratamento precoce são geralmente os meios mais utilizados na tentativa de reduzir essa mortalidade e são incentivados no Outubro Rosa, uma campanha de divulgação anual. Contudo, estudos recentes têm relacionado o aumento do rastreamento com uma maior morbimortalidade em razão do sobrediagnóstico e do sobretratamento. No presente estudo, avaliaram-se as buscas relativas ao câncer de mama e à mamografia no Google Trends, entre 2004 e 2019, em termos da tendência, da sazonalidade e da distribuição nas Unidades Federativas brasileiras. Avaliou-se também a correlação entre a quantidade de buscas no Google Trends e a quantidade de exames de rastreamento mamográfico. As duas séries tiveram um padrão sazonal com picos em outubro, e houve excesso de exames realizados fora da faixa etária recomendada. O Outubro Rosa transmitiu informações de saúde, as popularizou e induziu comportamentos relativos a informações transmitidas, três aspectos desejáveis na comunicação e na educação em saúde. Porém, gerou um excesso de mamografias de rastreamento e não incentivou a autonomia e o consentimento livre e esclarecido. O Outubro Rosa mostrou o potencial da comunicação em saúde para massas e a necessidade de que as mensagens sejam alinhadas com as melhores evidências científicas.

Mamografia; Câncer de Mama; Meios de Comunicação

Resumen

El cáncer de mama es el tipo de cáncer más diagnosticado y la principal causa de muerte por cáncer en la población femenina. Las mamografías de rastreo y el tratamiento precoz son generalmente los medios más utilizados en la tentativa de reducir esa mortalidad, y se encuentran impulsados en el Octubre Rosa, una campaña de divulgación anual. No obstante, estudios recientes han relacionado el aumento del rastreo con una mayor morbimortalidad, debido al sobrediagnóstico y al sobretratamiento. En el presente estudio se evaluaron las búsquedas relativas al cáncer de mama, y a la mamografía en Google Trends entre 2004 y 2019, en términos de tendencia, de estacionalidad y de su distribución en las Unidades Federativas brasileñas. Se evaluó también la correlación entre la cantidad de búsquedas en Google Trends y la cantidad de exámenes de rastreo mamográfico. Las dos series tuvieron un patrón estacional con picos en octubre, y hubo un exceso de exámenes realizados fuera de la franja etaria recomendada. Octubre Rosa transmitió información de salud, la popularizó e indujo a comportamientos relacionados con la información transmitida; tres aspectos deseables en la comunicación y educación en salud. Sin embargo, generó un exceso de mamografías de rastreo y no incentivó la autonomía y el consentimiento libre e informado. Octubre Rosa mostró el potencial de la comunicación en salud para las masas y la necesidad de que los mensajes estén alineados con mejores evidencias científicas.

Mamografía; Neoplasias de la Mama; Medios de Comunicación

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