



Family Health Strategy, private health care, and inequalities in access to mammography in Brazil*

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ABSTRACT

Objective. To evaluate the association between access to mammography and coverage by the Family Health Strategy (FHS) and supplementary (private) health insurance.

Method. An ecological study was performed with data obtained from the Unified Health System Data Processing Department (DATASUS). Time trends were analyzed using the Prais-Winsten method, using the Brazilian federal units (states) as units of analysis. Multiple linear regression was used to investigate the relationship between the dependent variable – women aged 50 to 69 years who had never had a mammogram – and the independent variables (coverage by the FHS or supplementary health insurance and socio-economic aspects).

Results. Acre was the only Brazilian state for which a growth trend in supplementary health coverage was not observed. Roraima, Tocantins, Maranhão, Piauí, Rio Grande do Norte, and Paraíba showed a stable trend for FHS coverage; all other federal states showed an increase in coverage. A significant association was observed between never having had a mammogram at 50 to 69 years of age and two variables: mean per capita income and FHS and supplementary health coverage ($R^2=0.77$; $P < 0.001$).

Conclusion. Unequal access to mammography is a reality in Brazil. Both supplementary private health care and the FHS have helped to improve health care accessibility for Brazilian women.

Keywords

Primary health care; Family Health Strategy; supplemental health; mammography; health status disparities; Brazil.

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Breast cancer is the second most frequent cause of cancer death among women in Brazil, with 57,960 new cases and 14,388 deaths in 2016 alone (1). Underlying these figures are massive inequalities that have long characterized health in Brazil (2). One study has shown that, when data are stratified by macroregions and states, mortality rates tend to decline or stabilize in regions with greater socioeconomic development and rise in less developed regions (3).

Mammography is the primary screening test for breast cancer. Mammography coverage rates above 70% can reduce mortality by 20–30% in women aged 50 years or older (4). However, studies conducted in Brazil have disclosed poor mammography coverage in most states of the North, Northeast, and Center-West regions (4–8). Reasons include a lack of human resources and the uneven distribution of mammography machines, which are concentrated in state capitals and major urban centers (4). The inadequate distribution of these devices, largely under the aegis of public administration, heightens inequalities, leading to suffering, mutilation, and death (6–8). Lack of access to mammography has been highlighted in the literature as a significant marker of health inequality (2). Research into this phenomenon is particularly relevant in light of its determinants.

One question that can be raised in view of this situation is whether policies to encourage the improvement and expansion of primary health care (PHC)—guided in Brazil by the Family

Health Strategy (FHS)—have contributed to women's access to mammography, especially as compared to access via "supplementary care", where health services are provided exclusively in the private sector and where a direct legal relationship between providers and users is established through private health insurance plans. Although not linked to the Brazilian Unified Health System (SUS), the private health insurance sector in the country is regulated by the National Regulatory Agency for Private Health Insurance and Plans (*Agência Nacional de Saúde Suplementar*, ANS) (9).

The present study aimed to evaluate the combined impact of FHS and supplementary (private) health insurance coverage in reducing inequalities in access to mammography in Brazil, with special emphasis on critical aspects of this issue, the geographical distribution of SUS and non-SUS mammography machines, and trends in coverage for the two models of care. It bears stressing that, although previous research measuring mammography coverage in the public and private health care systems has been conducted (6–8, 10, 11), no nationwide studies have used mapping to assess the distribution of coverage by this screening modality.

MATERIALS AND METHODS

An ecological study (12) was carried out, with the 27 federative units of Brazil as units of analysis. Brazil has 26 states and one Federal District, grouped into five regions (or, more properly,

macroregions): North (Rondônia, Acre, Amazonas, Roraima, Pará, Amapá, Tocantins), Northeast (Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia), Southeast (Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo), South (Paraná, Santa Catarina, Rio Grande do Sul), and Center-West (Mato Grosso do Sul, Mato Grosso, Goiás, and the Federal District) (13).

According to the 2010 Census conducted by the Brazilian Institute of Geography and Statistics (IBGE), Brazil has a population of 190,755,799, a Gini index of 0.608, a gross domestic product (GDP) of R\$ 3,885,827,002, an average household per capita income of R\$ 767.02, and an unemployment rate of 7.42%; 34.67% of the population lives on a monthly income of less than half of one minimum wage (13). The variables of interest, which concerned both the public and private (supplementary) health systems, included indicators of SUS coverage and performance, as well as socio-demographic variables.

Table 1 lists the variables obtained from the SUS Health Informatics Department (DATASUS), which includes information from IBGE, the National Registry of Health Facilities (CNES), the ANS, the Department of Primary Care (DAB), and the National Health Survey (PNS) for all 27 federative units of Brazil. The trend of FHS population coverage over time and the private health insurance coverage rate for the period 2005–2016 were evaluated. With "y" being each value in the time series and "x" the scale of time, the

TABLE 1. Dependent and independent variables of interest, access to mammography in Brazil, 2005 to 2016

Source ^a	Variable	Definition
PNS	Dependent variable: proportion of women aged 50 to 69 years who have never had a mammogram	Number of women aged 50 to 69 years who have never had a mammogram divided by the total number of women aged 50 to 69 years in a given geographical area in the year of interest.
IBGE	Gross domestic product (GDP), per capita	Municipal GDP per capita, calculated as the municipal GDP for the year divided by the municipal population in the same year.
IBGE	Illiteracy rate per year in each federative unit	Percentage of persons aged 15 years or over who cannot read or write at least a simple note in their language, in the total resident population of the same age range, in a given geographical area, in the year of interest.
IBGE	Average household income, per capita	Average household income, per capita, of residents of a given geographical area in the year of interest.
IBGE	Population lacking sanitation facilities	Proportion of the resident population that lacks sanitation facilities.
ANS	Health insurance coverage rate	Ratio of number of beneficiaries to the population of a given area. ANS TABNET ^b provides rates calculated for macroregions, federative units, state capitals, and metropolitan regions, stratified by sex and age range.
DAB	Proportion of estimated population coverage by the FHS	Number of FHS units multiplied by 3,450 (average number of users followed per FHS unit) divided by the population of a given geographic space in the year of interest, limited to 100% coverage.
CNES	SUS and non-SUS mammography coverage by health facility	Number of SUS and non-SUS mammography machines as a function of the total number of mammography machines, per federative unit, in the year of interest.

^a Source: DATASUS, 2017.

^b ANS: National Regulatory Agency for Private Health Insurance and Plans; CNES: National Registry of Health Facilities; DAB: Department of Primary Care; IBGE: Brazilian Institute of Geography and Statistics; PNS: National Health Survey.

^c TABNET: DATASUS Health Information.

slope between the points in the time series whose trend is to be estimated will be defined by the linear equation $y = b_0 + b_1x$.

To reduce the heterogeneity of variances in residuals from the time regression analysis, y values were log-transformed (14). Logarithmic coverage rates were calculated in Microsoft Excel software. Subsequent analyses were carried out in the Stata 13 software environment, using the Prais–Winsten estimation method to correct for first-order autocorrelation between residuals in the time series.

The result of this analysis is the annual percent change (hereafter, the “annual increase rate”) and its respective 95% confidence interval (CI 95%). The trend is considered downward if both the lower and upper bounds of the confidence interval are negative, upward if both bounds are positive, and stationary when the confidence interval crosses zero—i.e., when the lower bound is negative and the upper bound is positive (14).

In the present study, “inequality in health” is taken to imply some degree of injustice, combined with social conditions that systematically place groups at a disadvantage regarding the possibility of taking advantage of health-related opportunities and resources (15). The proportion of women aged 50–69 years who had never undergone mammography was selected as the indicator of inequality for this study. This indicator, taken from the PNS, was adopted as a dependent variable. The selected age, 50–69 years, is the priority age range for population-wide screening of breast cancer in Brazil (16). The chosen indicator makes it possible to assess the adequacy of access to mammography and, thus, identify inequality (2–5).

In order to ascertain the relationship between the dependent variable and the independent sociodemographic and health-services variables, the multiple linear regression method was used to select the best explanatory model (17). The stepwise algorithm and the Akaike information criterion (AIC) were used for model fitting. The model with the lowest AIC value was selected (17).

The Shapiro–Wilk test was then performed to test for normality of the residuals (17). Multiple linear regression analysis was performed in RStudio version 3. Incorporation of variables into the model followed the recommendations of Zuur et al. (18), with exclusion of

outliers and verification of homogeneity of variance, normality, collinearity, relationship between x and y , interactions, and independence of model error.

As determined by Brazilian legislation, because this study used only anonymized and publicly available data from secondary sources, it did not require approval by a research ethics committee.

RESULTS

Figure 1 illustrates per capita household income in 2010, the percentage of women aged 50–69 who had never undergone mammography, and a comparison between growth of the FHS and of the private health insurance sector from 2005 to 2016 in each of the federative units of Brazil. The highest per capita household incomes were concentrated in the Center-West and Southeast regions, led by Brasília, São Paulo, and Rio de Janeiro, with average per capita incomes of R\$1,665.42, R\$1,036.51, and R\$993.21, respectively. A high percentage of women aged 50–69 who had never undergone mammography was observed in most states of the North and Northeast regions, especially Maranhão, Acre, and Pará, with 41.9%, 41.5%, and 40.7%, respectively.

Table 2 shows the time trend of FHS and private health insurance coverage rates for 2005–2016. All federative units exhibited an upward trend in private health insurance coverage, except Acre (stationary). Roraima, Tocantins, Maranhão, Piauí, Rio Grande do Norte, and Paraíba had stable FHS coverage, whereas all other federative units exhibited an upward trend.

Figure 2A shows the proportion of SUS versus non-SUS mammography machines in each federative unit. The highest percentage of SUS mammography machines was observed in Roraima, Amazonas, and Tocantins, with 87.5%, 84.7%, and 79.4%, respectively; conversely, in the Federal District, Rio de Janeiro, and Pará, 87.8%, 66.8%, and 60.3% of mammography machines were located in non-SUS health facilities. Figure 2B shows the density of mammography machines per 1,000 women aged 50–69 years. The highest densities were found in São Paulo, Minas Gerais, Rio de Janeiro, and along the Brazilian coast as a whole.

According to the model obtained by multiple linear regression, the dependent variable was explained by three of the

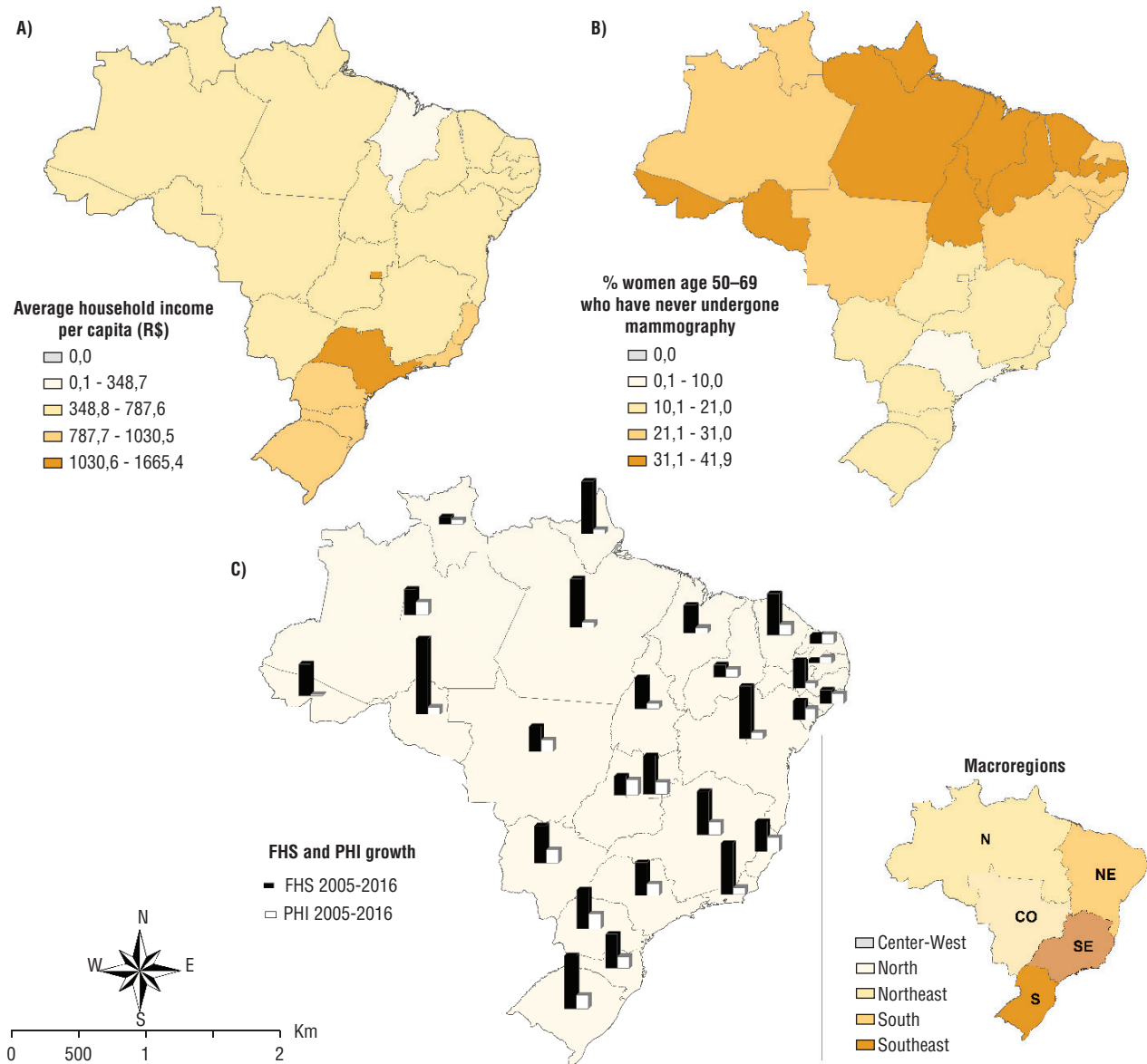
variables tested, all of which showed a statistically significant association. These variables and their parameters were as follows: average per capita household income ($\beta = -0.013$, 95%CI = -0.027 to -0.001 , $P = 0.041$), FHS coverage ($\beta = -0.242$, 95%CI = -0.446 to -0.039 , $P = 0.021$), and private health insurance coverage ($\beta = -0.804$; 95%CI = -1.157 to -0.452 , $P < 0.001$). The remaining parameters had an AIC = 95.969, $R^2 = 0.77$, and $P < 0.001$. The Shapiro–Wilk test ($P = 0.517$) confirmed the normality of the residuals of the proposed linear regression model.

DISCUSSION

The present study aimed to evaluate the association of FHS and (supplementary) private health insurance cover with reduction of inequalities in access to mammography in Brazil, with special emphasis on areas in which this issue is critical, the geographical distribution of SUS and non-SUS mammography machines, and trends in coverage for the two models of care. Our findings revealed an upward trend in both FHS and private health insurance coverage, although significant differences were observed between these two modalities in all federative units of Brazil. In recent years, FHS coverage has greatly expanded throughout Brazil as a result of incentives from the Ministry of Health (19–21); however, this expansion has occurred at different rates across states, as shown in this study.

Although the states of Roraima, Tocantins, Maranhão, Piauí, Rio Grande do Norte, and Paraíba showed a stationary trend in FHS coverage growth over time, these states all had high FHS coverage from 2005 to 2016. In regions where coverage is already high, sustaining it can be challenging (20). Another fact that may explain the stationary trend is the difficulty in retaining health care providers, especially physicians, in the inland regions of the North and Northeast (22). However, FHS growth is reflected by a reduction in hospitalization rates, improvement in operational indicators, reduction of health inequalities, and improvement of quality of life (23, 24). Another result demonstrated by this study is the expansion of the private health insurance sector in Brazil. According to the literature, growth in this sector has strengthened since the 1990s, with coverage reaching 24.9% as of 2016 (25).

FIGURE 1. A) Household income per capita, B) percentage of women aged 50–69 years who have never undergone mammography, and C) growth of FHS and private health insurance coverage, 2005 to 2016, Brazil



Malta et al. (25) assessed health plan coverage and found that populations in the Southeast and North regions have the highest and lowest private coverage rates, respectively, which corroborates the findings of this study. Nevertheless, according to our results, the only state that did not show an upward trend in private health insurance coverage was Acre, in the North region. The increase in health coverage in the 1990s can be explained by the economic panorama and stability of Brazil at the time (26–28). However, given the current economic downturn and levels of unemployment (in the 12 million range), this situation may have changed.

Comparison between the percentages of SUS and non-SUS mammography machines in health facilities, eight states in the North and Northeast regions had a proportion of SUS mammography machines above 60%; conversely, the Federal District, Rio de Janeiro, São Paulo, and Pará all had proportions of non-SUS mammography machines above 60%. According to Oliveira et al. (5), increased SUS funding for the acquisition of mammography machines was reflected by growth on a national scale, and in the North region in particular. In Rio de Janeiro and the Federal District, the high percentage of non-SUS mammography machines is probably attributable to high

private health insurance coverage and high per capita income in these regions.

The study showed that the North and Northeast regions, with lower mammography machine densities, also had a lower rate of mammography coverage. This phenomenon has previously been observed by other authors (2). Our analysis clearly demonstrates the poor geographic distribution of these devices, which contributes to low mammography coverage and compromises geographical accessibility by women, especially those residing in small inland municipalities, as mammogram technology is concentrated in large metropolitan regions (6).

TABLE 2. Trends in Family Health Strategy and private health insurance coverage rates over time, Brazil, 2005 to 2016^a

Macroregion/federative unit	Family Health Strategy Coefficient		Private health insurance	
	Coefficient (95%CI)	Trend	Coefficient (95% CI)	Trend
North				
Rondônia	0,036 (0,027 a 0,045)	Upward	0,022 (0,004 a 0,041)	Upward
Acre	0,011 (0,003 a 0,018)	Upward	0,006 (-0,001 a 0,014)	Stationary
Amazonas	0,012 (0,006 a 0,018)	Stationary	0,032 (0,011 a 0,053)	Upward
Roraima	0,001 (-0,008 a 0,010)	Upward	0,023 (0,009 a 0,037)	Upward
Pará	0,034 (0,019 a 0,049)	Upward	0,016 (0,011 a 0,020)	Upward
Amapá	0,018 (0,007 a 0,030)	Upward	0,009 (0,004 a 0,015)	Upward
Tocantins	0,001 (-0,027 a 0,029)	Stationary	0,026 (0,023 a 0,029)	Upward
Northeast				
Maranhão	0,005 (-0,007 a 0,017)	Stationary	0,028 (0,022 a 0,034)	Upward
Piauí	-0,004 (-0,026 a 0,018)	Stationary	0,029 (0,023 a 0,034)	Upward
Ceará	0,012 (0,007 a 0,019)	Upward	0,024 (0,019 a 0,028)	Upward
Rio Grande do Norte	-0,004 (0,027 a 0,020)	Stationary	0,018 (0,009 a 0,026)	Upward
Paraíba	0,000 (-0,002 a 0,002)	Stationary	0,015 (0,012 a 0,018)	Upward
Pernambuco	0,009 (0,008 a 0,011)	Upward	0,009 (0,001 a 0,018)	Upward
Alagoas	0,005 (0,004 a 0,006)	Upward	0,026 (0,019 a 0,032)	Upward
Sergipe	0,004 (0,002 a 0,006)	Upward	0,023 (0,018 a 0,029)	Upward
Bahia	0,019 (0,016 a 0,023)	Upward	0,015 (0,011 a 0,019)	Upward
Southeast				
Minas Gerais	0,015 (0,013 a 0,017)	Upward	0,015 (0,005 a 0,024)	Upward
Espirito Santo	0,015 (0,013 a 0,016)	Upward	0,013 (0,005 a 0,021)	Upward
Rio de Janeiro	0,032 (0,027 a 0,038)	Upward	0,006 (0,002 a 0,010)	Upward
São Paulo	0,026 (0,022 a 0,029)	Upward	0,007 (0,003 a 0,011)	Upward
South				
Paraná	0,016 (0,014 a 0,019)	Upward	0,017 (0,014 a 0,021)	Upward
Santa Catarina	0,011 (0,009 a 0,013)	Upward	0,011 (0,003 a 0,019)	Upward
Rio Grande do Sul	0,031 (0,024 a 0,038)	Upward	0,016 (0,007 a 0,025)	Upward
Center-West				
Mato Grosso do Sul	0,016 (0,013 a 0,019)	Upward	0,018 (0,013 a 0,023)	Upward
Mato Grosso	0,009 (0,006 a 0,014)	Upward	0,024 (0,015 a 0,033)	Upward
Goiás	0,008 (0,007 a 0,010)	Upward	0,030 (0,024 a 0,035)	Upward
Federal District	0,068 (0,046 a 0,090)	Upward	0,010 (0,001 a 0,020)	Upward

^a Downward trend: both the lower and upper bounds of the confidence interval are negative; upward trend: both bounds of the confidence interval are positive; stationary trend: the confidence interval crosses zero—i.e., the lower bound is negative and the upper bound is positive.

It is estimated that only 43.7% of medically necessary tests were performed via the SUS, which should place health authorities and managers on alert (6). As distance is a major barrier to access to diagnostic technologies, the adoption of itinerant systems can be an alternative. However, this should be a temporary, time-limited strategy. The results of this study suggest that access is the result of universal supply, availability of equipment outside of major urban centers, and income distribution; all of these factors are permeated by protection policies sensitive to the constraints observed in the study (5). The determinants of access to mammography from a geographic perspective (29), women's

awareness of the need for mammography (29), and the optimal organization of health services for supply and demand (30) have all been addressed in the literature.

The present study found a statistically significant association between never having undergone mammography by age 50–69 years, per capita income, and FHS and private health insurance coverage. This leads to the conclusion that access to mammography has been realized through both models of care (public and private), a relevant finding in terms of public policies. However, it is worth highlighting that, as shown in Figure 2, areas with critically restricted access to mammography exist in the North and

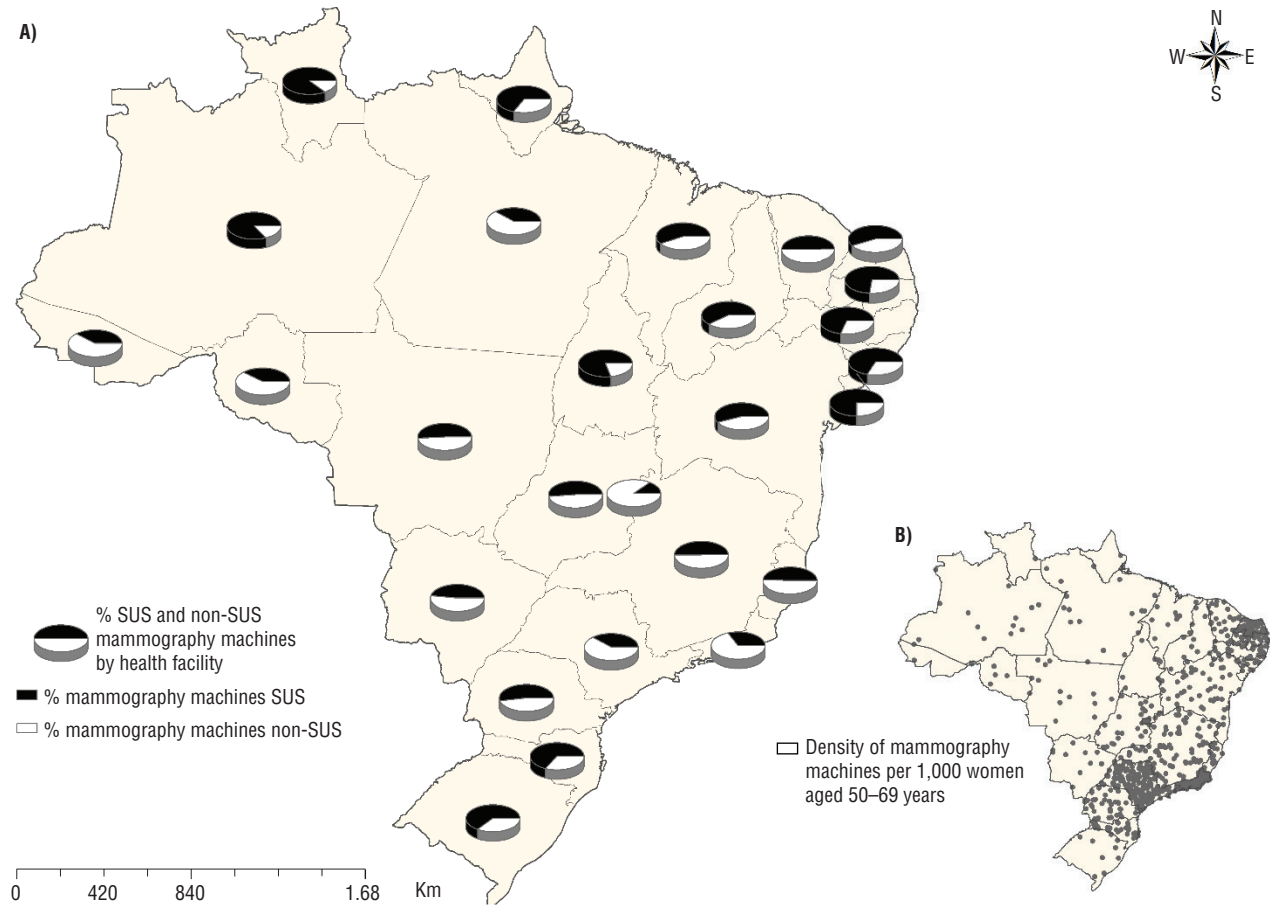
Northeast regions of Brazil, such as in Acre and Pará, where mammography machines are not only few but also mostly available through the private health system alone. Specifically, Acre has one of the country's highest proportions of people living in extreme social vulnerability; much progress is required in terms of public policies to improve justice and equity.

Another state with critical access restrictions was Maranhão, where, however, the availability of mammography devices was relatively proportional. In most Northeastern states, mammography is offered by the SUS. These regions also have high FHS coverage rates. Access to mammography was limited in Paraíba, perhaps due to failures in the coordination of women's health within the FHS or in the organization of health care networks.

According to Oliveira et al. (5), expansion of the number of SUS-funded mammography machines has led to a significant increase in mammography screening coverage among low-income women. Chor et al. (2) pointed out that, among women with an income of up to R\$100, 62% had undergone mammography. In São Paulo, nearly 76% of women in this income bracket had undergone mammography; in Fortaleza, this proportion was only 39%, which highlights regional inequalities. In addition, Chor et al. (2) concluded that being an SUS user, having low educational attainment and income, being single, and being elderly lead women to not seek mammography screening. When the results of the present investigation were compared with those of Chor et al. (2), we observed that low income was also associated with non-access to mammography. However, our results were discordant in terms of SUS utilization; indeed, the FHS was found to be a probable protective factor in the present investigation.

It bears stressing that different modalities of PHC exist within the SUS. These differences must be borne in mind lest our findings be interpreted as biased or erroneous. In the traditional modality, provided by "basic health units", teams are composed of a general practitioner, a gynecologist, a pediatrician, nurses, and nurse's aides. Care is provided on a walk-in basis and is more geared toward acute conditions or acute exacerbations of chronic conditions (31). The FHS, on

FIGURE 2. A) Proportion of SUS and non-SUS mammography machines and B) density of mammography machines per 1,000 women aged 50–69 years, Brazil, 2016



the other hand, is built on the tenets of the Alma-Ata Declaration (32), which propose a PHC model that responds in a permanent, systematized, and accountable manner to the majority of health needs of a given population, through the deployment of multidisciplinary teams operating in a specific territory, which makes it possible to determine health needs in an organized and problem-focused manner (33). It is based on the delivery of comprehensive, equitable, coordinated, and longitudinal care of families and individuals (33). Thus, perhaps due to their failure to consider this distinction between traditional basic health units and the FHS, Chor et al. (2) found that SUS utilization was associated with lack of access to mammography. Another point about the private health insurance sector raised by Azevedo e Silva et al. (11) is that having private health coverage was one of the factors most strongly positively associated with

having a mammogram ordered. However, living in the North and Northeast regions of Brazil reduces the likelihood of mammography.

One important finding of this study is that, although the North and Northeast regions have higher FHS coverage, mammography machines are not concentrated in these regions, perhaps because the availability and supply of medical equipment follows market logic and is concentrated in areas with greater purchasing power, such as the state of São Paulo. Our results also suggest that most mammography devices in the South and Southeast regions are in the hands of the private sector, which may intensify inequalities in these regions, especially among populations that lack private coverage and live in areas with low FHS coverage. The State is clearly lax in its regulation and distribution of these devices to ensure equity in health. The recently proposed constitutional amendment to impose a public

spending cap (PEC 55), which will freeze SUS funding for 20 years, further jeopardizes the sustainability of a universal FHS policy (34).

Limitations of the present study include the use of secondary data, which may have generated some bias due to incompleteness or ignored information. Another limitation is heterogeneity among states, which is not captured when the decision is made to investigate inequalities by federative unit; information is essentially homogenized within this aggregate of data. Future studies would be wise to employ qualitative designs to understand the challenges faced by women in the search for mammography screening and their experiences with mammography services. Comparative analyses of the FHS versus other models of care, considering user experiences from the standpoints of quality, safety, and satisfaction, would also be welcome.

CONCLUSION

This study identified trends in FHS and private health insurance coverage in Brazil and evaluated how these two models of care have impacted access to mammography. The geographic distribution of mammography machines was found to directly influence mammography coverage among women aged 50–69 years, especially in the North and Northeast regions of Brazil, where there is a lower density of mammography devices.

Expansion of both the FHS and private health cover has enabled increased access to mammography in Brazil. However,

in some regions, the impact of private health insurance has been higher than that of the FHS, largely because most mammography machines are in the hands of the private sector. One point of concern is that these regions (South and Southeast) also feature low FHS coverage, which means that women do not have access to either model of care.

The unequal distribution of mammography machines in Brazil continues to pose an obstacle to equitable access to mammography. Urgent measures are needed to reverse this situation lest more and more women become ill and die from breast cancer in Brazil, which would be unfair and unacceptable.

Conflicts of interest. None declared.

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RESUMEN

Estrategia de Salud Familiar, salud suplementaria y desigualdad en el acceso a la mamografía en Brasil

Objetivo. Evaluar la asociación entre el acceso a la mamografía en Brasil y la cobertura prestada por la Estrategia de Salud Familiar (ESF) y por la salud suplementaria.

Métodos. Se realizó un estudio ecológico con datos obtenidos del Departamento de Informática del Sistema Único de Salud (DATASUS). La tendencia de la serie temporal fue analizada mediante el método de Prais-Winsten utilizando como unidades de análisis las entidades federativas brasileñas. Para investigar la relación entre la variable dependiente —mujeres de 50 a 69 años que nunca se habían realizado una mamografía— y las independientes, de cobertura por la ESF o salud suplementaria y las variables socioeconómicas, se realizó un análisis de regresión lineal múltiple.

Resultados. Acre fue el único estado que no presentó una tendencia creciente para la cobertura por la salud suplementaria. Roraima, Tocantins, Maranhão, Piauí, Rio Grande do Norte y Paraíba presentaron una tendencia estacionaria para la cobertura por la ESF, mientras que las otras entidades federativas mostraron una cobertura en ascenso. Se observó una asociación significativa entre el hecho de nunca haberse realizado una mamografía entre los 50 y los 69 años y las variables renta media per cápita, cobertura por la ESF y la salud suplementaria ($R^2 = 0,77$; $P < 0,001$).

Conclusión. En Brasil, la desigualdad en el acceso a la mamografía es una realidad. Tanto la salud suplementaria como la Estrategia de Salud Familiar han contribuido a mejorar el acceso de estas mujeres a la mamografía.

Palabras clave

Atención primaria de salud; Estrategia de Salud Familiar; salud complementaria; mamografía; disparidades en el estado de salud; Brasil.

Estratégia Saúde da Família, saúde suplementar e desigualdade no acesso à mamografia no Brasil

RESUMO

Objetivo. Avaliar a associação entre o acesso à mamografia no Brasil e a cobertura pela Estratégia Saúde da Família (ESF) e pela saúde suplementar.

Métodos. Realizou-se um estudo ecológico com dados obtidos do Departamento de Informática do Sistema Único de Saúde (DATASUS). A tendência da série temporal foi analisada pelo método de Prais-Winsten utilizando-se como unidades de análise as unidades federativas brasileiras. Para investigar a relação entre a variável dependente – mulheres de 50 a 69 anos que nunca realizaram exame de mamografia – e as independentes, de cobertura de ESF ou saúde suplementar e socioeconômicas, realizou-se análise de regressão linear múltipla.

Resultados. O Acre foi o único estado que não apresentou tendência crescente da cobertura da saúde suplementar. Roraima, Tocantins, Maranhão, Piauí, Rio Grande do Norte e Paraíba apresentaram tendência estacionária para a cobertura pela ESF, enquanto as demais unidades federativas apresentaram cobertura crescente. Observou-se associação significativa entre nunca ter realizado mamografia na idade de 50 a 69 anos e as variáveis renda média per capita e cobertura pela ESF e saúde suplementar ($R^2=0,77$; $P < 0,001$).

Conclusão. A desigualdade no acesso a mamografia é uma realidade no Brasil. Tanto a saúde suplementar quanto a Estratégia Saúde da Família têm contribuído para melhoria do acesso dessas mulheres.

Palavras-chave

Atenção primária à saúde; Estratégia Saúde da Família; saúde suplementar; mamografia; desigualdades em saúde; Brasil.
