

Use of Health Services and Family Health Strategy Households Population Coverage in Brazil

Utilização dos Serviços de Saúde e Estratégia Saúde da Família Cobertura da População Domiciliar no Brasil

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Abstract *The objective of this study is to describe the profile of use of primary health care services, estimated by the PNS, of the population living in households registered and not registered with the Family Health Strategy - FHS, in the years 2013 and 2019. Cross-sectional study carried out using microdata from national health surveys 2013 and 2019. The sample originated from a master sample, consisting of a set of units from selected areas in a register. The variables sex, age, skin color, income, education, self-perceived health, home registered with the FHS, medical care in the last year, type of service you seek when you are ill were selected. The dependent variables were use of health services and use of public health services. The dependent and independent variables were described with the respective confidence interval and adjusted logistic regression was performed for each outcome analyzed. In public health services, lower income, have chronic diseases (arterial hypertension or high cholesterol), be pregnant, and having a bad self-perception of health were associated with used more health services in both periods. Living in registered households was associated with more used health services (public or private). The family health strategy is an important strategy for expanding access equally.*

Key words *Primary Health Care, Family Health Strategy, Health services, Access*

Resumo *O objetivo deste estudo é descrever o perfil de utilização dos serviços de atenção primária à saúde, estimado pela Pesquisa Nacional de Saúde (PNS), da população residente em domicílios cadastrados e não cadastrados na Estratégia de Saúde da Família (ESF), nos anos de 2013 e 2019. Estudo transversal realizado com microdados dos inquéritos nacionais de saúde entre 2013 e 2019. A amostra originou-se de uma amostra mestra, composta por um conjunto de unidades de áreas selecionadas em um cadastro. Variáveis sexo, idade, cor da pele, renda, escolaridade, autopercepção de saúde, domicílio cadastrado na ESF, atendimento médico no último ano, tipo de serviço que você procura quando está doente foram selecionados. As variáveis dependentes foram uso de serviços de saúde e uso de serviços públicos de saúde. As variáveis dependentes e independentes foram descritas com os respectivos intervalos de confiança e foi realizada regressão logística ajustada para cada desfecho analisado. Nos serviços públicos de saúde, menor renda, ter doenças crônicas (hipertensão arterial ou colesterol alto), estar grávida e ter uma autopercepção de saúde ruim estiveram associados à maior utilização de serviços de saúde nos dois períodos. Morar em domicílios cadastrados na ESF foi associado aos serviços de saúde mais utilizados (públicos ou privados). A estratégia de saúde da família é uma estratégia importante para expandir o acesso de forma igualitária.*

Palavras-chave *Atenção Primária à Saúde, Estratégia Saúde da Família, Serviços de saúde*

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Introduction

Primary Health Care (PHC) is the structural axis of a health system. This is the first level of access, organized to offer a longitudinal and comprehensive service, coordinating care within the health system itself (essential attributes). PHC also has guidelines for organizing care geared to the needs of families, communities, observing the cultural characteristics of each population. These are considered attributes derived from PHC¹.

PHC aims to balance two goals of a health system: to optimize the health of individuals and the population; provide equity in the distribution of resources, both proper to care and financial².

The Family Health Strategy (FHS) is the great Brazilian bet to structure PHC services in the country. In the last 20 years, there has been a strong expansion of the FHS in all regions of the country³. At the end of 2019, there were almost 45 thousand Basic Health Units, with 43,458 FHS teams with potential coverage of about 150 million people⁴. Advances in FHS coverage have enabled a reduction in infant mortality and preventable mortality, a reduction in hospitalizations for sensitive conditions, among other advances^{5,6}. On the other hand, there is a significant decrease in the speed of health gains in the face of public investment: decreased vaccination coverage, loss of speed in reducing child mortality, a large proportion of preventable hospital admissions, in addition to enormous difficulty in managing chronic diseases, aging, and also coping with syphilis and HIV⁷.

National home-based surveys are important tools to study and understand the health needs of the population, coverage of health services, profile of access and use, among others. The National Health Survey (PNS), conducted in 2019, with a sample of 86,820 households, collected information on the performance of the single health system.

The objective of this study is to describe the profile of use of primary health care services, estimated by the PNS, of the population living in households registered and not registered with the FHS, in the years 2013 and 2019.

Methodology

The PNS sample originated from a master sample, consisting of a set of units from selected areas in a register, in order to meet the subsample selections for several different surveys provided for in the Integrated Home Survey System (IHS

/ IBGE), such as the National Household Sample Survey and the Household Budget Survey. Such units are conceptualized as primary sampling units (PSU), within the sample planning of the researches that use the master sample, as in the case of the PNS⁸.

The sampling strategy consisted of (i) a three-stage conglomerate plan, with stratification of the UPA (in this case, census sectors or set of sectors) and selection of these for the master sample, with probability proportional to the size, defined by the number of households permanent private individuals, and (ii) the selection for the PNS sample, with an equally proportional probability⁸.

The second stage consisted of the selection of households from the National Register of Addresses for Statistical Purposes, in its most recent update (carried out for the execution of the Continuous National Household Sample Survey 2019) before the completion of this stage of the sampling plan, by simple random sampling. Then, within each household, a resident aged 15 or over was randomly selected, based on the list of residents obtained at the time of the interview. To scale the sample size with the level of precision desired for the estimates, some indicators from the 2013 edition of the PNS were considered, such as data from chronic non-communicable diseases (diabetes, hypertension, depression), violence, use of health services, possession of a plan health, smoking, physical activity and alcohol consumption, among others⁹.

Data collection National Health Survey

The organization of collections and the coordination of fieldwork, carried out by Brazilian Institute of Geography and Statistics (IBGE), involved collection agents (interviewers), supervisors (supervision of data collection and management of collection agents) and coordinators (responsible for research in a given state or central unit)) of IBGE's own staff⁸.

The training of coordinators and others involved consisted of stages: at first, the coordinators of IBGE state units were trained through a face-to-face workshop held in the city of Bento Gonçalves, Rio Grande do Sul State. Participants became multiplier agents and, upon returning to their units, passed on the training content to supervisors and collection agents. The field team (coordinators, supervisors and collection agents) participated, throughout the process data collection, simultaneous training, with the possibility of online questioning⁸.

The interviews were conducted with the use of mobile collection devices (MCD), programmed to “jump” over items in the questionnaire and for critical analysis of the variables. Upon arriving at the selected household, first the interviewers made contact with the responsible person or another resident. The agent explained to the residents the objectives, the data collection procedure and the importance of their participation in the research. At that time, a list of all individuals residing in the household was filled out, regardless of whether or not they agreed to participate in the research⁸.

Then, the resident was identified who would provide information about the questionnaires at home and of all the residents of the household, in addition to the draw of the resident of 15 years and more to answer the interview. individual. The interviews were scheduled at the most convenient time for the residents. Two or more visits were planned in each household⁸.

In 2013, records of interviews were obtained in 64,348 households and the informant of each responded to the others about the FHS coverage. Thus, valid information was collected for about 205,000 residents. For data analysis, expansion factors or sample weights were used for PSUs, for households and all residents and for the selected resident.

In 2019, records of interviews were obtained in 86,820 households and the informant of each responded to the others about the FHS coverage. Thus, valid information was collected for about 134,221 residents. For data analysis, expansion factors or sample weights were used for PSUs, for households and all residents and for the selected resident.

Variables

The households registered in the FHS were presented in proportions, and to estimate the number of people per household, the division was made: number of households registered in the family health unit / number of households interviewed in the PNS.

Brazilian major regions, census situation, Sex, age, skin color, income, education, self-perceived health, home registered in the FHS, use of medical care in the last year (public and private), type of service you seek when you are ill, chronic diseases and pregnancy, were independent variables selected for the year 2013 and 2019.

The independent variables were categorized: Sex (Male, Female); Age (18-29 years-old, 30-39

years-old, 40-49 years-old, 50-59 years-old, 60 years-old or more); Skin color (White, Brown, Black, Yellow, Indigenous); Family and household income in quintiles, Head of household education (none, Incomplete Elementary / Middle school, Elementary / Middle school, High school, Undergraduation or more); search for health service in case of illness (private, public, pharmacy / others). Self-reported health condition - arterial hypertension, diabetes, high cholesterol, and (yes / no); pregnancy - (yes / no); the self-perceived health variable is the categorization (very good, good, regular, bad, very bad). Brazilian major regions (North, Northeast, Southeast, South, and Midwest); census situation (urban/rural); register in a family health unit (yes/no).

The variable of use to public health services was the outcome of association analysis and was built through the question was built: “In the last two weeks, looked for a place, service or health professional for care related to one’s own health”, where only individuals who accessed public services were considered.

Data Analysis

The proportions of households registered in the FHS were stratified according to Major Regions, Federation Units (UF). The proportion and their 95% confidence intervals (95% CI) were described; and the absolute numbers have been estimated. Descriptive analysis of the use of medical care (public and private) in the last year was also carried out, considering living in households registered in the FHS. In addition, the co-variables were used for, region, sex, age, income, education, skin color, search for health care in case of illness, self-reported health condition (diabetes, hypertension, high cholesterol, pregnant woman) and self-perceived health. Then, adjusted logistic regression was performed to establish the association between the independent variables and the outcome “use to public health services”. To the co-variables investigated in this analysis were: Register in a Family Health unit, census situation, Brazil region, sex, age, skin color, family income, household wealth, schooling of the head of household, self-reported health condition (diabetes, hypertension, high cholesterol, pregnant woman) and self-perceived health.

The inclusion of independent variables in the model was performed using backward stepwise considering a p-value <0.2 for the adjusted one. The crude and adjusted odds ratio and their 95% confidence intervals (95% CI) were described.

The data were analyzed by the software Stata 16, through the survey module, which considers the effects of complex sampling.

Results

The descriptive analysis of the households registered with the FHS showed that between the years 2013 and 2019 there was an expansion of coverage. In 2013, 54.7% of households were registered with the FHS, in PNS 2019 this proportion jumped to 61.5% of the sampled households. Considering the number of people per household, the potential coverage doubled (79.610.000 to 134.121.000). Rural households had a higher proportion of registered households than urban households. The northeast region had the highest coverage of registered households in both periods analyzed, at the other extreme, the southeast region had the lowest proportion of registered households (Table 1).

It is possible to observe people who live in households registered in FSH use health services more. This is observed both in 2013 and in 2019, and for this last period the differences deepen (Table 2). Only 23.8% of people living in households not registered in FHS in the southeast of the country did not use health services in 2019, while 79.6% of people living in registered households in the northeast used health services in the last 12 months. The results also point out that people with lower income and education have used more health services than the others, as well as people who have some chronic health condition (Table 2).

The Table 3 explore the associated factor to used public health services (SUS). The results showed that not belonging to a registered household with the FHS decreases the chance of using public health services (SUS) OR 0.65 (0.55 – 0.78) in 2013 and OR 0.86 (0.77 – 0.96) in 2019. Living in the countryside, which was not associated in adjusted analysis in 2013, was associated with a decrease of use SUS services in 2019 (OR 0.87, CI95% 0.78 – 0.97). In both periods, living in the northern region of the country was a factor of difficulty (risk) in using public health services.

Regarding age, despite older individuals were only associated with increase of service use in crude analyze in 2013, individuals of 40-49 years (OR 1.21, CI95% 1.01 – 1.44) and 50-59 years (OR 1.27, CI95% 1.07 – 1.51) were associated in adjusted model in 2019. Both in 2013 as in 2019 individuals with black, indigenous or brown skin color were associated with increase of public

health service use in crude analyses ($p < 0.001$). After the adjustments, the associations were lost. While education level was not associated in adjusted analysis, high levels of income - in both periods - were associated with decrease in public health service use ($p < 0.001$), establishing an equity performance. The health conditions evaluated showed a higher use of public health services than those that did not present this condition ($p < 0.001$), it should be noted that the differences reduced in 2019. Regarding self-perceived health, the high use by those who stand out that are perceived in the worst health conditions both in 2013 (OR 12.07, CI95% 6.24 – 23.4) and in 2019 (OR 4.65, CI95% 3.45 – 6.26).

Discussion

The results of the present article demonstrated that there was an increase (54.7% to 61.3%), during the evaluated period, of the studied population that refers to be registered in the family health units, being greater in the rural compared to the urban area. The Northeast region had the highest percentage, followed by the South, the Southeast had the lowest proportion. As for the units of the federation, there was an increase in registered households in almost all locations, except in the state of Tocantins. Living in a home registered with the FHS was an important factor for the use of public or private health services.

Adjusted analyzes showed that having health conditions that require continuous care (high blood pressure, high cholesterol, pregnancy) was a factor associated with greater use of public health services. Moreover, it was also observed that living in the rural area (in 2019), have no register in a Family Health Unit, lower income, and bad self-perception of health were associated with the outcome. The FHS is the Brazilian option for organizing Primary Health Care (PHC) services^{9,10}.

In the last few years, it underwent a strong expansion of these services reaching, in 2019, 43,755 teams with a potential coverage of 64.47%¹¹. PHC is an organized service to answer the most frequent health needs of the population, being the main gateway to a health system, responsible for the health of a defined population, based on longitudinal and equitable care. The PNS 2013/2019 data demonstrate that the FHS achieves this objective to the extent that it is present in all entities of the federation and facilitates the use of public health services, especially for those individuals who are historically excluded from access to health services. health

Table 1. Proportion and total number of registered households and people living in these places in a health unit of the family, 2013 and 2019.

Brazil, Major Regions and Federation Units	Households registered in a family health unit 2013			Households registered in a family health unit 2019		
	Total (%)		Total People (absolute number x 1000)	Total (%)		Total People (absolute number x 1000)
	Proportion	Confidence interval 95%		Proportion	Confidence interval 95%	
Brazil	54.7	53.1 – 56.1	79.610.000	61.5	60.2 – 62.7	134.121.000
Urban	51.9	50.2 – 53.5	62.230.000	58.8	57.4 – 60.2	97.306.000
Rural	72.1	69.1 – 74.9	17.380.000	68.5	76.7 – 80.3	36.815.000
North	52.4	49.6 – 55.3	16.874.000	61.2	58.9 – 63.4	24.882.000
Rondônia	56.9	51.6 – 62.1	2.118.000	52.1	47.7 – 56.4	2.452.000
Acre	48.1	42.6 – 53.6	1.978.000	54.0	49.4 – 58.4	2.733.000
Amazonas	51.3	46.3 – 56.2	3.593.000	56.7	51.8 – 61.4	5.050.000
Roraima	54.3	48.9 – 59.5	2.207.000	53.3	48.0 – 58.6	3.107.000
Pará	46.2	41.0 – 51.4	2.467.000	62.3	58.4 – 66.1	5.400.000
Amapá	33.7	28.4 – 39.4	1,332.000	46.4	39.9 – 53.0	2.156.000
Tocantins	93.2	91.1 – 94.8	3.179.000	89.7	87.9 – 91.6	3.934.000
Northeast	66.3	64.4 – 68.2	2.701.000	72.2	70.7 – 73.7	53.185.000
Maranhão	65.1	59.2 – 70.5	2.406.000	67.2	64.1 – 70.2	8.158.000
Piauí	79.8	74.8 – 84.1	3.482.000	90.3	88.3 – 92.1	5.958.000
Ceará	66.5	62.1 – 70.6	4.090.000	72.6	69.5 – 75.4	7.929.000
Rio Grande do Norte	64.7	59.5 – 69.6	2.403.000	70.3	65.7 – 74.5	5.057.000
Paraíba	80.2	75.7 – 84.0	3.406.000	86.3	83.0 – 89.1	6.104.000
Pernambuco	64.6	60.2 – 68.6	4.015.000	72.1	68.4 – 75.4	6.536.000
Alagoas	67.1	61.5 – 72.3	2.420.000	66.1	60.9 – 71.0	4.127.000
Sergipe	71.9	67.9 – 75.5	2.858.000	82.0	78.9 – 84.7	4.716.000
Bahia	60.7	55.2 – 66.0	2.621.000	66.9	64.5 – 71.1	4.600.000
Southeast	47.2	44.4 – 50.0	16.711.000	53.6	51.2 – 56.0	25.520.000
Minas Gerais	71.5	66.3 – 71.1	6.078.000	72.3	68.1 – 76.2	8.657.000
Espírito Santo	56.3	49.7 – 62.8	2.507.000	62.0	57.4 – 66.5	4.974.000
Rio de Janeiro	34.0	30.4 – 37.8	3.896.000	47.4	44.1 – 50.7	5.319.000
São Paulo	40.2	36.3 – 44.3	5.230.000	46.6	42.9 – 50.4	6.570.000
South	57.5	53.7 – 61.2	9.863.000	66.7	64.3 – 69.1	17.223.000
Paraná	55.2	48.8 – 61.5	4.028.000	67.8	63.7 – 71.6	6.117.000
Santa Catarina	75.9	69.1 – 81.6	2.850.000	86.6	83.9 – 88.9	6.960.000
Rio Grande do Sul	48.7	42.7 – 54.7	2.985.000	53.1	48.9 – 57.2	4.146.000
Midwest	53.7	50.6 – 56.8	8.461.000	59.3	56.3 – 62.3	13.311.000
Mato Grosso do Sul	75.3	71.2 – 79.0	2.939.000	76.5	73.1 – 79.6	4.556.000
Mato Grosso	64.9	58.8 – 70.6	1.959.000	74.4	70.1 – 78.2	3.663.000
Goiás	57.8	52.7 – 62.8	2.942.000	59.2	53.5 – 64.6	3.403.000
Distrito Federal	13.4	10.6 – 16.9	621.000	28.5	24.7 – 32.6	1.689.000

Source: Author's elaboration.

as non-whites, lower income, less education and for those who live in rural areas. Previous studies have shown that women, lower income, less education, poorer self-perception of health, having a chronic health condition and advancing age are related to greater use of health services in the FHS¹²⁻¹⁴. An unusual finding for the use of health services was the protective factor found for non-whites. It is possible to speculate that the Bra-

zilian FHS has built bonding relationships and work organization capable of overcoming some discriminatory barriers that may be associated with the use of services and skin color¹⁵.

In addition, the increased use of health services for people with health conditions that require continuous care shows that the FHS traces a correct path for expanding access in an equitable way. However, the effectiveness of care cannot

Table 2. Description of use of medical health services (public or private) according to registered in a family health unit* in 2013 and 2019.

	Use of health services		Use of health services	
	Registered in a family health unit 2013	Not registered in a family health unit 2013	Registered in a family health unit 2019	Not registered in a family health unit 2013
	% (CI95%)	% (CI95%)	% (CI95%)	% (CI95%)
Region				
North	60.7 (57.6 – 63.6)	39.3 (36.4 – 42.4)	68.9 (66.5 – 71.2)	31.1 (28.8 – 33.5)
Northeast	74.0 (72.0 – 75.9)	26.0 (24.1 – 28.0)	79.6 (78.1 – 81.0)	20.4 (18.9 – 21.9)
Southeast	53.0 (50.0 – 56.0)	47.0 (43.9 – 50.0)	59.9 (57.4 – 62.5)	40.1 (37.5 – 42.5)
South	62.8 (58.9 – 66.5)	37.2 (33.5 – 41.1)	76.2 (73.9 – 78.4)	23.8 (21.6 – 26.1)
Midwest	60.9 (57.6 – 64.3)	39.0 (35.7 – 42.4)	70.4 (67.2 – 73.3)	29.6 (26.6 – 32.8)
Sex				
Male	60.3 (58.5 – 62.1)	39.7 (37.9 – 41.5)	68.5 (67.1 – 69.9)	31.5 (30.1 – 32.9)
Female	61.1 (59.4 – 62.7)	38.9 (37.3 – 40.6)	68.8 (67.5 – 70.2)	31.2 (29.8 – 32.5)
Age				
18-29 years-old	60.8 (58.8 – 62.7)	39.2 (37.3 – 41.1)	69.3 (67.7 – 70.9)	30.7 (29.1 – 32.3)
30-39 years-old	60.3 (58.4 – 62.2)	39.7 (37.8 – 41.6)	68.4 (66.7 – 70.0)	31.6 (29.9 – 33.2)
40-49 years-old	61.1 (59.0 – 63.1)	38.9 (37.9 – 40.9)	68.4 (66.7 – 70.1)	31.6 (29.9 – 33.3)
50-59 years-old	59.5 (57.3 – 61.6)	40.5 (38.4 – 42.6)	69.2 (67.4 – 70.9)	30.8 (29.1 – 32.6)
60 years-old or more	61.9 (59.8 – 64.0)	38.1 (35.9 – 40.2)	68.4 (66.7 – 70.0)	31.6 (29.9 – 33.3)
Skin color/race				
White	54.3 (52.1 – 56.5)	45.7 (43.5 – 47.8)	62.9 (61.0 – 64.8)	37.1 (35.2 – 39.0)
Brown	68.5 (66.9 – 70.1)	31.5 (29.9 – 33.1)	74.2 (73.0 – 75.4)	25.8 (24.5 – 27.4)
Black	62.4 (59.6 – 65.1)	37.6 (34.9 – 40.4)	71.5 (69.5 – 73.4)	28.5 (26.6 – 30.4)
Yellow	45.6 (38.5 – 52.9)	54.4 (47.1 – 61.5)	65.6 (57.2 – 73.0)	34.4 (26.9 – 42.8)
Indigenous	66.2 (58.0 – 73.6)	33.8 (26.4 – 42.0)	76.7 (70.4 – 82.1)	23.3 (17.9 – 29.6)
Family income (quintiles)				
1 (poorer)	64.6 (62.7 – 66.5)	35.4 (33.5 – 37.2)	70.0 (68.2 – 71.6)	30.0 (28.4 – 31.7)
2	74.1 (71.9 – 76.2)	25.9 (23.8 – 28.0)	80.0 (78.8 – 81.3)	20.0 (18.7 – 21.2)
3	69.6 (67.8 – 71.3)	30.4 (28.7 – 32.2)	77.3 (75.6 – 78.6)	22.7 (21.3 – 24.0)
4	61.5 (59.5 – 63.6)	38.5 (36.4 – 40.5)	69.7 (68.0 – 71.4)	30.2 (28.6 – 31.9)
5 (richer)	42.6 (40.4 – 48.9)	57.4 (55.1 – 59.6)	52.4 (50.4 – 54.4)	47.6 (45.5 – 49.6)
Household wealth quintiles				
1 (lower)	79.1 (77.2 – 80.9)	20.9 (19.0 – 22.8)	82.9 (81.6 – 84.1)	17.1 (15.8 – 18.4)
2	72.9 (71.0 – 74.8)	27.1 (25.2 – 29.0)	78.6 (77.1 – 79.9)	21.4 (20.0 – 22.8)
3	67.1 (65.0 – 69.2)	32.9 (30.8 – 35.0)	71.8 (69.9 – 73.7)	28.2 (26.3 – 30.1)
4	58.7 (56.4 – 60.9)	41.3 (39.1 – 43.6)	68.4 (66.5 – 70.2)	31.6 (29.8 – 33.5)
5 (higher)	40.8 (38.1 – 43.5)	59.2 (56.5 – 61.9)	53.7 (51.4 – 56.0)	46.3 (43.9 – 48.6)
Schooling of the head of household				
None	77.3 (75.1 – 79.4)	22.7 (20.6 – 24.8)	83.7 (81.8 – 85.3)	16.3 (14.7 – 18.1)
Incomplete Elementary / Middle school	70.9 (68.9 – 72.8)	29.1 (27.1 – 31.0)	76.5 (75.0 – 77.9)	23.5 (22.0 – 24.9)
Elementary / Middle school	64.6 (62.1 – 67.0)	35.4 (32.9 – 37.9)	71.9 (69.8 – 73.9)	28.1 (26.1 – 30.1)
High school	53.7 (51.5 – 55.9)	46.3 (44.1 – 48.5)	64.3 (62.4 – 66.1)	35.7 (33.9 – 37.6)
Undergraduation or more	31.9 (30.3 – 34.7)	68.1 (65.3 – 70.7)	46.3 (43.7 – 48.8)	53.7 (51.2 – 56.2)
Search for health care in case of illness				
Private	54.9 (51.5 – 58.4)	45.1 (41.6 – 48.5)	47.3 (405.1 – 49.4)	52.7 (50.6 – 54.9)
Public	78.5 (76.8 – 80.0)	21.5 (19.9 – 23.2)	74.6 (72.8 – 76.4)	25.4 (23.6 – 27.2)
Pharmacy/others	67.9 (61.9 – 73.4)	32.1 (26.6 – 38.1)	62.8 (57.5 – 67.7)	37.2 (32.2 – 42.5)

it continues

Table 2. Description of use of medical health services (public or private) according to registered in a family health unit* in 2013 and 2019.

	Use of health services		Use of health services	
	Registered in a family health unit 2013	Not registered in a family health unit 2013	Registered in a family health unit 2019	Not registered in a family health unit 2013
	% (CI95%)	% (CI95%)	% (CI95%)	% (CI95%)
Arterial hypertension				
No	59.0 (57.3 – 60.7)	41.0 (39.2 – 42.7)	68.9 (67.2 – 70.7)	31.0 (29.3 – 32.8)
Yes	63.4 (61.3 – 65.6)	36.6 (34.4 – 38.7)	73.0 (69.3 – 76.5)	27.0 (23.5 – 30.7)
Diabetes				
No	59.1 (57.4 – 60.7)	40.9 (39.2 – 42.6)	68.9 (67.1 – 70.6)	31.1 (29.4 – 32.9)
Yes	63.7 (60.4 – 66.8)	36.3 (33.1 – 39.5)	70.0 (60.6 – 77.9)	30.0 (22.1 – 39.4)
high cholesterol				
No	59.1 (57.4 – 60.8)	40.9 (39.2 – 42.6)	69.2 (67.4 – 70.9)	30.8 (30.0 – 32.6)
Yes	60.9 (58.3 – 63.5)	39.1 (36.4 – 41.6)	66.9 (61.2 – 72.1)	33.1 (27.9 – 38.7)
Pregnancy				
No	59.1 (57.4 – 60.8)	40.9 (39.2 – 42.6)	68.5 (66.2 – 70.7)	31.5 (29.3 – 33.8)
Yes	60.9 (58.3 – 63.5)	39.1 (36.4 – 41.6)	87.1 (64.6 – 96.2)	12.9 (03.8 – 35.4)
Self-perception of health				
Very good	47.4 (44.6 – 50.1)	52.6 (49.8 – 55.4)	57.7 (55.3 – 60.0)	42.3 (39.9 – 44.7)
Good	58.2 (56.4 – 60.1)	41.8 (39.9 – 43.6)	67.2 (65.7 – 68.7)	32.8 (31.3 – 34.3)
Regular	68.2 (66.4 – 69.9)	31.8 (30.1 – 33.6)	74.1 (72.7 – 75.5)	25.9 (24.5 – 27.3)
Bad	72.3 (69.9 – 74.6)	27.7 (25.4 – 30.1)	78.2 (76.2 – 80.0)	21.8 (20.0 – 23.8)
Very bad	69.6 (65.2 – 73.7)	30.4 (26.3 – 34.7)	76.2 (72.5 – 79.5)	23.8 (20.5 – 27.5)

* Only those who consulted public health services were included. Individuals who answered “not knowing” were excluded.

Source: Author's elaboration.

be measured only by access or use, but also by the effectiveness of the service. Pinto¹⁶ demonstrated a 45% reduction in hospitalizations for sensitive conditions for PHC in the period between 2001 and 2016. A result similar to that found by Mendonça et al.¹⁷ in Belo Horizonte. The undeniable advances in access and management of conditions sensitive to PHC seem to be running out of breath^{5,6}. Currently, the indicators approved by the new PHC financing and made publicly available show a low number with semi-annual measured arterial tension (4%), low number of diabetic patients with glycosylated hemoglobin tests (10%), low number of pregnant women with 6 consultations. prenatal care being the first until the 20th week of pregnancy (33%) and only 37% of Brazilian pregnant women with HIV and Syphilis tests requested in PHC¹¹. These findings reveal that there is still an extensive agenda for implementing primary health care in Brazil, particularly if the impacts of the COVID-19 pandemic were considered for the near future^{18,19}.

PNS 2019 data consolidate the movement of expansion of the FSH as the main strategy for PHC organization in Brazil, with characteristics

that guarantee equity in the provision of services. There is a clear expansion of services when comparing the results obtained by the PNS 2013-2019, with a deepening of an equity relationship in the use of services in 2019. Despite this, the observed fact of the increase in the proportion of registered households may not guarantee that individuals residing in the household are registered and making regular use of public health services (SUS). In a recent study on PHC financing in Brazil, Hazheim et al. (2020)⁷, pointed out that although there is an estimated covered population of 148,674,300 million people, there were only 90 million people registered with the FHS. Despite the strong and necessary expansion of services experienced by Brazil in recent years, it is essential that this expansion becomes more effective care. In 2019, there was an army of people potentially covered by FSH services without registration. We can speculate that these people do not use the FHS health services or used them sporadically without the possibility of forming a bond.

Some limitations are inherent to the study, such as the interviewee / resident / resident providing the information collected by all the in-

Table 3. Crude^c and adjusted^a Logistic regression of associated factors to use of public health services (SUS) (n= 148,580 in 2013; n= 207,845 in 2019).

Co-variables	PNS 2013				PNS 2019			
	OR ^c (IC95%)	P value	OR ^a (IC95%)	P value	OR ^c (IC95%)	P value	OR ^a (IC95%)	P value
Registered in a family health unit		<0.001				<0.001		0.010
Yes		1		<0.001		1		1
No	0.61 (0.56 – 0.66)		0.65 (0.55 – 0.78)		0.68 (63.2 – 73.64)		0.86 (0.77 – 0.96)	
Census situation		0.003		-		0.115		0.012
Urban		1		-		1		1
Rural	1.14 (1.05 – 1.24)				1.05 (0.98 – 1.12)		0.87 (0.78 – 0.97)	
Region		<0.001		0.002		<0.001		<0.001
North		1		1		1		1
Northeast	1.23 (1.11 – 1.37)		1.04 (0.84 – 1.29)		1.17 (1.09 – 1.26)		1.01 (0.89 – 1.15)	
Southeast	1.27 (1.14 – 1.42)		1.48 (1.17 – 1.88)		1.19 (1.11 – 1.30)		1.41 (1.23 – 1.63)	
South	1.47 (1.30 – 1.67)		1.36 (1.04 – 1.78)		1.31 (1.20 – 1.42)		1.53 (1.32 – 1.78)	
Midwest	1.13 (1.00 – 1.26)		1.08 (0.84 – 1.39)		1.01 (0.92 – 1.10)		1.07 (0.92 – 1.26)	
Sex		<0.001		-		<0.001		-
Male		1		-		1		-
Female	1.85 (1.74 – 1.96)				1.74 (1.67 – 1.82)			
Age		<0.001		-		<0.001		0.004
18-29 years-old		1		-		1		1
30-39 years-old	1.14 (1.04 – 1.25)				1.09 (1.01 – 1.18)		1.09 (0.92 – 1.29)	
40-49 years-old	1.50 (1.38 – 1.63)				1.39 (1.29 – 1.50)		1.21 (1.01 – 1.44)	
50-59 years-old	1.98 (1.81 – 2.16)				1.77 (1.64 – 1.90)		1.27 (1.07 – 1.51)	
60 years-old or more	2.47 (2.26 – 2.69)				2.15 (2.01 – 230)		1.04 (0.87 – 1.23)	
Skin color/race		<0.001		-		<0.001		-
White		1		-		1		-
Brown	1.12 (1.04 – 1.19)				1.14 (1.08 – 1.20)			
Black	1.19 (1.07 – 1.33)				1.30 (1.20 – 1.40)			
Yellow	0.77 (0.56 – 1.05)				0.98 (0.67 – 1.44)			
Indigenous	1.63 (1.15 – 2.30)				1.45 (1.06 – 2.00)			
Family income (quintiles)		<0.001		0.001		<0.001		0.001
1 (poorer)		1		1		1		1
2	0.99 (0.89 – 1.10)		1.05 (0.84 – 1.33)		1.24 (1.15 – 1.33)		1.38 (1.17 – 1.63)	
3	1.07 (0.99 – 1.15)		1.00 (0.81 – 1.25)		1.33 (1.25 – 1.42)		1.13 (0.97 – 1.31)	
4	0.67 (0.62 – 0.73)		0.74 (0.57 – 0.96)		0.92 (0.85 – 0.98)		1.06 (0.90 – 1.24)	
5 (richer)	0.37 (0.34 – 0.41)		0.57 (0.42 – 0.77)		0.59 (0.55 – 0.65)		0.82 (0.68 – 0.97)	

it continues

habitants of the household. In addition, the PNS does not estimate data for geographic coverage smaller than the capitals⁸.

The National Health Survey represents fundamental relevance for the evaluation of health services and health conditions of the Brazilian population. A home-based and representative sample, with a broad research instrument focused on relevant outcomes for the country as modules

that include: communicable diseases, sexual activity, chronic health conditions and medical care, with a focus on Primary Health Care (PHC) from the use of the Primary Care Assessment Tool⁸. It is worth mentioning the fundamental role of the Brazilian Institute of Geography and Statistics as the competent body for the development of population surveys with methodological rigor and the present efficiency and effectiveness

Table 3. Crude^c and adjusted^a Logistic regression of associated factors to use of public health services (SUS) (n= 148,580 in 2013; n= 207,845 in 2019).

Co-variables	PNS 2013				PNS 2019			
	OR ^c (IC95%)	P value	OR ^a (IC95%)	P value	OR ^c (IC95%)	P value	OR ^a (IC95%)	P value
Household wealth quintiles		<0.001		<0.001		<0.001		<0.001
1 (lower)		1		1		1		1
2	0.99 (0.90 – 1.10)		0.97 (0.75 – 1.25)		0.98 (0.91 – 1.04)		0.95 (0.84 – 1.08)	
3	0.92 (0.83 – 1.01)		0.95 (0.73 – 1.24)		0.86 (0.80 – 0.93)		0.99 (0.86 – 1.15)	
4	0.72 (0.65 – 0.80)		0.93 (0.70 – 1.24)		0.69 (0.63 – 0.74)		0.86 (0.74 – 0.99)	
5 (higher)	0.39 (0.34 – 0.44)		0.50 (0.35 – 0.73)		0.50 (0.45 – 0.55)		0.69 (0.57 – 0.83)	
Schooling of the head of household		<0.001		-		<0.001		-
None		1		-		1		-
Incomplete Elementary / Middle school	1.05 (0.94 – 1.16)				0.98 (0.88 – 1.09)			
Elementary / Middle school	0.79 (0.70 – 0.89)				0.76 (0.68 – 0.86)			
High school	0.61 (0.55 – 0.68)				0.61 (0.55 – 0.68)			
Undergraduation or more	0.32 (0.26 – 0.39)				0.43 (0.37 – 0.50)			
Arterial hypertension		<0.001		0.001		<0.001		<0.001
No		1		1		1		1
Yes	2.28 (2.08 – 2.50)		1.42 (1.15 – 1.76)		2.00 (1.87 – 2.13)		1.31 (1.07 – 1.52)	
Diabetes		<0.001		-		<0.001		-
No		1		-		1		-
Yes	2.22 (1.94 – 2.53)				1.94 (1.77 – 2.13)			
High cholesterol		<0.001		0.017		<0.001		<0.001
No		1		1		1		1
Yes	1.93 (1.74 – 2.14)		1.35 (1.05 – 1.72)		1.85 (1.70 – 2.01)		1.39 (1.24 – 1.57)	
Pregnancy		<0.001		<0.001		<0.001		<0.001
No		1		1		1		1
Yes	2.82 (2.21 – 3.63)		3.51 (2.53 – 4.87)		3.86 (3.04 – 4.91)		6.11 (4.46 – 8.00)	
Self-perception of health		<0.001		<0.001		<0.001		<0.001
Very good		1		1		1		1
Good	1.71 (1.46 – 1.99)		1.61 (1.14 – 2.28)		1.50 (1.37 – 1.64)		1.28 (1.08 – 1.52)	
Regular	4.99 (4.27 – 5.82)		4.05 (2.81 – 5.83)		3.67 (3.35 – 4.03)		2.51 (2.09 – 3.00)	
Bad	9.63 (8.12 – 11.42)		7.71 (4.78 – 12.44)		7.18 (6.42 – 8.03)		3.86 (3.04 – 4.90)	
Very bad	14.12 (11.36 – 17.6)		12.07 (6.24 – 23.4)		9.62 (8.24 – 11.23)		4.65 (3.45 – 6.26)	

* sex was not included in the adjusted model due high correlation with pregnancy.

Source: Author's elaboration.

in the development of data collection activities. Many of these surveys already established by the use of data carried out by the Brazilian scientific community^{14,18-20}. Without national home-based surveys that provide relevant information on the

Brazilian population, such as the National Health Survey, National Household Sample Survey and the Census, the country is in the dark and public policy planning, development and evaluation are exposed to ideological obscurantism.

Collaborations

OP D'Avila worked on the study design, analysis and interpretation of data and final review. LB Cleff assisted in the literature review, formatting of the article. LA Chisini, FC Santos, MG Cade-

martori contributed to the study design, data analysis and final review of the text. EC Castilho contributed to the study design, data interpretation and final review. All authors approved the final version of the text.

References

1. Starfield B. *Primary care: concept, evaluation and policy*. New York: Oxford University Press; 1992.
2. Starfield B. *Atención Primaria: equilibrio entre necesidades de salud, servicios y tecnología*. Barcelona: Masson; 2002.
3. Macinko J, Mendonça CS. Estratégia Saúde da Família, um forte modelo de Atenção Primária à Saúde que traz resultados. *Saude em Debate* 2018; 42(1):18-37.
4. Harzheim E, Santos CMJ, D'Avila OP, Wollmann L, Pinto LF. Bases para a reforma da Atenção Primária à Saúde no Brasil em 2019: mudanças estruturantes após 25 anos do Programa de Saúde da Família. *Rev Bras Med Fam Comunidade* 2020; 15(42):2354
5. Rocha R, Soares R. Evaluating the impact of community-based health interventions: evidence from Brazil's Family Health Program. *Health Economics* 2010; 129(51):126-158.
6. Bastos ML, Menzies D, Hone T, Dehghani K, Trajman A. Correction: The impact of the Brazilian family health on selected primary care sensitive conditions: A systematic review. *PLoS One* 2017; 12(12):e0189557
7. Harzheim E, D'Avila OP, Ribeiro DC, Ramos LG, Silva LE, Santos CMJ, Costa LGM, Cunha CRH, Pedebos LA. Novo financiamento para uma nova Atenção Primária à Saúde no Brasil. *Cien Saude Colet* 2020; 25(4):1361-1374.
8. Stopa SR, Szwarcwald CL, Oliveira MM, Gouvea ECDP, Vieira MLFP, Freitas MPS, Sardinha LMV, Macário EM. Pesquisa Nacional de Saúde 2019: histórico, métodos e perspectivas. *Epidemiol Serv Saude* 2020; 29(5):1-12.
9. Costa NR. A Estratégia de Saúde da Família, a atenção primária e o desafio das metrópoles brasileiras. *Cien Saude Colet* 2016;21(5):1389-1398.
10. Viana ALD, Dal Poz MR. A Reforma do Sistema de Saúde do Brasil e o Programa Saúde da Família. *Physis* 1998; 8(2):16.
11. Brasil. Ministério da Saúde (MS). *Painéis de Indicadores da Atenção Primária à Saúde*. [página de internet]. [Acessado 2021 maio 26]. Disponível em: <https://sisaps.saude.gov.br/painelsaps/saude-familia>
12. Capilheira MF, Santos IS. Fatores individuais associados à utilização de consultas médicas por adultos. *Rev Saude Publica* 2006; 40(3):436-443.
13. Travassos C, Viacava F, Pinheiro R, Brito A. Utilização dos serviços de saúde no Brasil. *Rev Panam Salud Publica* 2002; 11(5/6):365-373.
14. Malta DC, Leal MC, Costa MFL, Morais Neto OL. Inquéritos nacionais de saúde: experiência acumulada e proposta para o inquérito de saúde brasileiro. *Rev Brasileira Epidemiol* 2008; 11(1):159-167.
15. Baumgarten A, Peron TB, Bastos JL, Toassi RFC, Hilgert JB, Hugo FN, Celeste RK. Experiências de discriminação relacionadas aos serviços de saúde: análise exploratória em duas capitais do Sul do Brasil. *Epidemiol Serv Saude* 2015; 24(3):353-362.
16. Pinto LF, Giovanella L. Do Programa à Estratégia Saúde da Família: expansão do acesso e redução das internações por condições sensíveis à atenção básica (ICSAB). *Cien Saude Colet* 2018; 23(6):1903-1913.
17. Mendonça CS, Harzheim E, Duncan BB, Nunes LN, Leyh Werner. Trends in hospitalizations for primary care sensitive conditions following the implementation of Family Health Teams in Belo Horizonte, Brazil. *Health Policy and Planning* 2012; 27:348-355.
18. Pinto LF, Freitas MPS, Figueredo AWS. Sistemas Nacionais de Informação e levantamentos populacionais: algumas contribuições do Ministério da Saúde e do IBGE para a análise das capitais brasileiras nos últimos 30 anos. *Cien Saude Colet* 2018; 23(6):1859-1870.
19. Malta DC, Santos MAS, Stopa SR, Vieira JEB, Melo EA, Reis AAC. A Cobertura da Estratégia de Saúde da Família (ESF) no Brasil, segundo a Pesquisa Nacional de Saúde, 2013. *Cien Saude Colet* 2016; 21(2):327-338.
20. Malta DC, Stopa SR, Szwarcwald CL, Gomes NL, Junior JBS, Reis AAC. A vigilância e o monitoramento das principais doenças crônicas não transmissíveis no Brasil - Pesquisa Nacional de Saúde, 2013. *Rev Bras Epi* 2015; 18(2):3-16.

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