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HOSPITAL ADMISSIONS FOR AMBULATORY CARE-SENSITIVE CONDITIONS IN SERGIPE - BRAZIL: AN ECOLOGICAL STUDY

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Cátia Maria Justo[1], Marco Aurélio de Oliveira Goes[2], Fúlvio Borges Nedel[3] and Kleyton de Andrade Bastos[4].

ABSTRACT

The rate of hospitalization for Ambulatory Care-Sensitive Conditions is an indicator of the effectiveness of this level of care in the health system. The objective of this study is to describe the behavior of Hospitalizations for Primary Health Care Sensitive Conditions in Sergipe, from 2008 to 2017. This is an ecological study, with a temporal trend. Data were extracted from the Hospital Admission Authorizations of the Hospital Information System of the Unified Health System. Standardized rates by indirect method and proportions of hospitalizations were analyzed. Two explanatory models were tested for trend analysis and negative binomial regression in view of the large overdispersion observed. There were 608,083 non-obstetric hospitalizations, 125,497 cases of hospitalizations for Primary Care-Sensitive Conditions (20.6%), an overall crude rate of 5.6 admissions per thousand inhabitants (5.7 males and 5.8 females). The trend described a U-shaped curve, decreasing in the period from 2008 to 2011, with little oscillation from 2011 to 2014, ascending from 2014 to 2017. The rate was considerably higher in men over 70 years of age. Throughout the period, the most frequent causes were: gastroenteritis (15.6%), kidney and urinary tract infection (9.4%), asthma (9.2%), heart failure (8.8%), cerebrovascular (8.1%), diabetes mellitus (7.2%). The improvement that had been observed in the effectiveness of primary care is discontinued and hospitalizations rise again, reaching the end of the period with values close to those of the beginning. Public policies that strengthened Primary Care may have contributed to the better performance of the indicator.

Keywords: Primary Health Care. Hospitalization. Health Indicators. Health Policies. Ecological Study.

[1] Dr. - Associate Professor of the Department of Medicine - Lagarto campus
Federal University of Sergipe
E-mail: catia_justo@hotmail.com
ORCID: https://orcid.org/0000-0001-5417-0599
LATTES: http://lattes.cnpq.br/9380237669204289
[2] Dr. – Associate Professor of the Department of Medicine
Federal University of Sergipe
Email: maogoes@gmail.com
ORCID: https://orcid.org/0000-0003-0953-9320
LATTES: http://lattes.cnpq.br/6157695540182362
[3] Dr. - Adjunct Professor in the Department of Public Health
Federal University of Santa Catarina.
E-mail: fulvionedel@gmail.com
ORCID: https://orcid.org/0000-0002-8059-7358
LATTES: http://lattes.cnpq.br/5527775822290447
[4] Dr. - Associate Professor, Department of Medicine
Federal University of Sergipe
E-mail: kleytonbastos@yahoo.com.br
ORCID: https://orcid.org/0000-0002-2098-9050
LATTES: http://lattes.cnpq.br/6507146290532682

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INTRODUCTION

Primary Health Care (PHC) is a place of first contact for health, where everyone, universally, should have their access guaranteed, with quality and effectiveness performed in a *continuum*, with integrality and optimized by the coordination of care in the different instances of health care (WHO, 1978). A quality PHC solves the vast majority of the reasons for consultation. Substantial evidence has recognized PHC as the most appropriate *locus* for implementing policies and achieving the best health indicators, even in an unstable national and international context with great social inequalities (MACINKO, 2018).

After the implementation of the Unified Health System (SUS), the trajectory of changes in PHC in Brazil went through the Community Health Agents Program (PACS) and the Family Health Program (PSF), created at the end of 1993 as a strategy to change the Brazilian care model. In 2006, when Brazil finally adopted a National Primary Care Policy (PNAB), it became the preferred organization for PHC, taking the name of Family Health Strategy (ESF) (BRASIL, 2007). Among the instruments for evaluating the effectiveness of PHC is the indicator Hospitalization for Primary Care-Sensitive Conditions (HACSC). Primary Care Sensitive Conditions (ACSC) are the health problems typically attended to at the so-called first level of the health system, examples are: the prevention of the onset of diseases, such as the use of vaccines and treatment of Syphilis in pregnant women; the treatment of acute episodes, such as in the case of dehydration and bacterial pneumonia; and the control of chronic conditions such as *diabetes mellitus*, systemic arterial hypertension, thus avoiding or postponing hospitalizations for renal failure, peripheral arterial disease, diabetic foot, acute myocardial infarction, cerebrovascular accidents (CAMINAL, 2003) (NEDEL, 2011).

HACSC are not unnecessary hospitalizations, on the contrary, it is the premise of the indicator that each patient ended up needing hospitalization due to a failure or malfunction of the health system, which did not attend to them in a timely and effective manner (ANSARI, 2007). On the initiative of the Department of Primary Care of the Ministry of Health, after an extensive process of elaboration and validation by consensus among peers, the Brazilian List of Sensitive Conditions in Primary Health Care was constructed, established by the Ministry of Health Ordinance No. 221, of April 17, 2008 (BRASIL, 2008). From this list, composed of 19 groups of causes and codified by the International Classification of Diseases, edition nº 10 (ICD-10), the use of the indicator is consolidated,

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facilitating the performance and giving greater consistency to studies of indirect evaluation of the effectiveness of PHC in Brazil (ALFRADIQUE, 2009).

Brazilian studies have shown the expansion of the FHS associated with the reduction of HACSC. In the period from 1998 to 2006, there was a 17% decrease in the rate of HACSC, while the FHS teams throughout Brazil went from 3062 in 1998 to 26,364 in 2006 (CECCON, 2014). The increase in FHS coverage in Sergipe was largely due to the More Doctor Program (PMM), a program for the emergency allocation of doctors to PHC in hard-to-reach areas, supported in large part by the collaboration of the Cuban Government through the sending of doctors (DE PAULA, 2018). In the Northeast region, where this study is conducted, there are the lowest Human Development and life expectancy indexes, the worst infrastructure indicators (basic sanitation such as sewage and piped water), precarious schooling and higher infant mortality rates, compared to the other regions of the country (FACCHINI, 2006).

The period of this study is crossed by profound political changes with cuts in public investments, severe economic and social crisis, which may have influenced the performance of the indicator. Therefore, the objective of this study is to describe the temporal trend of HACSC in the state of Sergipe, northeastern Brazil, in the period 2008-2017.

METHODOLOGY

The State of Sergipe is the smallest in Brazil in territorial extension, it is part of the Brazilian Semi-arid that presents, among other characteristics, the daily percentage of water deficit equal to or greater than 60%. The Human Development Index was 0.665 in 2010. The population of Sergipe, in its 75 municipalities, in the 2010 census had 2,068,017 inhabitants, (it should be noted that this was the last year of the census carried out in the country, to date), of which 51.4% were women and 73.5% lived in urban areas. Life expectancy at birth ranged, from 2010 to 2017, from 66.9 to 75.2 years for men and from 68.7 to 77.2 years for women. The aging index for both sexes varied from 22.3% in 2010 to 30.5% in 2017 (IBGE, 20110). The FHS in 2007, at the beginning of the study, in Sergipe, had 127 family health teams, covering 87% of the population (GIOVANELLA, 2009), and remained in these proportions until the end of the study, in 2017.

An ecological study was carried out using the SUS Hospital Information System Databases (BD-SIH/SUS). The "reduced files" of the Hospital Admission Authorization (AIH)

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were used, from which the main diagnosis data and date of hospitalization, gender, age and municipality of residence of the patient were obtained. The "AIH files" are made available in files separated by state and month of hospitalization billing (called "month of accrual"), which is the same month of hospitalization, in most cases. The archives up to June 2018 were searched and only cases whose hospitalization occurred in the period from 01/01/2008 to 12/31/2017, of citizens residing in Sergipe, were selected. Finally, hospitalizations for obstetric procedures to treat non-morbid conditions, such as childbirth and abortion, were excluded. Hospitalizations were classified as ACSC according to the Brazilian List of Conditions Sensitive to Primary Health Care, composed of a wide range of 19 groups of causes (BRASIL, 2008).

Crude HACSC rates were calculated per year, then standardized by sex and age group by the indirect method (calculation of the Standardized Hospitalization Ratio – RHP), taking the year 2014 as a reference, as it was the year with the lowest crude rate. Thus, all the RHP presented signify how much higher the rate, adjusted for sex and age, was in the year under review than in 2014. Leaving 1 to the value presented and multiplying by 100, we have the value in proportion, i.e., an RHP = 1.241 means an HACSC rate 24.1% higher than that observed in 2014, the lowest rate in the period.

The trend of standardized rates in the period was analyzed by simple linear regression. Given the observed distribution, two explanatory models of the distribution of RHP as a function of time were tested: one considering the year plus a quadratic term of the year (RHP = intercept + year + year²) and the other dividing the analyzed decade into three periods (decrease: 2008-2010, stability: 2011-2014 and rise: 2015-2017), analyzed as a categorical variable. A negative binomial regression analysis was also performed (since the large overdispersion observed contraindicates the use of Poisson regression) to estimate the annual variation of the rates adjusted by sex and age group, over the decade and in the three defined periods. The residuals had approximately Normal distribution, so that the models were considered adequate.

Data capture on the internet, reading of files, classification of hospitalizations, analysis and graphic presentation were carried out using the statistical program R (SUHL, 2014). For data capture and reading, the *microdatasus package was used* (SALDANHA, 2019) and the classification was made by the *csapAIH* package (NEDEL, 2019). The compressed files (DATASUS .dbc format) are read by the *read.dbc package* (PETRUZALEK, 2016).

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This research is part of the PhD project: Hospitalizations for Sensitive Conditions to Primary Health Care in Sergipe-Brazil, follows the ethical recommendations of the National Health Council contained in Resolution No. 466, of December 12, 2012, submitted to the Research Ethics Committee of the Federal University of Sergipe and approved under opinion No. 2.232.566 and CAAE: 69111717.5.0000.5546, on August 22, 2017.

RESULTS

In the ten years of the study, there were 608,083 hospitalizations, except for obstetric hospitalizations. In the period, 125,497 cases of ACSC were added, representing an overall rate of 5.7 HACSC per thousand inhabitants. The distribution of rates shows a U-shaped curve, falling until 2011, stalling with some oscillation until 2014, when it reaches the lowest rate, and then rising consistently until the end of the study period, with a standardized rate in 2017 only 4% lower than in 2008. The model with year + year² as predictors explained 92% of the variability observed in the standardized rates (adjusted $R^2 = 0.917$; $p < 0.001$), decreasing at the beginning and increasing at the end, with high statistical significance in both terms of analysis ($p < 0.001$). The model with the year in three categories (2008-2010, 2011-2014, 2015-2017) explained 60% of the variability of the standardized rates (adjusted $R^2 = 0.597$; $p = 0.02$), with the central period significantly different from the initial period ($p=0.006$), but without statistical difference with the final period ($p=0.16$), showing the improvement of the rates at the beginning of the period and subsequent worsening, returning to the initial situation (Figure 1).

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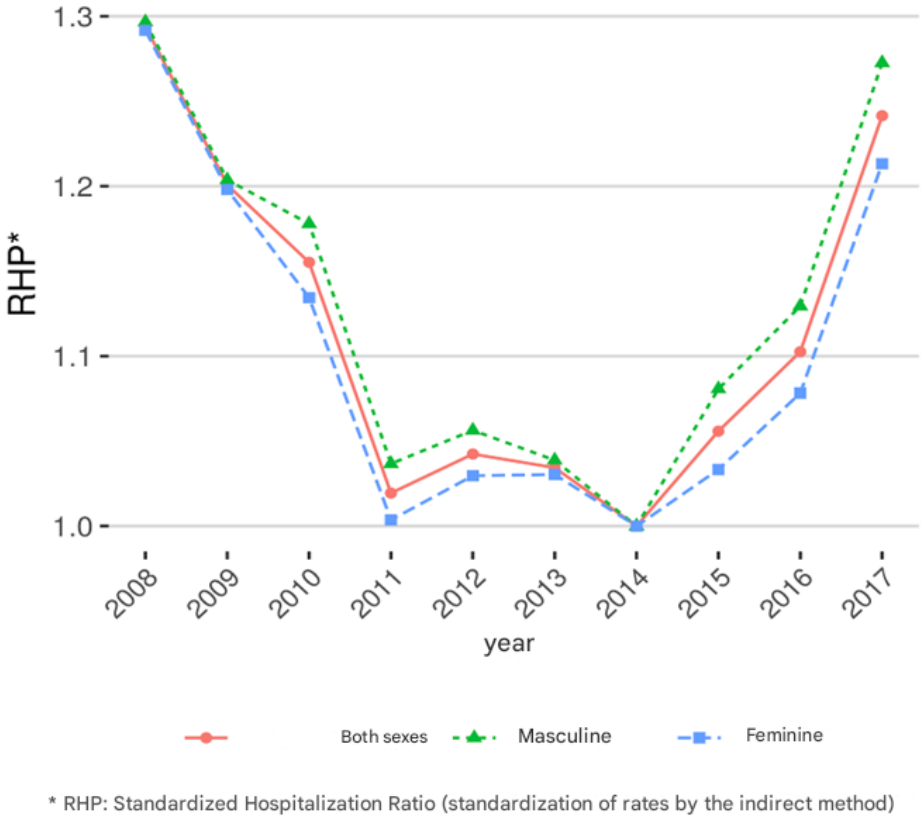
Figure 1: HACSC (Standardized Hospitalization Ratio-RHP), by year and sex in Sergipe, 2008-2017.



* RHP: Standardized Hospitalization Ratio (standardization of rates by the indirect method)

Negative binomial regression modeling shows similar results: there was a reduction in HACSC of 1.5% per year, on average in the years of study, but with a very different behavior over the decade. From 2008 to 2010, HACSC decreased by 7.5% per year, stabilized from 2011 to 2014, and increased by 7.8% per year between 2015 and 2017 (Table 1)

Table 1: Hospitalization for ACSC in the SUS, by year. Sergipe, 2008 to 2017: crude rate (per thousand inhabitants) and standardized by sex and age group (RHP = Standardized Hospitalization Ratio).

YEAR	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
RATE	6,64	6,15	5,92	5,22	5,35	5,32	5,17	5,49	5,77	6,55
RHP	1,294	1,201	1,155	1,02	1,042	1,034	1	1,056	1,103	1,241

The crude rate of HACSC in the period was 5.68 cases per thousand inhabitants in males and 5.83 in females, although the standardized rate by age group is slightly higher in males. In the period, 20.6% of hospitalizations were due to ACSC, ranging from 18.8% in 2011 to 24.1% in 2017. The proportion of hospitalizations is similar between the sexes: in males, 20% of hospitalizations were due to ACSC, females were responsible for 51% of all hospitalizations, with 21% of hospitalizations due to ACSC. The women had ages ranging

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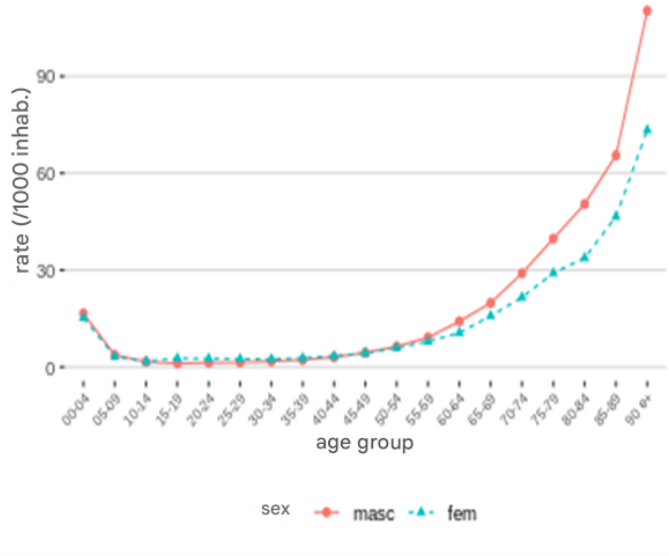
from 0 to 109 years, mean of 40.4, standard deviation of 30.0 and median of 42 years. Men had ages ranging from 0 to 117 years, with a mean of 39.4, a standard deviation of 30.8, and a median of 44 years. Just under a quarter (23%) of ACSC hospitalizations are of children under five years of age, and 15% of children up to two years of age. The median age was 42 years and the 75th percentile was 67 years. From the age of 70 onwards, the rate is considerably higher in men (Figure 2).

Figure 2: HACSC (Rate per thousand inhabitants), by age group and sex in Sergipe 2008-2017.



The elderly are the age group that benefited most from the improvement in PHC between 2008 and 2014, but in 2017 they already had rates close to those at the beginning of the period. Children had little improvement between 2008 and 2014 and the rates in 2017 were higher than at the beginning of the period (Figure 3).

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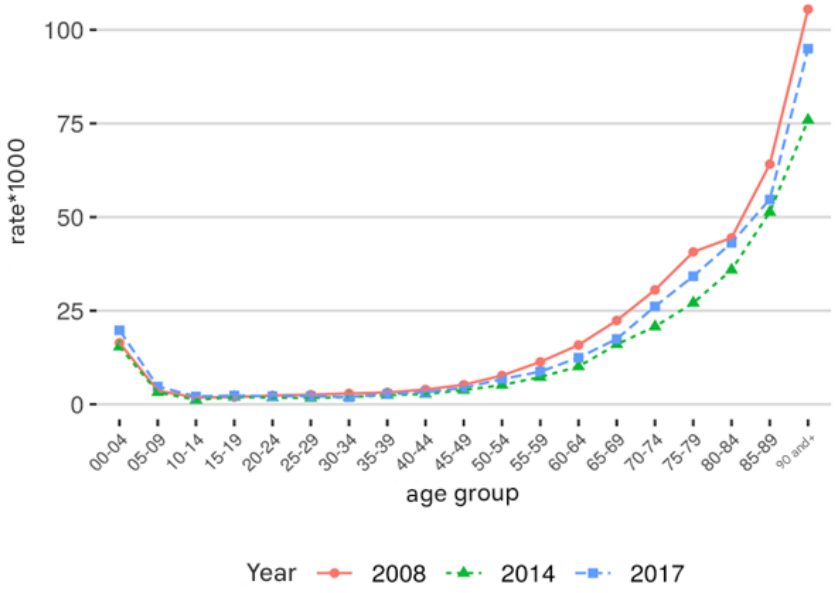
Figure 3: Distribution of HACSC rates per 1000 inhabitants, by age group in the years 2008, 2014 and 2017, in Sergipe.



Throughout the study period, the most frequent causes of HACSC were: gastroenteritis and complications (15.6%), kidney and urinary tract infection (9.4%), asthma (9.2%), heart failure (8.8%), cerebrovascular diseases (8.1%), *diabetes mellitus* (7.2%), bacterial pneumonia (6.7%), pulmonary diseases (COPD) (6.1%), systemic arterial hypertension (5.4%), and skin and subcutaneous infection (5.2%) (Figure 4).

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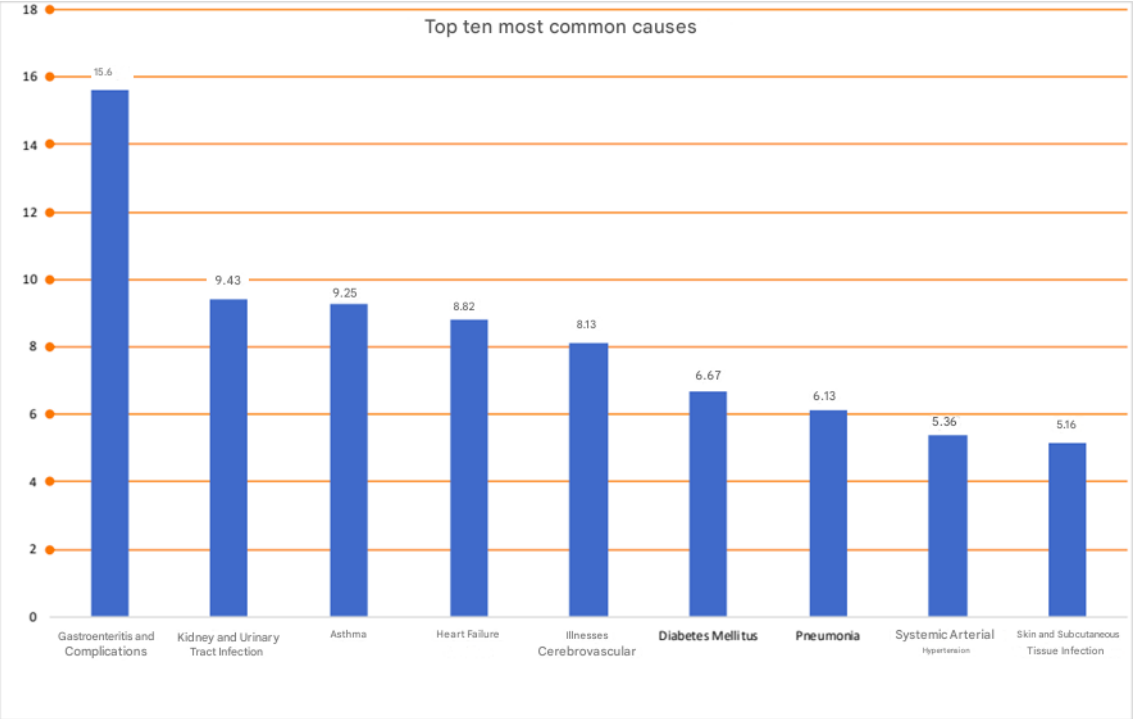
Figure 4: Distribution of the proportions of the ten most frequent causes of HACSC in Sergipe from 2008 to 2017.



In the age group 0 to 14 years, gastroenteritis decreased sharply from 2008 to 2014, decelerating, but maintaining the decrease in 2017, from 50.0% in 2008 to 25.9% in 2014 and 22.2% in 2017. Asthma was the second leading cause in this age group, increasing from 17.2% in 2008 to 20.0% in 2014 and 22.5% in 2017. Bacterial pneumonias were the third most frequent cause in this group, with little variation (8.4% in 2008, 9% in 2014, and 9% in 2017). In the age group of 15 to 49 years, the most frequent causes of hospitalizations were: gastroenteritis, urinary tract infection, and skin and subcutaneous tissue infections. Gastroenteritis also followed a downward trend (25% in 2008, 14% in 2014 and 11% in 2017). Urinary tract infection was the second most frequent cause in 2008 and 2014 and the first in 2017, in this age group (15.7% in 2008, 14.2% in 2014 and 16.4% in 2017). In this range, skin and subcutaneous tissue infection is noteworthy, rising from 1.6% in 2008 to 7.8% in 2014 and 10.6% in 2017. In the 50+ age group, the most frequent hospital admissions were for heart failure, cerebrovascular diseases, and *diabetes mellitus*. Heart failure is the most frequent cause, but it has decreased from 17.8% in 2008 to 14.8% in 2014 and 13.9% in 2017. On the other hand, cerebrovascular diseases increased from 11.7% in 2008, 16.0% in 2014 and 17.1% in 2017, and was the most frequent cause. Diabetes mellitus is the third most frequent cause in this age group and

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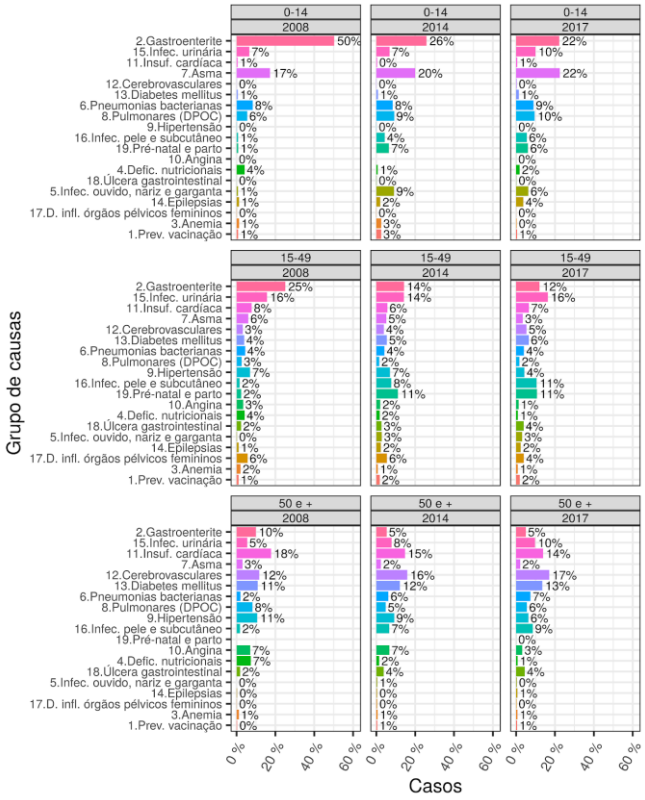
also increased in the period, ranging from 10.9% in 2008 to 12.1% in 2014 and 13.4% in 2017 (Figure 5).

Figure 5: Distribution of HACSC by group of causes and age group of 0-14 years, 15-49 years, and 50+ years in 2008, 2014, and 2017, in Sergipe.



DISCUSSION

The study period contemplates important changes in the Brazilian scenario, including the political-institutional crisis that took place in Brazil from 2013 onwards. The FHS has been proposed as a priority model to organize PHC, with significant effects on improving accessibility and reducing inequities in less empowered groups of the population (MACINKO, 2018; FACCHINI, 2018). Several studies have found an inverse association between HACSC and FHS coverage (CECCON, 2014; PREVIATO, 2017). However, in the period studied, FHS coverage in Sergipe remained above 80%, with little variation, suggesting that in this period the effectiveness of PHC can be better evaluated by other aspects and not by FHS coverage.

The survey showed a U-shaped curve over the decade, starting in 2008 with a continued decrease in the HACSC rate until 2011, followed by stabilization until 2014, when it reached the lowest value. From then on, the indicator worsened, with a sharp increase in

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rates, which, at the end of the period, were similar to the beginning. The worsening occurs in all age groups, particularly among children, who have higher HACSC rates in 2017 than in 2008. The statistical analysis showed that the values found at the end of the period are significantly different from the beginning, indicating that the observed behavior is not the result of random variation. The decrease in HACSC rates observed in the initial phase of the study is consistent with studies from similar periods in other Brazilian states, such as Goiás (Midwest region) from 2005 to 2015, Pernambuco (Northeast region) from 2008 to 2012, and Espírito Santo (Southeast region) from 2000 to 2014 (MAIA, 2019; MENDONÇA, 2014; PAZÓ, 2012).

The causes that determine hospital admissions are complex, in Germany a study with PHC physicians attributed the causes of hospital admission to several factors related to the system: such as unavailability of outpatient services, related to physicians; such as suboptimal monitoring, related to medications: such as adverse effects, related to patients: such as delay in seeking help, and social: such as lack of social support (FREUND, 2013). In this research, we observed that the indicator follows the trajectory of health policies, which is consistent with the methodological conceptual framework that presents it as an indicator of the first level of the health system in all its scope and not only of the care offered by the health team (NEDEL, 2011).

The period from 2008 to 2011, where there was a decrease in HACSC in parallel, received health policies that strengthened PHC and reflections of these from previous years. In 2006, the year of publication of the first PNAB, it marks the passage of the PSF to the *status* of ESF and its definition as the preferred model for the organization of Primary Care and Integrative and Complementary Practices in Health and the National Health Promotion Policy. In 2007 the School Health Program, in 2008 the Family Health Support Centers (NASF), absorbing several professionals in the teams such as Physiotherapists, Psychologists, Nutritionists among others. In 2011, the second edition of the PNAB took place and there was the creation of the National Program for the Improvement of Access and Quality of Primary Care (PMAQ) and the creation of the Programs: Requalification of Basic Health Units; Best at Home; Health Academy; the Street Office teams; of Telessaúde Brasil Redes and the revision of the National Food and Nutrition Policy. In the period from 2011 to 2014, the Brazilian political, economic and social crisis will be triggered, accompanied by a slowdown in the fall of HACSC. In 2012, the Program for the Valorization of Primary Care Professionals (PROVAB) was created, and in 2013, the More Doctors

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Program (PMM) and the Primary Care Information System was replaced by the e-SUS Primary Care.

This whole set of federal government policies resulted in the expansion of the accessibility and effectiveness of PHC. However, from 2013 onwards, the Brazilian economic crisis had repercussions on the unemployment rate and increased social inequality, financial cuts and social instability (SOUZA, 2017), and at the same time the indicator assumed the upward slope of the curve. In this vein, the approval of the Constitutional Amendment Project 55/2016, which established a spending ceiling for the next 20 consecutive years, freezing investment including for health and education, along with environmental policies, will compromise the sustainability of the SUS and its constitutional precept of universal coverage and other attributes of PHC (CASTRO, 2019; PAES-SOUSA, 2018). In 2017, there was the third edition of the PNAB (BRASIL, 2017), with major setbacks and reformulation of its political orientation, which is why it suffered severe criticism from the Brazilian scientific community.

The study showed an increase in hospitalizations between the extremes of age, with younger people being more affected by allergic and infectious diseases and older people with chronic non-communicable diseases, which is in agreement with a study carried out in Portugal (SARMENTO, 2015), although Portugal hospitalizes older people when compared to Brazil (ROCHA, 2015). 2020). The most frequent groups of causes found in children up to 14 years old were the same as those found in Minas Gerais (Southeast Brazil) for children and adolescents (SANTOS, 2016). A study carried out in Sergipe from 2002 to 2012 on hospital admissions in adolescents showed a reduction in HACSC of 143.1% (GUIMARÃES, 2020). The causes of hospital admissions in the 50-year-old and older age group were in agreement with a study carried out in Paraná, southern Brazil, in the 60-74 age group (PREVIATO, 2017). The improvement observed in the indicator before the sharpest political changes from 2014 onwards was mainly in the population over 50 years of age. It is notable that even among the very elderly the rates improved a lot, and then worsened. These results demonstrate that the exclusion of older adults in studies that address HACSC may be a mistake. Thus, we must continue to analyze the indicator with all age groups – consistent with the principles of universality, equity, and comprehensiveness of PHC.

The study has limitations, inherent to the use of secondary data, however a study on ACSC in Brazil has shown good reliability (ABAID, 2014; REHEM, 2011), studies only

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hospitalizations paid by the SUS, which means that it does not analyze about 20% of hospitalizations in the country that occur through the private sector (MOREIRA, 2011). Further research should be carried out to explore the determining causes for the delineation of the curve in the period, as well as comparisons between the other Brazilian regions.

CONCLUSION

The State of Sergipe in the period from 2008 to 2017 presented a trend curve of U-shaped primary care-sensitive hospital admissions, with a decrease in hospitalization rates from 2008 to 2011, stabilizing from 2011 to 2014 and rising from 2014 to 2017, in parallel with the introduction, stabilization and withdrawal of public policies related to PHC. There was no predominance of sex, although from the age of 70 onwards the rates of HACSC was predominant in men. Infectious and allergic causes predominated among young people and chronic non-communicable diseases among the elderly. The good results achieved from the strengthening of PHC in Brazil were interrupted by the political, economic and social crisis.

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REFERENCES

1. Abaid RA, Nedel FB, Alcayaga EL. Condições sensíveis à atenção primária: confiabilidade diagnóstica em Santa Cruz do Sul, RS. Rev. Epidemiol e Control Infect. 4(3):2008-2014. 2014.

2. Alfradique ME, Bonolo P de F, Dourado I, Lima-Costa MF, Macinko J, Mendonça CS, *et al*. Internações por condições sensíveis à atenção primária: a construção da lista brasileira como ferramenta para medir o desempenho do sistema de saúde (Projeto ICSAP - Brasil). Cad. Saude Publica. 25(6):1337–49. 2009.

3. Ansari Z. The concept and usefulness of ambulatory care sensitive conditions as indicators of quality and access to primary health care. Aust J Prim Heal. 13(3): 91–110. 2007.

4. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Política Nacional de Atenção Básica. Série Pactos pela Saúde. 4:68p. 2007

5. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Portaria Nº 221, de 17 de abril de 2008. Diário Oficial da União, Ministério da Saúde. p.70. 2008.

6. Brasil. Ministério da Saúde. Portaria nº 2.436, de 21 de setembro de 2017. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretrizes para a organização da Atenção Básica, no âmbito do Sistema Único de Saúde. Brasília, DF. Ministério da Saúde. 2017.

7. Caminal Homar J, Casanova Matutano C. La evaluación de la atención primaria y las hospitalizaciones por ambulatory care sensitive conditions. Marco conceptual [Primary care evaluation and hospitalization due to ambulatory care sensitive conditions. Conceptual framework]. Aten Primaria. 31(1):61-5. Jan.2003.

8. Castro MC, Massuda A, Almeida G, Menezes-filho NA, Andrade MV, Souza M De. Health Policy Brazil's unified health system : the first 30 years and prospects for the future. The Lancet. 394:345–56. 2019.

9. Ceccon RF, Meneghel SN, Viecili PRN. Internações por condições sensíveis à atenção primária e ampliação da Saúde da Família no Brasil: um estudo ecológico. Rev. Bras Epidemiol. 17(4): 968–77. 2014.

10. De Paula JB, Westphal MF. Sistemas de saúde, cooperação horizontal e o programa Mais Médicos no Brasil. Rev. Bras em Promoção da Saúde. 31(4):1–9. 2018.

11. Facchini LA, Piccini RX, Tomasi E, Silveira DS, Siqueira FV, Rodrigues MA. Desempenho do PSF no Sul e no Nordeste do Brasil: avaliação institucional e epidemiológica da Atenção Básica à Saúde. Cien Saude Colet. 11(3):669–81. 2006.

12. Facchini LA, Tomasi E, Dilélio AS. Qualidade da Atenção Primária à Saúde no Brasil: avanços, desafios e perspectivas. Saúde em Debate. 42(spe1):208–23. 2018.

13. Freund T, Geissler S, Kunz CU. Strategies for Reducing Potentially Avoid- able Hospitalizations for Ambulatory Care– Sensitive Conditions. Ann Fam Med. 11(4):363–70. 2013.

14. Giovanella L, Escorel LS, Mendonça MAM. Estudos de caso sobre implementação da Estratégia Saúde da Família em quatro grandes centros urbanos. Fundação Oswaldo Cruz. Escola Nacional de Saúde Pública Sergio Arouca. Departamento de Administração e Planejamento em Saúde - Núcleo de Estudos Políticos Sociais em Saúde. Relatório Final. 2009.

15. Guimarães MN, Oliveira ER BA. Internações Hospitalares de Adolescentes em Sergipe, de 2002 a 2012. Rev. Pau Pediatr. 38: e2018181.2020.

16. IBGE Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional por Amostra de Domicílios. Censo 2010.

17. Maia LG, Silva LA da, Guimarães RA, Pelazza BB. Internações por condições sensíveis à atenção primária: um estudo ecológico. Rev. Saude Publica.53(2):1–11. 2019.

18. Macinko J, Mendonça CS. Estratégia Saúde da Família, um forte modelo de Atenção Primária à Saúde que traz resultados. Saúde em Debate. 42(spe1):18–37.2018.

Revista ARACÊ
ISSN: 2358-2472

19. Mendonça S de S, Albuquerque EC de. Perfil das internações por condições sensíveis à atenção primária em Pernambuco, 2008 a 2012. Epidemiol e Serviços Saúde. 23(3):463–74. 2014.

20. Moreira ML, Dutilh Novaes HM. Internações de Serviços Hospitalares, SUS e não SUS: Brasil, 2006. Rev. Bras Epidemiol. 14(3): 411-22. 2011.

21. Nedel FB, Facchini LA, Bastos JL, Martín M. Conceptual and methodological aspects in the study of hospitalizations for ambulatory care sensitive conditions. Cien Saude Colet. 16(Suppl 1):1145–54. 2011.

22. Nedel FB. Pacote csapAIH: a Lista Brasileira de Internações por Condições Sensíveis à Atenção Primária no programa R. Epidemiol e Serviços Saúde. 28(2):e2019084. 2019.

23. Organización Mundial de la Salud. Declaracion de Alma-Ata. In: Conferência Internacional sobre Atención Primaria de Salud, Alma-Ata, URSS, 1978.

24. Paes-Sousa R, Rasella D, Carepa-Sousa J. Política econômica e saúde pública: equilíbrio fiscal e bem-estar da população. Saúde em Debate. 42(spe3):172–82. 2018.

25. Pazó RG, Frauches D de O, Galvêas DP, Stefenoni AV, Cavalcante ELB, Pereira-Silva FH. Internações por condições sensíveis à atenção primária no Espírito Santo: estudo ecológico descritivo no período 2005-2009. Epidemiol e Serviços Saúde. 21(2): 275–82. 2012.

26. Petruzalek D. READ. DBC: um pacote para importação de dados do dataSUS na linguagem R. J Heal Inf. 8(supl.1):601–5. 2016.

27. Previato GF, Nogueira IS, Acorsi CRL, Baldissera VDA, Mathias TA de F. Diminuição de internações por condições sensíveis à atenção primária em idosos no estado do Paraná. Espaço para a Saúde – Rev. Saúde Pública do Paraná. 18(2):15–24.2017.

28. Rehem TCMSB, Egry EY. Internações por Condições Sensíveis à Atenção Primária no Estado de São Paulo. Cien & Saude Coletiva. 16(12): 4755-4766. 2011.

29. Rocha JVM, Sarmento J, Moita B, Marques AP, Santana R. Comparative research aspects on hospitalizations for ambulatory care sensitive conditions: The case of Brazil and Portugal. Cien & Saude Coletiva. 25(4):1375–88. 2020.

30. Saldanha R de F, Bastos RR, Barcellos C. Microdatasus: pacote para download e pré-processamento de microdados do Departamento de Informática do SUS (DATASUS). Cad. Saude Publica. 35(9):e00032419. 2019.

31. Santos LA, Oliveira VB de, Caldeira AP, Santos LA, Oliveira VB de, Caldeira AP. Internações por condições sensíveis à atenção primária entre crianças e adolescentes em Minas Gerais, 1999-2007. Rev. Bras Saúde Matern Infant.16(2):169–78.2016.

32. Sarmento J, Alves C, Oliveira P, Sebastião R, Santana R. Caracterização e Evolução dos Internamentos Evitáveis em Portugal: Impacto de Duas Abordagens Metodológicas Characterization and Evolution of Avoidable Admissions in Portugal: The Impact of Two Methodologic Approaches. Acta Med Port. 590–601. 2015.

33. Souza PHGF de, Medeiros M. A concentração de renda no topo no Brasil, 2006-2014. One Pager Portuguese. Internacional Policy Centre for Inclusive Growth; 2017.

34. Suhl JA, Chopra P, Anderson BR, Bassell GJ, Warren ST. R: A Language and Environment for Statistical Computing. Nature. 485(20):237–41.2014.