Family Health Strategy in the Municipality of *Rio de Janeiro*: Cardiovascular Conditions Coverage and Hospitalization Evaluation

Estratégia Saúde da Família no Município do Rio de Janeiro: Avaliação da Cobertura e Internações por Condições Cardiovasculares

Estratégia Salud de La Família em El Municipio de Rio de Janeiro: Evaluación de La Cobertura y de Hospitalizaciones por Condiciones Cardiovasculares

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ABSTRACT

Objective: The study's purpose has been to assess the Family Health Strategy coverage in the municipality of Rio de Janeiro over the period from 2008 to 2013, and verify its correlation with the hospitalizations for cardiovascular diseases that are sensitive to Primary Care. **Methods**: It is a Cross-Sectional Epidemiologic Study with secondary data. Data analysis was done using descriptive statistics and the Spearman correlation test. **Results:** In the period of 2008, the population coverage of the Family Health Strategy was 8.1%, and in 2013 it was 39.41%. There is no linear association between the hospitalizations for hypertension, angina and cerebrovascular diseases and the Family Health Strategy coverage (p>0.05). Hospitalizations for cardiac failure presented a negative correlation with the Family Health Strategy coverage (p<0.001). **Conclusion**: At the end of 2013, around 40% of the population of Rio de Janeiro was covered by the Family Health Strategy. Nonetheless, this result represents a smaller expansion than the observed at the national and regional levels.

Descriptors: Sensitive hospitalizations, Primary health care, Cardiovascular disease, Collective health.

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RESUMO

Objetivo: Avaliar a cobertura da Estratégia Saúde da Família no município do Rio de Janeiro no período de 2008 a 2013, e verificar sua correlação com as internações por doenças cardiovasculares sensíveis à Atenção Primária. **Método:** estudo epidemiológico do tipo transversal com dados secundários. A análise dos dados foi feita utilizando estatística descritiva e teste de correlação de Spearman. **Resultados:** no período de 2008, a cobertura populacional da Estratégia Saúde da Família era de 8,1%, passando para 39,41% em 2013. Não há associação linear entre as internações por hipertensão, angina e doenças cerebrovasculares e a cobertura da ESF (p > 0,05). As internações por insuficiência cardíaca apresentam correlação negativa com a cobertura da ESF (p < 0,001). **Conclusão:** ao final de 2013, cerca de 40% da população no Rio estava coberta pela ESF. Entretanto, esse resultado representa expansão menor do que o observado em âmbito nacional e regional.

Descritores: Hospitalizações sensíveis; Atenção primária à saúde; Doença cardiovascular; Saúde Coletiva.

RESUMEN

Objetivo: Evaluar a la cobertura de la Estrategia Salud de la Familia en el municipio de Rio de Janeiro en el período de 2008 a 2013, y verificar su correlación con las hospitalizaciones por enfermedades cardiovasculares sensibles a la Atención Primaria. **Método:** estudio epidemiológico de tipo trasversal con datos secundarios. El análisis de los datos fue hecho utilizando estadística descriptiva y teste de correlación de Spearman. **Resultados:** En el período de 2008 la cobertura poblacional de la Estrategia Salud de la Familia era de 8.1% pasando en 2013 para 39.41%. No hay asociación lineal entre las hospitalizaciones por hipertensión, angina y enfermedades vasculares cerebrales y la cobertura de la Estrategia Salud de la Familia (p>0.05). Las hospitalizaciones por insuficiencia cardíaca presentan correlación negativa con la cobertura de la Estrategia Salud de la Familia (p<0.001). **Conclusión:** Al final de 2013 cerca de 40% de la población de Rio de Janeiro estaba cubierta por la Estrategia Salud de la Familia. Todavía, ese resultado representa una expansión más pequeña que lo observado en nivel nacional y regional.

Descritores: Hospitalizaciones sensibles, Atención primaria a la salud, Enfermedad cardiovascular, Salud Colectiva.

INTRODUCTION

The Family Health Strategy (ESF) is considered the primary instrument of Primary Care and has a substitutive character in relation to the network of traditional basic services in the territories in which it operates[1-3]. Unlike the traditional care model, centered on disease and hospital, the ESF prioritizes actions to protect and promote the health of individuals and families, both adults and children, healthy or sick, in an integral and continuous way[1].

The organization of the work carried out by the FHP provides for the monitoring of the population assigned by the health teams, which are composed minimally by a doctor, a nurse, a nursing assistant, four to six community health agents, a dentist and auxiliaries. Such professionals develop actions for the early diagnosis of diseases, as well as the promotion, protection and recovery of health, including the identification of causes that pose risks to the health of the population[4-7].

In this assistance model, the actions performed in primary care have, among other purposes, the reduction of the risk of hospitalizations8. It is worth remembering that "Conditions sensitive to basic care" are health problems treated by actions typical of the first level of health care, whose evolution, in case of absence of effective and timely care, may require the hospitalization of patients. Such hospitalizations have been used as indicators for the evaluation and monitoring of the effectiveness of Primary Care[9].

In 2007, about 13% of non-gestational hospitalizations and 27.4% of hospitalizations of individuals 60 years of age or older were caused by cardiovascular diseases. These diseases generate the highest cost related to hospital admissions in the national health system[10]. In addition, cardiovascular diseases also represent high social and economic costs for the country, since they reach a large contingent population in an age group in which the majority of individuals are economically active[11].

In view of the above, this study aimed to evaluate the FHS coverage in the city of Rio de Janeiro from 2008 to 2013 and to verify its correlation with the hospitalizations for cardiovascular diseases sensitive to Primary Care.

METHODS

This is an epidemiological cross-sectional study using secondary data. The data related to hospitalizations for conditions sensitive to primary care (ICSAP) were collected from the Hospital Information System (SIH-SUS) of the City of *Rio de Janeiro* Data Bank and the coverage data were obtained through surveys conducted over the internet The Basic Attention Information System (SIAB) and the Brazilian Institute of Geography and Statistics (IBGE). For the calculation of the potential population coverage by the FHT, the formula was used: (coverage of the ESF in a given location and period x total population in the same place and period) x 100,000, according to Ministry of Health guidelines.

Regarding the hypothesis of an association between ESF coverage and hospitalizations for primary care-sensitive cardiovascular diseases, it is worth mentioning that hospitalizations were first identified through codes from the Brazilian List of Hospitals Sensitive to Primary Care, published by the Ministry of Health, through Of SAS Ordinance No. 221 of April 17, 2008. This List is composed of 19 groups of causes, with 74 diagnoses classified according to the Tenth Revision of the International Classification of Diseases (ICD10). For this study, we selected the cardiovascular causes groups with four diagnoses: arterial hypertension (I10, I11), angina pectoris (I20), congestive heart failure (I50, J81) and cerebrovascular diseases (I63 to I67, I69, G45 and G46).

As inclusion criteria, we adopted the age group above 40 years and data referring to hospitalizations, such as: primary diagnosis, city code, neighborhood of residence and year of hospitalization. Unauthorized Hospitalization Authorizations (AIHs) were excluded.

Data analysis was done using SPSS version 21. Data from the AIHs were exported and tabulated in an Excel spreadsheet. In the variable CNES, the name of the health establishment was identified. In the neighborhood variable, the spelling was corrected, when the street name was found the neighborhood was searched for the zip code, the neighborhoods in blank or that had their own names were discarded. In the descriptive analysis, the coverage and number of FHT teams were initially identified over the period 2008 to 2013. The hospitalization according to gender and cardiovascular conditions are presented in charts or tables, in the form of relative or absolute frequency.

In order to analyze whether FHS coverage is associated with the hospitalization rate, the Spearman correlation test was used with the significance level adopted of 5%. The hospitalization rate was calculated by the formula: (number of hospitalizations at a given location and period/population at the same location and period) x 100,000.

The research project was approved on 24/JUN/2014 by the Research Ethics Committee of the Anna Nery School of Nursing of the Federal University of Rio de Janeiro, respecting all the recommendations of Resolution 466/2012 of the National Health Council/MS, under protocol 31157014.1.0000.5238.

RESULTS AND DISCUSSION

A The evolution of ESF coverage in the municipality of *Rio de Janeiro* can be observed in Figure 1. In 2008, population coverage was 8.1%, reaching 39.41% in 2013. It is worth mentioning that in this period, in the municipality of *Rio de Janeiro*, the Family Clinics were created, structurally sophisticated health units, adequately equipped with traditional inputs and technological innovations, enabling an increase in the number of professionals trained to train care staff.

The ESF is directed towards the promotion of equity and its innovation consists in not giving up the integrality of the assistance at the same time as it provides greater possibilities of qualified service to the population12. Following the principle of equity, the implementation of the ESF in the city of Rio de Janeiro was given priority in areas that had the lowest Human Development Index (HDI). In these cases, "targeting assumes the sense of affirmative action or positive discrimination, by instituting a selectivity of the potential beneficiaries of the policy, in order to broaden the economic, social and cultural access of the social segments that really need it"[13].

Despite the positive result of the survey, which reveals an increase in coverage and consequently the number of FHSs in the period from 2008 to 2013, it is worth reflecting on this finding. DATASUS/DAB data on coverage for the Brazilian population show that, in 2013, in Brazil and its regions, there was an expansion of this assistance model. During this period, 56.0% of Brazilians were being covered by the FHS. Within the regions, in the Southeast, the population coverage of the FHS was 44%, in the North it was 53%, while in the South and Central West 56% of the population were covered by the FHS. In the Northeast, coverage was 76% 6. In this context, it can be observed that, even though there was an increase in the FHS expansion of the city of Rio de Janeiro (39%), this was lower than the one that happened at national and regional levels.

This data is worrying and points to the difficulty of expanding the ESF. Brazil's size and complexity, as well as the specificities of each location in the country, should be recorded, among the factors that make it difficult to implement standards of a generalized nature. In addition, research indicates that the insufficient expansion of ESF coverage in the country's large urban centers may be related to the epidemiological profile of these places, since urban violence and emergencies tend to direct health demand to fragmentation and the specialization of care14.

However, it is worth pointing out that, even in the face of the difficulties of expansion of the FHS over the last years, Primary Care has gradually strengthened as a necessary condition for the structuring of local health systems and for the effective consolidation of SUS principles and directives15. The organization of primary health care services through the ESF has prioritized actions for health promotion, protection and recovery, in an integral and continuous way. This model is based on the recognition of the needs of the population, achieved through the formation of links between service users and health professionals, in permanent contact with the territory16.

The model of care proposed by the FHT has family--centered health care. In this way, professionals come into contact with the living conditions and health of the population, and understand the health-disease process in an expanded way. Interventions go beyond curative practices. Professionals who work in the FHS must have a diversified and complex arsenal of technological resources. Being, therefore, one of the great challenges of the ESF is the promotion of a quality and integral care to the users[16].

Figure 1– Evolution of the ESF Coverage in the city of Rio de Janeiro. Rio de Janeiro, Brazil, from 2008 to 2013.
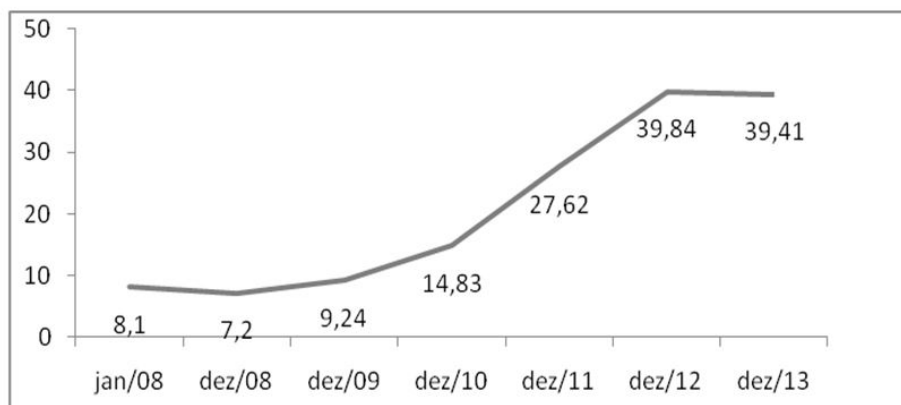
Source: Ministry of Health/Secretary of Health Care/Department of Primary Care - DAB, Prepared by the author, 2014.

As for the number of ESF teams in the city of *Rio de Janeiro* in the period under study, it is noticeable that there was an increase, from 144 teams in 2008 to 730 in 2013, which represented an increase of approximately 507%. They contributed to this increase in the number of professionals, the form and value of hiring and the incorporation of medical residency to guarantee the offer of professionals to work in Family Clinics (Figure 2).

Figure 2 – Evolution of the number of ESF teams in the city of Rio de Janeiro. Rio de Janeiro, Brazil, 2008 to 2013
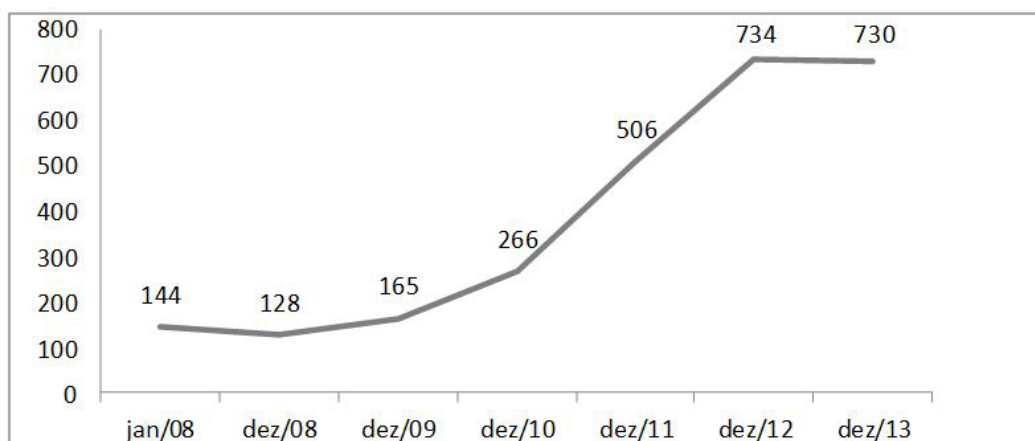
Source: Ministry of Health/Department of Health Care/Department of Primary Care. Prepared by the author, 2014.

In relation to hospitalizations due to cardiovascular conditions sensitive to primary care, a predominance of women hospitalized due to arterial hypertension was observed throughout the period of analysis (2008-2013). On the other hand, hospitalizations with other causes (angina, heart failure and cerebrovascular diseases) were more common among male patients (Figure 3).

The promotion of affordable and quality Primary Care can prevent hospitalization or minimize its occurrence for some health conditions sensitive to basic care, among which are cardiovascular diseases. In this sense, the care must be resolutive and broad, so that the reference will happen only in rare and unusual cases that exceed their competence. The individual is assisted by the primary care service and has his/her health problem solved when the front door is resolute, timely and of good quality[8].

The national literature has emphasized the existence of the relationship between FHT coverage and hospital admissions. Municipalities with greater FHS coverage have presented lower rates of hospital admissions. On the other hand, municipalities with lower coverage have shown high hospitalization rates. A study carried out in Campo Grande (MS) presented a decrease in the number of hospitalizations due to Ambulatory Care Sensitive Conditions (ICSAP). In 2000, the number was 46,053, rising to 40,655 in 2009[17]. Another study, conducted in Espírito Santo, found a decline in ICSAP from 14.1 to 11.4 between 2005 and 2009[18].

Figure 3 – Number and proportion of hospitalizations for Cardiovascular Conditions Sensitive to Primary Care according to sex and group of causes. Rio de Janeiro, Brazil, 2008 to 2013.

Characteristics	2008	2009	2010	2011	2012	2013
Hypertension						
Male	730(48.03)	686(43.83)	610(45.39)	713(43.69)	489(47.61)	454(47.14)
Female	790(51.97)	879(56.17)	734(54.61)	919(56.31)	538(52.39)	509(52.86)
Angina						
Male	897(58.32)	772(55.86)	975(59.02)	728(59.14)	904(60.83)	759(59.48)
Female	641(41.68)	610(44.14)	677(40.98)	503(40.86)	582(39.17)	517(40.52)
Cardiac insufficiency						
Male	2024(53.33)	2288(54.53)	2101(54.69)	1991(54.68)	1810(54.7)	1635(53.71)
Female	1771(46.67)	1908(45.47)	1741(45.31)	1650(45.32)	1499(45.3)	1409(46.29)
Cerebrovascular Diseases						
Male	2782(55.13)	2955(57.22)	2811(54.26)	2676(53.35)	2410(51.63)	2595(52.31)
Female	2264(44.87)	2209(42.78)	2370(45.74)	2340(46.65)	2258(48.37)	2366(47.69)

The correlation between the rate of hospitalization for cardiovascular diseases and the coverage of ESF is presented in Figure 4. It can be seen that there is no linear association between admissions for hypertension, angina and cerebrovascular diseases and ESF coverage (p> 0.05). The hospitalizations for heart failure were associated with an increase in the FHS coverage (p <0.001). It is observed that there is a strong negative correlation in the number of hospitalizations due to heart failure in the municipality of *Rio de Janeiro* between 2010 and 2013, that is, the increase in ESF coverage was associated with a linear decrease in the number of hospitalizations.

Figure 4 – Rate of hospitalization of cardiovascular disease groups (per 10,000 inhabitants) correlated with FHS coverage. Rio de Janeiro, Brazil, 2010 to 2013.

	Hypertension				Coefficient of correlation	P Value
	2010	2011	2012	2013		
Total hospitalizations	1344	1632	1027	963	-0.800	0.200
ESF Coverage	25	38	44	45		
	Angina					
Total hospitalizations	1652	1231	1486	1276	-0.400	0.600
ESF Coverage	25	38	44	45		
	Cardiac insufficiency					
Total hospitalizations	3842	3641	3309	3044	-0.999	< 0.001
ESF Coverage	25	38	44	45		
	Cerebrovascular Diseases					
Total hospitalizations	5181	5016	4668	4961	-0.800	0.200
ESF Coverage	25	38	44	45		

This result is excellent, since heart failure is a consequence of most heart diseases, characterized by failure of cardiac function to varying degrees. Among the main causes are: ischemic heart disease, hypertension and Chagas' disease. Its chronic and complex nature demands advanced diagnostic resources for the adequate staging and consequent application of the appropriate treatment and the maintenance of the compensated patient in an outpatient setting, without the necessity of hospitalization[19].

In addition, it is known that the lower rates of hospitalizations due to conditions sensitive to Primary Care are associated with greater availability of general practitioners per inhabitants, better evaluation of the service by the user, continuity of care with the same family doctor, to the greater number of preventive consultations and

to regions with health centers[20]. It is also emphasized that the work should be articulated with a focus on the health needs of the population, which are expressed, to a large extent, in unique demographic and epidemiological situations[21].

Regarding the limitations of the study, although there is a growing use of the data available in the SIH-SUS Hospital Information System, it should be pointed out that the number of hospitalizations has some limitations, such as the reliability and quality of the AIH records, since the SIH/SUS has as main objective the financial transfer to reimburse the costs of hospitalization. In addition, the system is not universal because it represents only the hospitalizations performed in the public service network. However, it is worth mentioning that, in the Brazilian case, it represents 70% to 80% of the total hospitalizations in the country[22]. However, the bias that this problem can generate must be non-directional, since, in the event of it occurring, there is no reason to expect it to occur differently for users and non-ESF users.

CONCLUSIONS

O The present study allows to conclude that, during the period from 2008 to 2013, in the city of Rio de Janeiro, there was an increase in the number of teams and expansion of the ESF. By the end of 2013, about 40% of the population in Rio was covered by the ESF. However, the expansion of this assistance model was lower than that observed at the national and regional levels. The results also show that the expansion of ESF was associated with a decrease in hospitalization rates due to heart failure, which was not observed for other cardiovascular diseases.

Finally, it is important to note that the process of restructuring PHC alone does not guarantee the quality of health care provided to the population. Expanding coverage is an effective intervention of the health programs, which is of great importance for the effectiveness of the FHT, combining improvement of health care infrastructure, conditions for attracting quality health professionals, qualifying professionals, improving access to health services Improved access to and provision of diagnostic tests, basic sanitation and education.

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