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RESEARCH

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Internações por condições sensíveis à atenção primária após a implantação da estratégia saúde da família no município de Petrópolis/RJ

Hospitalizations due to primary care sensitive conditions after family health strategy implementation on Petrópolis/RJ

Hospitalizaciones por enfermedades sensibles a la atención primaria después de la implementación del programa de salud de la familia en município de Petrópolis/RJ

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ABSTRACT

Objective: To quantify and to compare the hospitalizations sensible to primary care (HSPC) with the brute rate of hospitalizations analyzing its frequency with the family health program (FHP) in Petrópolis/RJ. **Methods:** After analyzing the national health system data, we extracted the rate of HSPC between 1999-2013. Then we have established the ratio of the hospitalizations and city residents multiplied by a thousand. The Pearson correlation coefficient was applied to obtain the the variables correlation. **Results:** The data presented a reduction of 54.4% in the number of HSPC for the investigated period. Total hospitalizations related to primary care conditions went from 19.9% to 16.5%. The rate of HSPC decreased as the coverage of the FHP increased its coverage. **Conclusion:** The changes observed are significant and stimulate further investigations regarding the FHP strategy and its potential as an effective way of reducing the HSPC in other regions.

Descriptors: Public Health; Primary Health Care; Family Health Strategy; Health Programs Strategies; Program Evaluation; Hospitalization.

RESUMO

Objetivo: Quantificar as internações por condições sensíveis à atenção primária (ICSAP), comparando-as com a taxa bruta de internações e analisar sua frequência junto à cobertura do Programa Saúde da Família (PSF) em Petrópolis/RJ. **Métodos:** Após consulta no SIH-SUS, obteve-se a taxa bruta de ICSAP entre 1999-2013. Foi estabelecida a razão entre a soma destas internações e o número de residentes no município, multiplicado por mil. O coeficiente de correlação de Pearson foi utilizado para a análise de correlação entre as variáveis. **Resultados:** Houve redução de 54,4% nas ICSAP no período estudado. Observamos uma redução das ICSAP sobre o total de internações de 19,9%, para 16,5%. A redução na taxa de ICSAP apresentou forte correlação com o aumento da cobertura do PSF. **Conclusão:** As mudanças ocorridas são significativas e estimulam o aprofundamento do estudo da eficácia das estratégias como o PSF sobre a redução das ICSAP em diferentes municípios. **Descritores:** Saúde Pública; Atenção Primária à Saúde; Estratégia Saúde da Família; Planos e Programas de Saúde; Avaliação de Programas e Projetos de Saúde; Hospitalização.

RESUMEN

Objetivo: Cuantificar hospitalizaciones por enfermedades sensibles a la atención primaria (HESAP), comparándolos con la tasa bruta de hospitalizaciones y analizar su frecuencia por la cobertura del Programa de Salud de la Familia (PSF) en Petrópolis/RJ. **Métodos:** Previa consulta al SIH-SUS, se obtuvo la tasa bruta de HESAP entre 1999-2013. Se estableció la relación de la suma de estas hospitalizaciones y el número de residentes multiplicado por mil. Se utilizó el coeficiente de correlación de Pearson para análisis de las variables. **Resultados:** Hubo una reducción del 54,4% en las HESAP. Se ha observado una reducción de la ESAP en el total de ingresos de 19,9% a 16,5%. La reducción de la tasa de HESAP mostró una fuerte correlación con el aumento de la cobertura del PSF. **Conclusión:** Los significativos resultados estimulan más estudios sobre la eficacia de las estrategias tales como el PSF en la reducción de HESAP en diferentes municipios. **Descriptores:** Salud Pública; Atención Primaria de Salud; Estrategia de Salud; Estrategias y Programas de Salud; Evaluación de Programas y Proyectos de Salud; La Hospitalización.

INTRODUCTION

Primary care, the structural axis of the Brazilian Unified Health System (SUS), includes a "set of health actions in the individual and collective spheres", covering the "promotion and protection of health, prevention of diseases, diagnosis, treatment, rehabilitation and maintenance of health".[1] It seeks, therefore, a system that enables universal coverage and equity in health in Brazil, with the guarantee that people stay healthy and have access to care when they need it. However, problems of the political-institutional and organizational dimensions of Primary Health Care (PHC) have generated performance indicators that are sometimes ineffective.[2]

It is defended the restoration of the coherence between the health situation and the SUS, in order to reorganize and integrate the primary, secondary and tertiary levels of care, through the implementation of health care networks (RAS) with effectiveness, efficiency, safety, quality and equity, to the health conditions of the Brazilian population. For the Ministry of Health, RAS are organizational arrangements of actions and health services, of different technological densities, which integrated through technical, logistical and management systems seek to guarantee the integrality of care.[3]

In RAS, PHC is associated with lower costs, higher user satisfaction and better health indicators, even in situations of great social inequity. Studies show that this level of care is able to solve up to 85% of health problems.[4] Rosa and Labate[5] point out that the main challenge of the current health system, especially the FHP, is the reduction of hospital admissions from basic health care activities, among them, the institutionalization of the home visit, which provides comfort to the patient and the family, as well as hospital costs.

As an incentive to the monitoring of health indicators of PHC, the model called "Hospitalizations for Conditions Sensitive to Primary Care" was proposed to compare the performance of different health services, to evaluate the effects of health policies and as part of the evaluation of the effectiveness, quality and accessibility of primary health care. It is an indicator of hospital activity as an "indirect measure of the effectiveness of primary care".[6] In this sense, the percentage of HSPC is considered as an indicator of quality for monitoring and evaluation of health care.[7]

The concept of evaluation of public programs emerged shortly after World War II, when the replacement of the market by the State raised the need to find ways to allocate resources as effectively as possible. The pioneers of this mode of evaluation, economists, have developed methods to analyze the advantages and costs of these public programs, especially in the areas of education and health. Since the 1970s, with the implementation of large programs based

on health insurance, the need to evaluate health actions has been imposed. Most countries, such as the United States, Canada, France, and Australia, have established bodies tasked with assessing new technologies, based on the need for information on the functioning and effectiveness of the health system, based on the relationship between the intervention in question and the context in which it is inserted and the results obtained.[8]

In the second half of the 1990s, the National Health Service proposed the use of an indicator to analyze the quality of Primary Care through the quantification of the Hospitalizations for Primary Care Sensitive Conditions (HSPC), which refer to the hospitalizations that may be reduced and/or avoided if they are correctly and effectively diagnosed and treated at an outpatient level, that is, if primary health care is operative and has been inversely associated with health insurance coverage and the socioeconomic pattern of the assisted population.[7]

It is assumed that disparities in hospitalizations, due to certain diseases considered to be easily prevented or amenable to early diagnosis and treatment reflect the inadequacy of health care to the needs of the population.[9] Such reflex can be in management, insufficient quantity of services, lack of medicines to control chronic diseases, difficulties in the provision of diagnostic resources or deficiencies in management, outpatient follow-up and in the referral system. It is also taken into account that such hospitalizations may be a consequence of patients not adhering to the recommended care.[10]

In Brazil, investigations on HSPC are still incipient, although they are considered for strategies to monitor the performance of the Family Health Strategy (FHS) in some states and municipalities. This seems to be the first study to adopt this evaluation model in the municipality surveyed. The lack of indicators based on primary data, which can be used to assess the national impact of the Family Health Strategy, leads to the use of epidemiology in the organization of services and the institutionalization of the evaluation of health programs and actions as a way of qualifying and to improve the health system in Brazil.[11,12,13]

The effectiveness of basic care is of interest to politicians, planners and health managers. Patients undergoing outpatient care of compromised quality will present themselves to the health system with advanced disease, with more frequent use of emergency services, being more prone to more expensive care needs and probably with less favorable outcomes.[14] With this, it is necessary to evaluate the effectiveness and resolving power of the Family Health Strategy in the city of Petrópolis/RJ, verifying if there is success in achieving its main purpose, hospital decentralization. The objective was to verify the correlation between the coverage of the Family Health Strategy and the rate of hospitalizations for conditions sensitive to primary care in the city of Petrópolis/RJ.

METHODS

This is an ecological study, using secondary data to construct the HSPC rate. The HSPC rate was calculated by the ratio between the number of hospitalizations of groups of conditions sensitive to primary care of residents in Petrópolis and the total population living in the municipality in the year studied for a population of 1,000 inhabitants.

The data obtained from the HSPC of the residents of Petrópolis was obtained from the Hospital Information System (SIH-SUS), available on the website of the Department of Information Technology of SUS (DATASUS). Diagnostic groups were determined based on the list of morbidity of the 10th International Statistical Classification of Diseases and Related Health Problems (ICD-10).

The following indicators were used to analyze the association of the quality of primary care offered through the FHP to the population of Petrópolis/RJ with the HSPC: population obtained by censuses, population counts and intercensitary estimates of the Brazilian Institute of Geography and Statistics (IBGE) and the gross rate of avoidable hospitalizations (Table 1), by place of residence, between 1999 and 2013. This period is justified by the success of the implementation of the Family Health Program in the city of Petrópolis, considering that the year 1999 Represents the initial milestone of the period of expansion of the FHP at the national level, which began in the year 1994[15] and the year 2013 contains the most updated data (no longer subject to rectification) in the source used.

Table 1 - Brazilian List of Conditions Sensitive to Primary Care

Diagnosis ICD 10	Selected codes
1. Diseases preventable by immunization and sensitive conditions	A37; A36; A33 a A35; B26; B06; B05; A95; B16; G00.0; A17.0 A19; A15.0 a A15.3; A16.0 a A16.2, A15.4 a A15.9, A16.3 a A16.9, A17.1 a A17.9; A18; I00 a I02; A51 a A53; B50 a B54
2. Infectious Gastroenteritis and Complications	E86; A00 a A09
3. Anemia	D50
4. Nutritional deficiencies	E40 a E46; E50 a E64
5. Ear, nose and throat infections	H66; J00; J01; J02; J03; J06; J31
6. Bacterial pneumonias	J13; J14; J15.3, J15.4; J15.8, J15.9; J18.1
7. Asthma	J45, J46
8. Pulmonary diseases	J20, J21; J40; J41; J42; J43; J47; J44;
9. Hypertension	I10; I11
10. Angina	I20
11. Heart Failure	I50; J81
12. Cerebrovascular diseases	I63 a I67; I69, G45 a G46

(To be continued)

(Continuation)

Diagnosis ICD 10	Selected codes
13. Diabetes mellitus	E10.0, E10.1, E11.0, E11.1, E12.0, E12.1;E13.0, E13.1; E14.0, E14.1; E10.2 a E10.8, E11.2 a E11.8; E12.2 a E12.8; E13.2 a E13.8; E14.2 a E14.8; E10.9, E11.9; E12.9, E13.9; E14.9
14. Epilepsies	G40, G41
15. Infection of the kidney and urinary tract	N10; N11; N12; N30; N34; N39.0
16. Infection of skin and subcutaneous tissue	A46; L01; L02; L03; L04; L08
17. Inflammatory disease of the female pelvic organs	N70; N71; N72; N73; N75; N76
18. Gastrointestinal ulcer	K25 a K28, K92.0, K92.1, K92.2
19. Diseases related to prenatal care and childbirth	O23; A50; P35.

Source: Ordinance SAS/MS n. 221 of 17 April 2008.

The Pearson correlation coefficient (CCP) was implemented for the correlation analysis between the variables: year and PSF coverage; year and gross rate of HSPC; gross rate of HSPC and coverage of the PSF and total number of hospitalizations by the SUS and HSPC.

Because it is a study based on data from secondary sources, it was exempted from the appreciation of the Research Ethics Committee. There are no conflicts of interest of the authors in relation to this study.

Petrópolis occupies an area of 795,798 km², has a population of 295,917 inhabitants, according to the demographic census of 2010,[16] and after the implementation of the PSF, currently has 42 family health teams, with an estimated potential population coverage of 48.76% or 144,900 people, which according to the classification proposed by the Ministry of Health, can be categorized as low (less than 50%).[17]

The hospital network in the studied region is composed of eleven units (June 2015), totaling 1,523 beds to attend the four basic clinics, complementary therapy and other specialties, of which 1,062 are accredited by SUS. In 2014, the 12,878 hospital admissions in the city studied were responsible for an expense of R$ 36,255,208.65 for the public budget.[18]

RESULTS

The data organized in Table 2 show a 44.8% reduction in the total number of hospitalizations by SUS (21,154 in 1999 and 11,661 in 2013) and a 54.4% reduction in the number of HSPC in the municipality studied (4,220 in 1999 for 1,924 in 2013). The participation of Primary Care Sensitive Conditions in the total number of hospitalizations in the municipality showed a reduction at the end of the study period, decreasing from 19.9% in 1999 to 16.5% in the year of 2013, even though there were oscillations during the period studied. The CCP verified an excellent correlation between the total number of hospitalizations by SUS and the number of HSPC (r = 0.97).

Table 2 - Frequency and proportion of hospitalizations due to conditions sensitive to primary care (HSPC) of residents in the city of Petrópolis, Rio de Janeiro, Brazil, 1999-2013

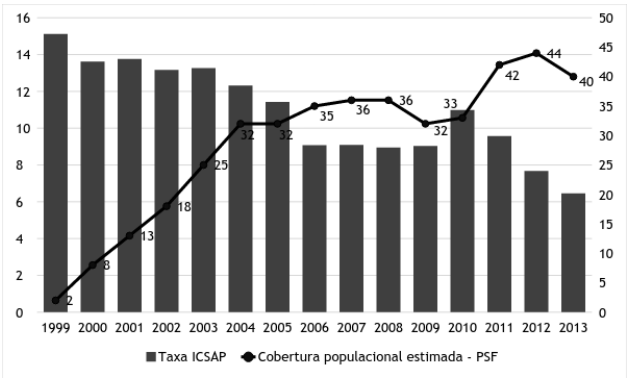
Year	Total of hospitalizations	Total of HSPC	Frequency of HSPC	Rate of HSPC (Per 1.000 hab.)
1999	21.154	4.220	19,9	15,1
2000	21.342	3.902	18,3	13,6
2001	21.106	3.994	18,9	13,8
2002	19.643	3.859	19,6	13,2
2003	19.232	3.927	20,4	13,3
2004	18.490	3.687	19,9	12,3
2005	18.904	3.498	18,5	11,4
2006	16.662	2.809	16,9	9,1
2007	16.874	2.850	16,9	9,1
2008	15.573	2.799	18,0	8,9
2009	16.206	2.848	17,6	9,0
2010	17.104	3.251	19,0	11,0
2011	15.093	2.839	18,8	9,6
2012	12.779	2.283	17,9	7,7
2013	11.661	1.924	16,5	6,5

Source: SIH/DATASUS/IBGE.

Population coverage of the FHP in Petrópolis evolved significantly during the period studied, from 2.23% in 1999 to 40.16% in 2013, when, according to the Department of Basic Attention (DAB)[17] there were 04 and 40 family health teams implanted in the municipality, respectively. Corroborating with this data, CCP showed an excellent correlation between the passage of years and the values found on PSF coverage (r = 0.90).

The rate of hospitalizations for Primary Care Sensitive Conditions (TICSAP) presented an initial reduction of 9.93% in the first two years compared, showing some stability between 2000 and 2004, when it presented a gradual decrease until 2008. Thereafter, with oscillation, returning (TICSAP = 15,1/1000 inhab.) To 2013 (TICSAP = 6.5/1000 inhabitants). This reduction will be reduced by 56.9% in 1999. The average was 3,246 ± 685.7 HSPC per year, as shown in Figure 1 and Table 2. In addition, we observe the occurrence of an inverse relationship between the course of the years and the number of HSPC (r = -0.92). The same inverse pattern could be observed between the HSPC and PSF registers (r = -0.85).

Figure 1 - Rate of Hospitalizations for Primary Care Sensitive Conditions (HSPC) and population coverage estimated by the Family Health Program (PSF), Petrópolis, Rio de Janeiro, Brazil, 1999-2013



Source: SIH/DATASUS; MS/SAS/DAB.

DISCUSSION

After analyzing the data, it is shown that the changes operated between 1999 and 2013 were significant and presented optimistic results. There is a strong inverse correlation, since the increase in FHP coverage was accompanied by a large reduction of FHRH in the period and place studied. However, this relationship has not been uniform over the years, supporting the hypothesis that the expansion of the coverage of this strategy, without the necessary quality and effectiveness of the actions, does not have a satisfactory impact on the researched variable.

Elias and Magajewski[9] compared the behavior of some HSPC in the period from 1999 to 2004 in two groups of municipalities in the south of Santa Catarina, grouped according to the coverage of the PSF and the quality of basic care offered to the population by their Family Health Teams, conforming two ecological units. That is, municipalities with adequate basic care (coverage ≥ 70%) and inadequate basic care. The results evidenced changes in the number of hospitalizations of all the morbid conditions analyzed, indicating a tendency of increase and/or decline of these hospitalizations in the two ecological units in the studied period. This imbalance in the analyzed variables did not allow to infer that there is an association between the performance of the FHP and the occurrence of HFHP in the region surveyed.

In a similar research, Boing et al.[19] demonstrated that these results were compatible with those found in the present study, for the state of Rio de Janeiro, with an annual reduction in hospitalizations for Primary Care Sensitive Conditions of 5.6% in men and 5.4% in women during the 1998-2009. The authors also observed that the main groups of causes of HSPC in Brazil in the same period were, in this order, infectious gastroenteritis and its complications, heart failure and, thirdly, bronchial asthma. This classification corroborates with that cited by Mendes,[20] which points out the main causes of HSPC such as asthma, heart failure, pneumonia and diarrhea and gastroenteritis of presumed infectious origin.

The results obtained here are satisfactory, as they point to the importance of deepening the study on Primary Care Sensitive Conditions (CSAP) in future research. It is worth mentioning the limitation because it is a study based on secondary data from national health information systems, thus subject to possible biases related to the quality of the available data.

However, progress has been made in these systems over time, with great availability and improvement in the quality of the information generated. In part, due to the improvement in the evaluation models of health policies implemented and the more effective performance of public managers who depend on this improvement. There was, at some point in the historical series, an increase in some hospitalization rates due to improvement in the registry and accuracy in defining the diagnosis of the morbidity in question.[15] Therefore, investments in strengthening information systems are essential, especially in the training of those responsible for collecting and feeding the databases.

The analysis performed on the hospitalizations in the SUS registered in the SIH has the advantage of the national and wide coverage of approximately 70% of all hospitalizations in the country.[21] This study is based on data on hospitalization episodes and not on individuals, since the SIH-SUS registration object is the event itself. Thus, multiple hospitalizations due to avoidable conditions or interhospital transfers of the same patient can not be identified, causing duplication in the data that can not be identified. In addition, the HSPC rate is dependent on hospital information; therefore, deaths or other complications that do not occur in the hospital environment are not reflected.

Another important observation refers to the structure of the tertiary system in the municipality, that is, the provision of beds in the hospital network of the region. This means that with the expansion of access to health services, the demand rises automatically, with an increase in the occurrence of certain hospitalizations that may be considered unnecessary, generating a given "false positive".

On the other hand, the shortage of available beds can cause a patient with a sensitive pathology, who needs to be diagnosed and controlled in a timely fashion, to be disregarded, at the risk of becoming a hidden statistic that would be important for the accounting of these morbidities and subsequent evaluation of public health management.

According to Elias and Magajewski,[9] the surplus supply in hospital care may induce the municipality to direct less efforts towards the management of Primary Health Care (PHC), causing the aggravation of diseases that could be treated early. Conversely, when it is known that the provision of PHC is inadequate in the region, the physician may be "forced" to make early admission as an alternative treatment, since minimal care for the case could be compromised with outpatient care available. This situation is more worrying when it comes to patients with poor socioeconomic conditions, since they are more vulnerable to medical complications, environmental factors and the lack of adherence to the guidelines provided. In addition, the culture itself and the medical predisposition to hospitalization are indirectly related to the evolution of these rates.

CONCLUSION

The different reductions in hospitalization rates for the causes analyzed are expressive and may be associated with a wide variety of factors. Among them, the socio-demographic and economic profile of the populations (such as per capita income, sanitary sewage, schooling, among others), the network of existing services in the region studied and the specific actions of primary health care, in particular by the professionals of the Family Health Strategy. However, the results obtained here are insufficient to justify the findings of this study, making evident the need to deepen some issues through analytical studies, which allow the identification of factors that explain the behavioral trends of TICSAP.

It is expected that in future years, positive results in the assessment of primary care will become increasingly statistically significant. In particular, when considering the HSPC diagnosis groups such as diabetes mellitus, hypertension and dyslipidemia related diseases, which require a longer follow-up period to observe significant changes in their morbidity and mortality rates, in view of the necessary behavioral changes and adherence and the implementation of this strategy may be considered recent, the changes in health indicators will be reflected in the long term.

It is believed that the PSF has the potential to reorient the change in the care model, reducing the number of hospitalizations due to preventable diseases. To this end, several changes are imperative, such as the inclusion of more disciplines that contemplate Primary Care guidelines in the curriculum of health courses, in order to teach and raise awareness about the importance of the institutionalization of a health system with focus in actions to prevent health diversion and promote health - to prevent more than cure.

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