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Relations between the primary care and hospitalizations due to sensitive conditions in a university hospital

Relações entre a atenção primária e as internações por condições sensíveis em um hospital universitário

Relaciones entre la atención primaria y las internaciones por condiciones sensibles en un hospital universitario

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ABSTRACT

Objective: To analyze the relations between the presence and orientation of the Primary Health Care and hospitalizations due to sensitive conditions to primary care in a university hospital.

Method: This is a sectional study with a sample of 197 subjects hospitalized from March to June 2016 in the medical clinic of a university hospital in Juiz de Fora. The assessment, conducted through interviews, used the Primary Health Care Assessment Tool, reduced version for adults, and the Brazilian list of sensitive conditions, edited by the Ministry of Health.

Results: The regular frequency of the Primary Care was associated with hospitalizations (OR:2,06), especially related to the low performance of the access attributes (OR:5,3) and the comprehensives (OR:4,7).

Conclusion: The low orientation of the Primary Care attributes suggests that only the coverage at this level may not be sufficient to reduce these hospitalizations, but the way it is organized and effective at the community level.

Keywords: Health evaluation. Primary healthcare. Hospitalization. Hospitals, university. Adult.

RESUMO

Objetivo: Analisar as relações entre a presença e a orientação da Atenção Primária à Saúde e as internações por condições sensíveis à atenção primária em um hospital universitário.

Método: Estudo seccional com amostra de 197 sujeitos internados, no período de março a junho de 2016, na clínica médica de um hospital universitário de Juiz de Fora. A aferição, realizada por meio de entrevistas, utilizou o Primary Health Care Assessment Tool, versão reduzida para adultos, e a lista brasileira de condições sensíveis, editada pelo Ministério da Saúde.

Resultados: A frequência regular à Atenção Primária esteve associada às internações (RP:2,06), especialmente frente ao baixo desempenho dos atributos de acesso (RP:5,3) e da integralidade (RP:4,7).

Conclusão: A baixa orientação dos atributos da Atenção Primária sugere que somente a cobertura deste nível talvez não seja suficiente para reduzir estas internações, mas sim a forma em que ela se organiza e efetiva no nível comunitário.

Palavras-chave: Avaliação em saúde. Atenção primária à saúde. Hospitalização. Hospitais universitários. Adulto.

RESUMEN

Objetivo: analizar las relaciones entre la presencia y la orientación de la Atención Primaria de la Salud y las internaciones por condiciones sensibles a la atención primaria en un hospital universitario.

Método: estudio seccional con una muestra de 197 pacientes hospitalizados, en el período de marzo a junio 2016, en la clínica médica de un hospital universitario de Juiz de Fora. La evaluación, realizada a través de entrevistas, utilizó el Primary Health Care Assessment Tool, versión reducida para adultos, y la lista brasileña de condiciones sensibles, editada por el Ministerio de Salud.

Resultados: la frecuencia regular de la Atención Primaria se asoció con hospitalizaciones (RP:2,06), especialmente frente al bajo desempeño de los atributos de acceso (RP:5,3) y de integralidad (RP: 4,7).

Conclusión: la orientación baja de los atributos de la Atención Primaria sugiere que la cobertura de este nivel, por sí sola, no sea lo suficiente para reducir estas internaciones, pero sí la forma en que ella se organiza y efectiviza a nivel comunitario.

Palabras clave: Evaluación en salud. Atención primaria de salud. Hospitalización. Hospitales universitarios. Adulto.

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INTRODUCTION

The Primary Health Care (PHC) presents multiple conceptions that may be present - in an isolated or conjugated way - in the same health system model[1]. These conceptions classify the PHC as: selective, first-level care or as comprehensive. The first is for restricted programs focused on needy populations or service packages aimed at controlling prevalent diseases. The second has the PHC as a gateway to the system and, to a certain extent, it is also directed at caring for the main diseases of the population. The latter conception, the comprehensive PHC, also understood as strategy, presupposes the (re)organization of the system through an approach that includes health as a human right, being crossed by social reflections, such as the understanding that the sanitation, food, and work are phenomena that also permeate the care of this level of attention[2].

In Brazil, the PHC has been structured according to the social-historical reforms of the health system. They have also been based on the care to the multiple local realities and, therefore, have not been developed in a linear manner and in the same proportion throughout the national territory. In view of the cultural plurality, the political-geographical differences and the socioeconomic differences of the Brazilian regions, the PHC has been seen as a set of actions that keep a certain flexibility in the organization of the work, always guided by the principles of the multiprofessionality and territorialization[1].

The PHC model adopted by the Brazilian Unified Health System (SUS) is based on the responsibility for the promotion, prevention, treatment, rehabilitation and harm reduction actions, aimed at the individual and collective needs of human aggregates, and having as mission the coordination of the care and the organization of the network. The PHC is expected to be guided by the principles of accessibility, linkage as a therapeutic and management tool, continuity and comprehensiveness of care, and co-responsibility of the user, goals that are still challenging for the diversity of scenarios that make up the country and the need of greater financial and political support by the public sector[2-3].

This PHC model is based on seven attributes, four of which are essential - first contact access, longitudinality, comprehensiveness and coordination of care - and three derivatives - family-centered guidance, community guidance and cultural competence, the latter considered difficult to assess. In order to increase the quality of the PHC and to recognize its limits and possibilities of action, much has been produced on health assessment in this field. The identification of the weaknesses of the services and the generation of subsidies for the planning of actions have often been recommended by the Ministry of Health through an internationally known instrument: the Primary Care Assessment Tool - PCATool[3-4].

Another assessment possibility that has been carried out often is the investigation of the Hospitalizations due to Primary Care Sensitive Conditions (HPCSC) as a way of systematic monitoring of the PHC and the Care Network. Some authors state that a high number of these hospitalizations can be avoided with effective PHC actions[5]. High rates of HPCSC can characterize operational failures in the system, either due to access barriers or due to the quality of care provided.

However, it is important to point out that the production of studies combining assessment strategies of these constructs is still scarce. It is observed that, in general, inferences are made regarding the quality of the actions based on one of these attributes, which may be causing significant losses of analytical components and, to a certain extent, of the real association between the exposure - related to the presence of PHC - and the outcome - the reduction of HPCSC.

The greatest difficulty is to associate this analysis with an academic production environment - teaching, research and extension - along with the provision of care 24 hours a day: the university hospitals, which since their conception have been the target of disputes of care models and trainers. On the one hand, the belief on the biomedical training that is centered on the specialty. On the other hand, an environment of creation, of high technological light-hard and hard density, and part of a complex care network, fact that would be integrated to the formation of the new health professionals[6].

Taking as a reference the daily challenge of building an expanded network that contemplates these hospitals as connected care points, we come up with the following research question: does the PHC performance reduce the hospitalizations due to sensitive conditions in these units? Understanding that one of the means of assessing performance at this level is in the way that specific and derived attributes are developed, this study aims at analyzing the relation between the presence and guidance of the Primary Health Care and hospitalizations due to primary care sensitive conditions in a university hospital. It is expected, therefore, contributing to the debate regarding the assessment of the network from the elements that are present in the daily life of these tools: hospitalizations and the dynamics of the PHC's functioning.

METHODS

This is a cross-sectional study carried out at the medical clinic unit of the university hospital of Juiz de Fora. The hospital is a referral center for the users of the SUS network of the

municipality and regions, performing activities at the secondary level, consisting of specialized and tertiary outpatient clinics, composed of six hospitalization sectors. With 140 nursery beds, it reaches a monthly average of 300 hospitalizations.

The study population was composed of patients admitted to the medical clinic unit of the university hospital from March to June 2016. The inclusion criteria of the study were: hospitalization period longer than 24 hours, according to the standardization of the nomenclature of the hospital census[7] and to be 18 years old or over. Patients who were unable to participate due to clinical limitations, such as disorientation and sedation were excluded from the study, after systematical assessment made by the first author of the study.

For the sample size calculation, the average monthly admissions of 100 patients was considered, the estimated prevalence of 0.35, the 95% confidence interval and the accuracy level of 5%, making up the minimum sample of 187 subjects. Considering the difficulty associated to hospital surveys, an over-sample of 10 subjects was performed, making the final sample size of 197 subjects.

The selection of the participants was based on the list of hospitalizations of the last 48 hours, provided by the hospital hospitalization center. The invitation to participate in the study happened only after the inclusion criteria were applied, and it is always necessary to check the medical record in order to assess possible cognitive limitations. The first author of this study, by means of a bedside approach, performed the data collection on alternate days and in the afternoon period, reconciling with visiting hours and avoiding interruptions to the interviews.

A multidimensional questionnaire was used, containing instruments validated and adapted transculturally for its use in Brazil, as described in each dimension. The first dimension was composed of items that assessed the sociodemographic profile, such as age, gender, study time, marital status and housing. The assessment of the economic class, belonging to this dimension, was based on the Criteria of Economic Classification of the Brazilian Association of Research Companies[8]. In the second dimension, the follow-up of the health services was present[9]. It should be highlighted that the first two dimensions captured possible confounding variables for the final model of analysis. In the third dimension, it was sought to assess the independent variables of the study, that is, the PHC attributes: affiliation (regular attendance at the PHC for the promotion of care); first contact access (access and use of the service by the user); longitudinality (attribute that presents the continuous relationship of the professionals with the users, that is, the same professional monitors the patient in his/her specific health conditions over time); coordination (an attribute that responds to the viability of the continuity of the care through the integration of the health services); comprehensiveness (attribute that is characterized by the organization and articulation capacity of care in a network); and family guidance (recognition of the context importance and the dynamics of the social-family relation in the health-disease process) and community guidance (recognition of the health needs of the community and, through this knowledge, the establishment of care plans).

The third dimension was assessed with the Primary Care Assessment Tool (PCATool-Brazil), adult version, in its reduced form and validated for its use in Brazil[10]. The tool is composed of 23 items of the Likert type, with four options of answers and values ranging from 1 (certainly not) to 4 (for sure), to "probably yes" and "probably not". The answers "I do not know/I do not remember" were not considered for calculation purposes, as recommended by the tool manual[4].

The calculation of the scores was obtained by the simple arithmetic average of the total items of each scale (attribute), as recommended by the tool manual[4]. The general score, which evaluates the general guidance of the PHC given by the association of all the attributes, was calculated from the average score of each scale, including the degree of affiliation, and divided by the total of components. The essential score calculation, which accounts for the association of the essential attributes of the PHC (first contact access, longitudinality, coordination, and comprehensiveness), was carried out from the same method as the previous score, except for considering only the degree of affiliation, first contact access, longitudinality, coordination and comprehensiveness. In all cases, there was the conversion of the values to scale, which ranged from zero – the lower orientation of the attribute of each scale - to 10, the greater orientation. Following the "Tool Manual for the Assessment of the Primary Health Care", the cut-off point of 6.66 points was adopted to accept the "strong grade/orientation level" classification of each attribute[4].

The last dimension of the questionnaire sought to identify the type of hospitalization of each participant, variable dependent on the study, classified as HPCSC and non-HPCSC from the Brazilian list, edited by the Ministry of Health[11].

The Microsoft Excel 2010 software was used for the creation of the database. The statistical processing occurred in the Stata SE 13 software. The bivariate analysis consisted of calculating the gross prevalence ratios (PR) and their respective 95% confidence intervals using Fisher's Exact Test, and values lower than 0.05 as statistically significant and

borderline when in the range of 0.05 and 0.1. It should be highlighted that the cut-off point of 0.25 was adopted for the entry into the non-conditional regression model, used for the adjustment of the PR. In order to test the possible interactions, the conditional logistic analysis technique was applied, using as an independent variable of interest the one that presented value lower than 0.05 in the bivariate statistics. The Likelihood Ratio Test was applied as a hypothesis test in the logistic models.

In order to comply with the ethical precepts established by CNS Resolution 466/2012, the research project was submitted and approved by the Ethics Committee under No. 1,427,653, and also used the Free and Informed Consent Term prior to data collection. In addition, all the interviewees have been clinically evaluated before and after the survey, in order to observe any psychobiological changes, such as changes in their blood pressure, degree of orientation and specific aspects of hospitalization. There were no complication records, but it is important to mention that the multiprofessional team (doctors, nurses, nursing technicians) monitored the interview procedures as clinical support for the research.

RESULTS

Of the 400 admissions expected for the period, only 269 occurred. Of these, 42 (15.6%) users did not meet the selection criteria, 13 (4.8%) had previously participated in a hospitalization study, 13 (4.8%) individuals refused to participate, and only four (1.5%) were discharged before the data collection, being classified as follow-up losses.

The main sociodemographic characteristics of the sample studied were women (53.8%), aged between 18 and 59 years old (62.9%), married (50.0%), with more than four years of schooling (80.7%), belonging to economic class C (57.9%), and residents of the urban area of Juiz de Fora (69.5%). The prevalence of the HPCSC in the studied population was 20.8% (n=41).

Table 1 presents the bivariate analysis between hospitalizations and sociodemographic characteristics.

Table 1 - Bivariate analysis of the Primary Care Sensitive Conditions according to sociodemographic characteristics. Juiz de Fora, Minas Gerais, Brazil. 2016. (n=197)

Sociodemographic variables	PR (CI 95%)	p-value
Gender		
Female	1	
Male	1.3 (0.6-2.6)	0.469
Age group		
From 18 to 59 years old	1	0.077
60 years old and over	1.2 (1.0-1.4)	
Ethnicity		
White/Asian/Indigenous	1	
Black and Mixed-race	1.6 (0.8-3.1)	0.208
Schooling		
More than four years	1	
Less than four years	0.9 (0.5-1.6)	0.817
Marital status		
Others	1	
Married/Stable union	0.6 (0.3-1.3)	0.221
Economic class		
Class A/B	1	
Class C	0.9 (0.3-3.1)	0.930
Class D/E	1.1 (0.3-3.7)	0.939
Urban area		
Yes	1	
No	1.2 (0.6-2.6)	0.564

Source: Research data, 2016.
Caption PR- Prevalence Ratio; CI - Confidence Interval; p-value of Fisher's exact test.

In Table 1, it was observed that only the age group was statistically significant in a borderline way, even presenting a PR close to 1.0. In continuity with the presentation of the bivariate analysis of the study, Table 2 presents the association between the hospitalizations due to primary care sensitive conditions and the patients' health monitoring variables.

Table 2 - Bivariate and logistic regression analysis of the Primary Care Sensitive Conditions and health monitoring variables. Juiz de Fora, Minas Gerais, Brazil. 2016. (n=197)

Variables	Gross PR (CI 95%)	Adjusted PR (CI 95%)
First service sought before the hospitalization		
PHC	1	1
Others	1.1 (0.4-2.8)	0.9 (0.3-2.5)
p-value	0.905	0.869
Referred service		
PHC	1	1
Others	1.3 (0.1-11.7)	1.3 (0.1-11.5)
p-value	0.800	0.835
Hospitalization option		
Already performs follow-up or had a referral for the hospital	1	1
Regulated vacancy	0.6 (0.3-1.3)	0.5 (0.3-1.1)
p-value	0.195	0.092
Type of unit in the neighborhood		
FHS	1	1
Others	1.1 (0.6-1.7)	1.0 (0.6-1.7)
p-value	0.793	0.925
Presence of the PHC (attends regularly)		
No	1	1
Yes	2.6 (1.3-5.5)	2.7 (1.2-5.9)
p-value	0.009	0.013

Source: Research data, 2016.
Caption: PR - Prevalence Ratio; PR adjusted for age, schooling, marital status and type of unit in the neighborhood; CI - Confidence Interval; PHC - Primary Health Care; FHS - Family Health Strategy; p-values of the Fisher Exact and Likelihood Ratio.

Table 2 presents the association, even after the adjustment model, between the presence of PHC (PR: 2.6, 95% CI: 1.3/5.5) and hospitalizations for sensitive conditions.

Table 3 presents the bi and multivariate analysis between the low general score (PHC guidance) and essential (essential attributes), as well as the low guidance of the other attributes of the PHC and the HPCSC.

It should be highlighted that the adjusted model points out to a statistically significant relationship only in relation to the essential score (PR: 2.1, 1.1/4.4). Finally, Table 4 demonstrates, through the conditional logistic regression technique, the relationship between the presence of the PHC and the HPCSC due to the low orientation of the attributes.

Table 3 - Bivariate and logistic regression analysis of Primary Care Sensitive Conditions based on the perception on the extent and guidance of the PHC. Juiz de Fora, Minas Gerais, Brazil. 2016. (n=197)

Sociodemographic variables	Gross PR (CI 95%)	Adjusted PR (CI 95%)
First contact access		
High degree	1	1
Low degree	1.1 (0.5-2.2)	1.1 (0.5-2.3)
p-value	0.814	0.820

Longitudinality		
High degree	1	1
Low degree	0.9 (0.3-2.5)	1.0 (0.3-2.6)
p-value	0.905	0.953
Coordination		
High degree	1	1
Low degree	1.0 (0.4-2.4)	1.2 (0.5-2.8)
p-value	0.912	0.722
Comprehensiveness		
High degree	1	1
Low degree	1.0 (0.5-2.1)	1.0 (0.5-2.1)
p-value	0.966	0.983
Family guidance		
High degree	1	1
Low degree	1.3 (0.6-2.7)	1.3 (0.6-2.8)
p-value	0.458	0.551
Community guidance		
High degree	1	1
Low degree	1.8 (0.9-3.7)	1.3 (0.6-2.8)
p-value	0.083	0.551
Essential score		
High degree	1	1
Low degree	1.0 (0.4-2.1)	2.1 (1.1-4.4)
p-value	0.936	0.044
General score		
High degree	1	1
Low degree	1.2 (0.6-2.5)	1.0 (0.4-2.3)
p-value	0.621	0.945

Source: Research data, 2016.
Caption: PR - Prevalence Ratio; PR adjusted for age, schooling, marital status; p-values of the Fisher Exact and Likelihood Ratio values.

Table 4 - Conditional logistic analysis of the Primary Care due to low attribute extension. Juiz de Fora, Minas Gerais, Brazil. 2016. (n=197)

Low orientation of…	PR (CI 95%)	p-value
Essential Score (Essential attributes)	3.8 (1.4-10.6)	0.010
General Score (PHC Guidance)	3.6 (1.3-10.5)	0.017
First contact access	5.3 (1.7-16.6)	0.005
Longitudinality	3.4 (1.3-8.5)	0.011
Coordination	3.2 (1.2-8.5)	0.018
Comprehensiveness	4.7 (1.6-13.5)	0.004
Family guidance	3.3 (1.2-8.9)	0.020
Community guidance	2.3 (0.8-9.2)	0.106

Source: Research data, 2016.
Caption: PR - Prevalence Ratio; PR adjusted for age, schooling, marital status, and type of unit in the neighborhood; p-values of the Fisher Exact and Likelihood Ratio values.

It should be highlighted that the reference values are related to the "strong orientation" of the attributes. Attention should be drawn to the interaction in all models except when community guidance is involved.

DISCUSSION

The study pointed out to an association between the presence of the PHC and the higher chances of HPCSC (PR: 2.7, 1.2/5.9) in the hospital, in line with research conducted in Paraná[12] and in Distrito Federal[13]. The lower potential of the health units, the low coverage of the Family Health Strategy and, as a consequence, the greater health fragility of the subjects are pointed out as possible elements that permeate this phenomenon of avoidable hospitalizations.

On the other hand, most of the ecological studies carried out refer to the presence of the PHC as a factor that is associated with the exponential reduction of hospitalizations due to sensitive conditions[14-15]. And, on the opposite side, research groups provide information on the non-observance of these relations, reflecting that only the HPCSC indicator is not sufficient to assess the PHC[16].

Even with the variety of positions and the multiple methodological paths adopted in the investigations, a strong trend indicates that the reduction of the hospitalizations is associated with the quality of the PHC actions and not merely the presence of the PHC. In an attempt to analyze the impact of the PHC on the tertiary care, some authors have associated the performance assessment with the type of hospitalizations[17]. At this point, it is important to point out that the HPCSC, by almost all authors, are understood as complex and avoidable events, depending on how the PHC operates in the territory[14-15,17].

It is believed that, to some extent, the reduction of hospitalizations is linked to the efficiency and resolution of this level of care and, above all, its ability to articulate with the other points of the Network. It is understood that this hypothesis gains strength in the results of this study, especially regarding the increasing chances of hospitalizations due to the low degree of orientation in the essential attributes of the PHC – the access, the comprehensiveness, the longitudinality and the coordination of care –, which reinforces the idea that the dynamics of the teams' performance may be related to the event.

The need for improvement in the configuration of the PHC services increases as the HPCSCs are frequently associated with chronic diseases, which, as already mentioned by several authors, are associated with difficulties in accessing and adhering to treatment[18]. It should be mentioned that the HPCSC bring losses both from the point of view of the health system, since it increases public spending, as for the individual and for the society, resulting in psychobiological, psychosocial and economic damages[5].

The health system that is guided by a selective PHC and/or as a gateway has no impact on the reduction of hospitalizations, since they do not mobilize the territorial and systemic resources that are necessary to face the health problems of the population[19]. That is, they end up concentrating work energy and knowledge to solve the diseases of the population. Although the Ministry of Health has adopted the PHC as a systems planning strategy, in some services, the presence of a low power, low guidance PHC is remarkable.

It should be highlighted that the coordination of care, an attribute that determines the feasibility of the continuity of care through the integration of health services[20] requires the inclusion and active participation of all the care points involved in the care process. The lack of effectively organized referral and counter-referral systems seems to amplify the unnecessary hospitalizations at the specialized level, especially for the strictly biomedical view that selective PHC services tend to develop.

The weaknesses of articulation of the networks added to the dispute of the models between the PHC - that should be comprehensive - and the services of medium and high complexity can keep influences of macrostructural order that have not been captured in this study. The link between specialized services and users is also one of the aspects that can permeate the hospitalization relations, since university hospitals attract patients in search of solutions to their problems. Added to this are the difficulties also inherent to these institutions, which invariably face political and inclusion problems in the Care Networks, creating difficulties for patients to return to their services of origin.

It is important to consider that the data produced here should be interpreted in the under some limitations. The first and perhaps the main limit is in the methodological course assumed for this investigation. Cross-sectional studies assess the exposure and the outcome simultaneously, which, due to the lack of temporality between the events, makes it impossible to establish the causal links. Therefore, the findings here should be interpreted only as explanatory hypotheses, even with indisputable relevance to the production of knowledge. Another aspect that is worth mentioning is that the assessment of the PHC and the HPCSC attributes from inpatients may contain selection bias overestimating or underestimating the data based on the variation of exposure among individuals, especially due to the absence of controlled environments for the allocation of user groups in relation to the type of admissions.

CONCLUSIONS

The presence of PHC care was associated with a higher chance of HPCSC, especially due to the low degree of orientation of the essential attributes. It seems that the implementation of actions at this level is not enough. The way that the PHC plays its role seems to influence directly avoidable hospitalizations. In this way, thinking about the PHC resolution is also about reflecting on the necessary interrelationship of the attributes that constitute it, and about the position it occupies in relation to the Care Network.

Even given these limitations, it is possible to think that the availability of beds in the university hospital, along with problems in the regulatory processes of vacancies, is influencing the hospitalization, which should be avoided at the first level of care. The literature points out that it is still persistent - even in multiprofessional teams – the idea that the hospital is the best place for the implementation of therapeutic and diagnostic procedures, especially when it is a highly specialized place focused on teaching and research, as in the case of the study scenario. This thinking, guided by the desire to treat better, may be increasing the referrals of these patients by the PHC professionals. Another aspect is the link already established between users and the specialized outpatient clinics, which can somehow force these referrals to be performed. In this way, the biomedical and hospitalization culture may be gaining strength due to the fragility in the organization of some PHC teams, increasing the chances of HPCSC.

At the limit of the study, it is possible to observe the presence and the organization of the PHC from the view of the individuals hospitalized in a university hospital. Therefore, it is important to reaffirm that the methodological option of this study does not allow the investigation of macrostructural aspects of the system, which stimulates the development of new productions that associate more factors to the analytical model of HPCSC and the performance attributes of the PHC.

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