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REVIEW ARTICLE

Integrative review of the literature on hospitalizations of older people for conditions sensitive to Primary Care in Brazil

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Abstract *Hospitalizations for ambulatory care sensitive conditions (ACSCs) are preventable with adequate primary care (PC). For the elderly population, they are important due to their greater vulnerability to chronic diseases and comorbidities. Objective: to carry out an integrative review of articles on ACSCs in the elderly and their correlation with indicators of access to primary care. The research was carried out on the BVS and PUBMED databases. Inclusion criteria: relationship between ICSAP and PA, publications from 2000 to 2022, analysis of the elderly age group, statistical methods, Portuguese, Spanish or English languages and indexing in peer-reviewed journals. We identified 315 publications and selected 15, 12 of which focused on the elderly population. The South and Southeast regions were the most analyzed, and the year most investigated was 2012. Coverage of the Family Health Strategy was the most commonly used indicator. A reduction in ACSC rates in the elderly was positively correlated with access to PHC. Monitoring ACSCs is an important tool for managing the health of the elderly, with PH playing a strategic role in reducing hospitalizations, minimizing risks and promoting healthy ageing.*
Keywords *Ambulatory Care Sensitive Conditions, Hospitalization, Review, Aged, Health Status Indicators*

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Introduction

Hospitalisations for ambulatory care-sensitive conditions (HACSCs) are those that could be prevented or treated early with appropriate primary health care (PHC)[1]. HACSCs are important as indicators of PHC quality, because they reflect the efficacy of prevention and early treatment of people's health problems[1,2]. In that regard, efficient, effective PHC contributes to reducing HACSCs[3].

This topic is widely discussed by the scientific community, both in Brazil and worldwide[5]. Evidence shows that the older adult population suffers more from ACSCs[6,7], such as heart failure, pneumonia, respiratory failures and diabetes[8–11].

One strategy fundamental to the prevention and early treatment of health conditions in older adults is to strengthen PHC, thus averting unnecessary hospitalisations and promoting health and wellbeing in this population[12,13]. Immunosenescence, the process of declining ability to respond to infections, increased contamination, severity of infectious and contagious diseases and complications from chronic diseases, places older adults at the centre of challenges for PHC: averting hospitalisations means reducing the risk of functional capacity loss and even death[6].

Review studies of knowledge production on HACSCs in Brazil have centred mostly on children[14,15], while studies of older adults are scarce[16,17]. Given increasing rates of population ageing, growing demand from older adults for PHC services and the importance of systematising knowledge in this field in order to inform public policies, this article reports on an integrative review of the literature published from 2000 to 2022 on HACSCs of older adults and the correlation with indicators of PHC service access.

Methodology

The integrative review method was selected, as it enables the knowledge produced on a given issue to be compiled by identifying, analysing and synthesising the results of a survey of related research (Souza et al., 2010). In order to ensure transparency and quality, the review was guided by the criteria set out in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The PRISMA principles were obeyed, and flow diagram used to frame the identification, analysis, eligibility and inclusion of articles.

This study was guided by the question: "What is the correlation, in Brazil, between ACSCs and indicators of service access?"

What is the scientific evidence of the impact of PHC on HACSCs of older adults in the territory in the period from 2000 to 2022? With a view to answering that question, the analysis addressed PHC indicator types, information sources, specificity of the analysis of older adults, geographical scope, main causes, HACSC rates among older adults, methods applied to correlate HACSCs with PHC service access indicators, as well as evidence of that correlation.

The bibliographic survey was conducted in the following data bases: *Virtual Health Library (VHL)* and *Medical Literature Analysis and Retrieval System Online (PUBMED/MedLine).* The study period, from 2000 to 2022, made it possible to observe trends and impacts resulting from implementation of SAS/MS Order No. 221, of 2008. The article search used the Health Science Descriptors (DeCs) "*condições sensíveis*" OR "*condição sensível*" on the VHL platform and the Medical Subject Headings (MeSH) "sensitive conditions" OR "sensitive condition" on the PubMed base. An additional search of Google Scholar expanded the scope of the literature review using the same DeCS descriptors as above.

Articles were selected on the following inclusion criteria: a. studies of HACSCs of older adults; b. using some statistical method to relate HACSCs to PHC indicators; c. in Portuguese, Spanish or English; and d. indexed in a peer-reviewed journal.

The exclusion criteria were: a) not relating HACSCs to PHC indicators; b) not falling within the study period; (c) theses or dissertations; d) not available in complete form; or e) not studies of older adult populations.

Data extraction

Data were extracted from the articles included in the review by way of three predefined extraction tables. The first was developed and provided to the reviewers for analysing the articles against the inclusion criteria for the purpose of assessing each article for eligibility. It consisted of five columns: (a) article/author, (b) publication type, (c) geographical scope, (d) age range studied and (e) data base. The second was used to appraise the selected articles

by recording the presence or absence of analysis of correlations between HACSCs and PHC access indicators, as well as the main evidence found. The third extraction table, designed to summarise the review findings, comprised five columns: (a) category of HACSC, (b) PHC indicators used in the correlation, (c) source, (d) correlation method and (e) correlations found. All research results were stored on Excel spreadsheets.

Review procedure

In order to ensure a complete assessment, three reviewers first examined all article titles and abstracts against the pre-established eligibility criteria. The reviewers underwent detailed training, emphasising the effective use of extraction tables and giving clear guidance on the inclusion criteria and the specific categories in each column.

At the first stage, two researchers separately examined each article and recorded their conclusions on a table contemplating the title, abstract and content. In the event an article met all the inclusion criteria, it advanced to the next stage, where the complete text was reviewed against the criteria detailed in Table 1. At the second stage, two researchers reviewed in full all the articles included, applying the inclusion and exclusion criteria. Disagreements during screening were resolved by discussion and, if necessary, a third researcher acted as judge.

Results

The PRISMA flow diagram (Figure 1) shows the process by which articles were selected for analysis in this review. First, the data base search identified 315 publications (275 in the Virtual Health Library and 40 in the PubMed/MedLine data base).

Of these, 93 were duplicates and one was unavailable in the data bases; these 94 publications were excluded. At the next stage, 221 publications were examined in full; 209 of them were excluded on the study inclusion and exclusion criteria. A further three were added after a complementary search of Google Scholar. In all, 15 articles were included in this integrative review.

On examining for geographical scope, it was found that most of the studies considered all of territorial Brazil (6) (Graph 1). By administrative regions of Brazil, most studies correlating HACSCs of older adults with PHC access indicators were concentrated in the Southeast (5), followed by the South (2). Only one article addressed the North and one, the Northeast.

The integrative review identified articles addressing study periods between 1998 and 2019; of these, 2012 was the year most frequently contemplated (9) (Table 1).

The predominant study design was ecological (13), with variations including descriptive, time series, spatial analysis and retrospective studies. One study made an exploratory time series analysis and another, a cross-sectional analysis (Table 1).

The older adult population group was analysed exclusively in 40% (6) of the articles selected[6,8,10,18,19] (Table 1).

The results revealed a higher prevalence of hospitalisations among individuals over 60 years of age; around 59.3% of hospitalisations in all regions. HACSC rates declined significantly over the study period (Table 1).

Municipalities where per capita income was higher correlated with lower HACSC rates[6,20]. Greater coverage by the family health strategy (Estratégia de Saúde da Família, ESF) was also associated with lower HACSC rates in the older adult population[8,21–24]. A study in Paraná attributed the decrease in HACSC rates between 2000 and 2012 to socioeconomic improvements[19]. Socioeconomic indicators such as urbanisation, illiteracy and national health system (Sistema Único de Saúde, SUS) beds correlated positively with HACSC rates (Table 1).

Most of the articles (13) used the complete list of causes as their indicator of HACSCs. Two studies each concentrated on analysing a specific cause of HACSCs: heart failure[25] and arterial hypertension[26] (Table 2).

An analysis of the sources revealed a variation over the study period. More recent studies used more current sources, such as Brazil's primary care information system (Sistema de Informação da Atenção Básica, SIAB) and national register of healthcare establishments (Cadastro Nacional de Estabelecimentos de Saúde, CNES) from 2014 onwards. The sources most used were the SIAB, in 10 articles, followed by the primary care department (Departamento de Atenção Básica, DAB), in 5 studies, and the CNES, in 4 (Table 2).

Different statistical methods were used to examine the correlation between HACSCs and PHC access indicators. Pearson correlation, the commonest technique, was used in six studies,

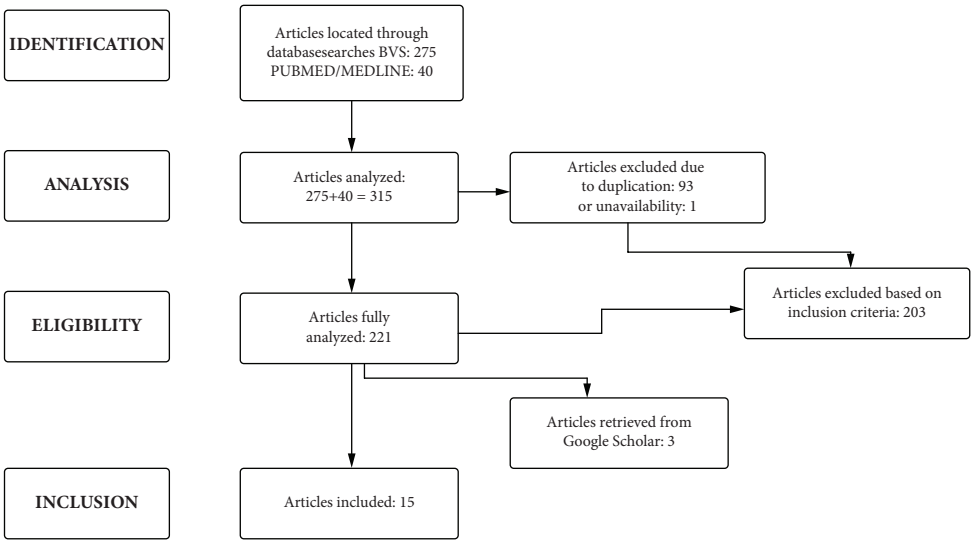

Figure 1. PRISMA flow diagram of article selection.

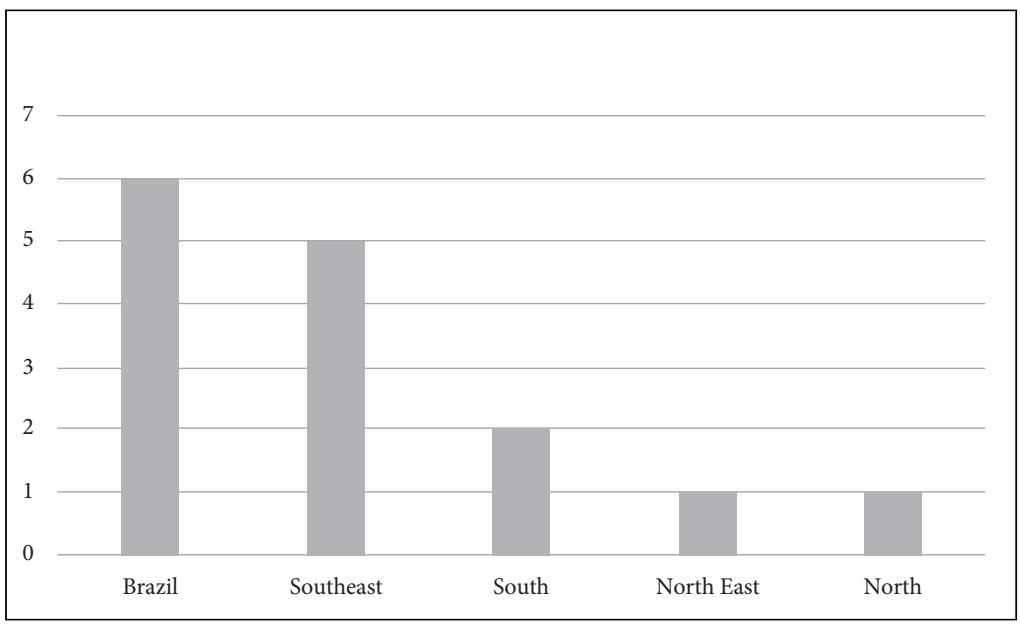

Chart 1. Regions of Brazil addressed by the articles in this review, Brazil 2000-2022.

Table 1. Integrative review of articles on hospitalisations of older adults for ambulatory care-sensitive conditions (HACSCs), 2000 to 2022, Brazil.

Title/author	Objective	Study design	Age range	Scope/Period	Main evidence
Tendência temporal das internações por condições sensíveis à atenção primária em idosos no Brasil. Knabben et al., 2022	A time trend analysis of HACSCs among older adults, by structure, magnitude and causes.	Time series ecological study	60-64; 65-69; 70-74;75-79;80+	Brazil/ 2000-2018	Decrease in HACSCs among older adults; less heart failure, more pneumonia. Increase in appointments, ESF coverage correlated negatively with HACSCs.
Análise espacial dos fatores associados às internações por condições sensíveis à atenção primária entre idosos de Minas Gerais. Silva et al., 2021	To determine the variability of HACSC in the older adult population of Minas Gerais state and analyse the determinants of occurrence.	Spatial analysis ecological study	60-79	Minas Gerais/2014	Per capita income and ESF coverage were linked to lower HACSC rates. Unfavourable sociodemographic indicators meant municipalities in the Northeast were at high risk.
Impacto da qualidade da atenção primária à saúde na redução das internações por condições sensíveis. Castro et al., 2020	To investigate the association between number of HACSCs and PHC quality in Brazilian municipalities.	Ecological study	<5; 5-59; 60+	Brazil/2014	Coefficient of HACSCs among older adults was about six times higher than in the population from 5 to 59 years old. Municipalities with more older adults and social vulnerability returned higher rates of HACSC.
Determinantes sociais em saúde e internações por insuficiência cardíaca no Brasil. Albuquerque et al., 2020	To examine the relation between social determinants of health and hospitalisations for heart failure in Brazil.	Retrospective ecological study	60+	Brazil/ 2008-2016	Regression model found that ESF coverage and federal funding for PHC reduced HACSCs.
Causes for hospitalization of elderly individuals due to primary care sensitive conditions and its associated contextual factors. Soares et al., 2019	To examine HACSCs and associated contextual factors among older adults residing in the Northeast.	Descriptive ecological study	60+	Northeast/ 2010-2015	The most common causes of HACSCs in older adults were: heart failure (89,096), cerebrovascular diseases (75,011) and gastrointestinal diseases (73,705).

continued

Table 1. Integrative review of articles on hospitalisations of older adults for ambulatory care-sensitive conditions (HACSCs), 2000 to 2022, Brazil.

Title/author	Objective	Study design	Age range	Scope/Period	Main evidence
Internações por condições sensíveis à atenção primária no estado de Rondônia: estudo descritivo do período 2012-2016. Santos et al., 2019	To describe the frequency of, and reasons for, HACSCs in Rondônia and analyse their relation with change in ESF coverage.	Descriptive ecological study	0-4; 5-9; 10-19; 20-49; 50-100	Rondônia/ 2012-2016	HACSC rates were high in Rondônia, but decreased steadily with increasing ESF coverage.
Fatores associados às internações por hipertensão arterial. Dantas et al., 2018	To study hospitalisations for arterial hypertension and associated factors over time.	Descriptive ecological study	<60 anos e 60+	Brazil/ 2010-2015	Higher prevalence of hospitalisations in the over 60s (around 59.3%) in all regions of Brazil.
Internações por condições sensíveis à atenção primária em Minas Gerais, entre 1999 e 2007. Oliveira et al., 2017	To examine HACSC rates in Minas Gerais	Time trend ecological study	20-79	Minas Gerais/ 1999-2007	Significant reduction in HACSCs during the period. Two of the regions that performed worst returned unfavourable socioeconomic indicators.
Impacto da estratégia saúde da família nas internações hospitalares por condições sensíveis à atenção primária. Tagliari et al., 2017	To correlate HACSC rates and introduction of the ESF in the municipality of Passo Fundo.	Time trend ecological study	<1; 1-4; 5-14; 15-24; 25-34; 35-44; 45-54; 55-64; 65+	Passo Fundo, Rio Grande do Sul/ 1998-2007	Introduction of the ESF in Passo Fundo reduced HACSC rates in all age groups: rates in the over-65s are similar to those among the under one year olds.
Panorama das internações por condições sensíveis à atenção primária no Espírito Santo, Brasil, 2000 a 2014. Pazó et al., 2017	To describe the time series of HACSCs, by sex, age group, size of municipality and cause groups and to investigate associated factors.	Time series ecological study	0-4; 5-9; 10-14; 15-19; 20-29; 30-39; 40-49; 50-59; 60-69; 70-79; 80+	Espírito Santo/ 2000-2014	Annual change in HACSC rates in the older adult population during the period was: −5.00% (60-69 years), −3.81% (70-79 years) and −2.79% (80 or more years).
Diminuição de internações por condições sensíveis à Atenção Primária em idosos no estado do Paraná. Previato et al., 2017	To examine HACSCs in older adults in Paraná state, by causes and ESF coverage.	Descriptive ecological study	60-74	Paraná/ 2000 e 2012	HACSCs in older adults declined in Paraná between 2000 and 2012, reflecting improved socioeconomic conditions over the study period.

continued

Table 1. Integrative review of articles on hospitalisations of older adults for ambulatory care-sensitive conditions (HACSCs), 2000 to 2022, Brazil.

Title/author	Objective	Study design	Age range	Scope/Period	Main evidence
Estrutura e processo de trabalho na atenção primária e internações por condições sensíveis. Araujo et al., 2017	To investigate whether the structural characteristics of primary health care facilities and the PHC team work process are associated with the number of HACSCs.	Ecological study	<5; 60+	5,565 Brazilian unicipalities/2012	Indicators of HACSCs were related positively with improved health service coverage in recent years.
Condições socioeconômicas, oferta de médicos e internações por condições sensíveis à atenção primária em grandes municípios do Brasil. Castro et al., 2015	To examine variables associated with HACSCs in Brazilian municipalities with populations of less than 50,000.	Exploratory descriptive analysis in time series and ecological study	Total	Brazil/ 1998-2012	From 1998 to 2012, HACSCs decreased by 15% in Brazil, while ESF coverage increased by 700% and availability of doctors increased by approximately 16%.
Modelagem hierárquica de determinantes associados a internações por condições sensíveis à atenção primária no Espírito Santo, Brasil. Pazó et al., 2014	To investigate the association between socioeconomic determinants and HACSCs and between availability of infrastructure and health service coverage with HACSCs.	Descriptive ecological study	0-19; 20-64; 65+	Espírito Santo/ 2010	Urbanisation, illiteracy and SUS beds were related positively with HACSCs. HACSC rates were higher in medium-sized municipalities.
Internação de idosos por condições sensíveis à atenção primária. Marques et al., 2014	To examine change in HACSCs of older adults over time, by structure, magnitude and causes.	Cross-sectional study	60-64; 65-69; 70-74. 75+ excluded	Rio de Janeiro/ 2000-2010	HACSCs decreased over the study period. ESF coverage increased from 3.6% in 2000 to 23.6% in 2010. Medical appointments for older adults increased from 90 to 420 per 1,000 population between 2000 and 2010.

followed by multivariate regression analysis, in two, and Spearman correlation, in two (Table 2).

The findings showed significant evidence that ESF coverage and the number of healthcare appointments for older adults related negatively with HACSC rates. On the other hand, the number of hospital beds showed a positive relation, with each additional bed per 1,000 population resulting in an increase in HACSCs. However, increased ESF coverage had the opposite effect, leading to a reduction in HACSCs (Table 2).

The analysis also identified significant correlations between HACSCs and socioeconomic factors, such as Gini index, per capita income and municipal human development index (MHDI) (Table 2).

Discussion

The articles examined found that older adults account for most HACSCs in Brazil. The natural process of ageing leaves people more vulnerable to comorbidities, which increases demand for health services. Population ageing in Brazil in recent decades has had an impact on the profile of morbidity and mortality, particularly as the result of a considerable increase in chronic non-communicable diseases (NCDs), which are the leading cause of HACSCs of older adults[18,27,28].

Most of the articles found a correlation between ESF coverage and HACSC rate: greater ESF coverage was associated with lower HACSC rates, suggesting that the presence of multidisciplinary PHC teams and promotion and prevention measures can contribute to improving care and to controlling health conditions, thus averting preventable hospitalisations[6,22,25,29].

The studies indicated that lack of access to quality hospital services can increase demand for hospitalisations. Pazó et al.[22] argued that the positive correlation between HACSC rate and the number of SUS beds can be explained by the absence of appropriate PHC service structure, leading to hospital system overload. Meanwhile, Silva[6] found that the increase in ESF coverage resulted in a significant reduction in HACSC rates, suggesting that this model of primary care is effective in preventing avoidable hospitalisations. These results point to the importance of public policies to expand and upgrade primary health care services, with a view to reducing the demand for hospital services and improving the quality of care.

High HACSC rates are related to a number of factors, including the functioning of the hospital system, access to emergency services, hospital admission practices and medical criteria for hospitalisation[22]. Moreover, the profile of hospital morbidity among older adults was found to be changing: heart failure was less frequent, while pneumonia was occurring increasingly, to become the main cause of HACSCs in 2018[8,11,18,25].

In order to develop fairer, more equitable health policies, it is crucial to understand the incidence of HACSCs among ethnic and racial groups. The prevalence of HACSCs is higher among the population of older black adults than in other ethnic and racial groups, which may be attributable to historical, structural social inequalities and this population's greater social vulnerability[30]. However, it is important to note the lack of quality in data on race and colour in the SUS health information system (SIH-SUS), which makes it difficult to obtain precise information and to assess health service performance from the perspective of race or ethnicity[31].

Although a downward trend has been found in HACSCs in both sexes, a disparity persists: males are more liable to HACSCs than females[18]. This may be explained by the higher number of comorbidities presented by men over their life course, as well as by their resorting less to health services than women, as found in previous studies[32].

Two articles included in this review examined per capita income. Although this study has not focused on this socioeconomic indicator, it has significant impact in higher HACSC rates, in that it hinders access to health services in Brazil[10,15,21,22,26,33]. People with little purchasing power do not often tend to use health services to prevent diseases, but rather to treat them[39], which may result in more hospitalisations[10,33]. That situation underlines the importance of access to effective PHC services[8,15,29,33], especially in the context of social and health inequality that persists in Brazil[34].

Analysis of the studies revealed a significant disparity among studies in the South and Southeast regions as compared with those in other regions of the country. That fact may be related to the quality of health information in regions outside the South and Southeast. Not only are health services and resources unequal among regions, but so is knowledge production to permit evidence-based interventions to reduce health inequalities in Brazil[35].

The findings of this study provide evidence that HACSC rates are influenced by a multiplic-

Table 2. Results of correlations between PHC service access indicators and HACSCs, Brazil, 2000-2022.

Title	HACSC categorisation	PHC indicators used to correlate with HACSCs	Source	Correlation method	Study findings
Tendência temporal das internações por condições sensíveis à atenção primária em idosos no Brasil	Total HACSCs and HACSCs by main causes	ESF coverage / PHC appointments for older adults	SIAB	Pearson correlation	A significant negative relationship between HACSCs and ESF coverage and with PHC appointments for older adults.
Análise espacial dos fatores associados às internações por condições sensíveis à atenção primária entre idosos de Minas Gerais	Total HACSCs	ESF coverage / Number of SUS beds per unit population	CNES	Bayesian multivariate regression analysis	Each extra bed per 1,000 population increased HACSC rate by an average 2.8%, while 10% additional ESF coverage reduced HACSC rates by an average 4.2%.
Impacto da qualidade da atenção primária à saúde na redução das internações por condições sensíveis	Total HACSCs	ESF coverage / Number of SUS beds per unit pop./ Quality of municipal primary care	SIAB; CNES; PMAQ-AB	Two-block hierarchical analysis	HACSC rates increased with number of beds, ESF coverage and better quality PHC.
Determinantes sociais em saúde e internações por insuficiência cardíaca no Brasil	Cardiac failure - CID 10: I50	ESF coverage	Primary Care Department (DAB)	Regression model	HACSCs decreased with ESF coverage
Causes for hospitalization of elderly individuals due to primary care sensitive conditions and its associated contextual factors	Total HACSCs	Primary care coverage / Number of primary care appointments	SIAB	Spearman correlation	No significant correlation was found between HACSCs and primary care coverage, nor between HACSCs and PHC appointments for older adults.
Internações por condições sensíveis à atenção primária no estado de Rondônia: estudo descritivo do período 2012-2016	Total HACSCs and HACSCs by main causes	ESF coverage	Primary Care Department (DAB)	Spearman correlation	Slight reduction in HACSCs between 2012 and 2016 and, at the same time, a gradual increase in ESF coverage, which was 60.4% in 2012 and 71.3% in 2016.

continued

Table 2. Results of correlations between PHC service access indicators and HACSCs, Brazil, 2000-2022.

Title	HACSC categorisation	PHC indicators used to correlate with HACSCs	Source	Correlation method	Study findings
Fatores associados às internações por hipertensão arterial	Essential arterial hypertension (EAH) – CID 10: I10	Rate of cardiologists in PHC and UNDP social development indicators.	SIAB e PNUD	Pearson correlation	Hospitalisations for EAH are positively related to cardiologists, Gini index, per capita income and municipal HDI and negatively to illiteracy.
Internações por condições sensíveis à atenção primária em Minas Gerais, entre 1999 e 2007	Total HACSCs and HACSCs by main causes	ESF coverage	Primary Care Department (DAB)	Pearson correlation	Strong negative correlation between HACSC rates and a ESF coverage.
Impacto da estratégia saúde da família nas internações hospitalares por condições sensíveis à atenção primária	Total HACSCs	ESF coverage	SIAB	Simple linear regression analysis	Strong negative correlation between HACSC rates and a ESF coverage.
Panorama das internações por condições sensíveis à atenção primária no Espírito Santo, Brasil, 2000 a 2014	Total HACSCs	ESF coverage/ Number of SUS hospital beds / Doctors per unit population / Socioeconomic indicators	Primary Care Department (DAB), UNDP, IPEA and CNES	Multivariate regression analysis	Positive correlations between HACSC rates and ESF coverage and doctors per unit population. Very strong, positive correlation between HACSC rates and number of beds.
Diminuição de internações por condições sensíveis à Atenção Primária em idosos no estado do Paraná	Total HACSCs and HACSCs by main causes	ESF coverage	SIAB	Pearson correlation	Very strong, negative correlation between ESF coverage and HACSC rates.

continued

Table 2. Results of correlations between PHC service access indicators and HACSCs, Brazil, 2000-2022.

Title	HACSC categorisation	PHC indicators used to correlate with HACSCs	Source	Correlation method	Study findings
Estrutura e processo de trabalho na atenção primária e internações por condições sensíveis	Total HACSCs	Coverage by family allowance programme (PBF), community health workers strategy (EACS) and family health strategy.	SIAB	Negative binomial regression coefficient	2013: HACSCs correlated negatively with family allowance and positively with community health worker and family health strategy coverage. 2014: HACSCs correlated negatively with family allowance and positively with community health worker and family health strategy coverage.
Condições socioeconômicas, oferta de médicos e internações por condições sensíveis à atenção primária em grandes municípios do Brasil	Total HACSCs	ESF coverage / Supply of doctors / SUS hospital beds	SIAB, MS, SAS e DAB	Pearson correlation	Positive correlation between family health strategy coverage and HACSC rates in the Southeast. Proporção de leitos SUS correlated positively in the North and Northeast. Supply of doctors correlated positively in the South.
Modelagem hierárquica de determinantes associados a internações por condições sensíveis à atenção primária no Espírito Santo, Brasil.	Total HACSCs	Family health strategy (ESF) coverage / Accelerated growth programme (PACS) coverage / Number of doctors / SUS hospital beds / Socioeconomic and cioenvironmental indicators	SIAB / CNES / AMS	Multivariate Poisson analysis with backward method	At 65 years of age, HACSC rate correlated positively with ESF and PACS coverage and with SUS hospital beds, but negatively with number of doctors.

continued

Table 2. Results of correlations between PHC service access indicators and HACSCs, Brazil, 2000-2022.

Title	HACSC categorisation	PHC indicators used to correlate with HACSCs	Source	Correlation method	Study findings
Internação de idosos por condições sensíveis à atenção primária	Total HACSCs and HACSCs by main causes	ESF coverage /	SIAB	Pearson correlation	Negative correlation between HACSCs and ESF coverage, and moderate negative correlation between HACSCs and number of appointments for older adults.

ity of factors that affect primarily the older adult population. It is essential to strengthen and invest in PHC in order to reduce HACSC rates in this age group. For that purpose, PHC services need to be continuous and upgraded[10,25,29]. Investment in primary health care measures and programmes can assure healthy ageing to the population by preventing chronic diseases and unnecessary hospitalisations. In addition, HACSCs are an important indicator for public health management to identify areas requiring intervention to improve people's quality of life[2].

Study Limitations

It is important to note the limitations of this study. Firstly, articles were selected on pre-established criteria and, accordingly, important articles that fail to meet the criteria may have been excluded. Also, quality variations among the studies included in the review may have affected the results. Note also that the review did not include studies not published in scientific journals, such as technical reports and doctoral dissertations, which may have disregarded important information. Another limitation is that the review considered only the SIH-SUS data base and, as a result, hospitalisations in private facilities were not contemplated.

Lastly, it is important to mention that this review was based on studies available during the study period, meaning that studies published after that period may have brought out important additional evidence.

Conclusion

In conclusion, this review permitted more in-depth analysis of the incidence of HACSCs in older adults in Brazil, together with the associated social factors, such as socioeconomic conditions, sex and race. Health policies directed to reducing HACSCs in more vulnerable social groups are needed in order to guarantee better quality of life and the right to healthy ageing for everyone.

This study found high prevalence of HACSCs among older adults, caused primarily by morbidity and mortality from cardiovascular diseases. In addition to quality PHC services, health education directed to self-care may constitute an important strategy for reducing HACSCs.

From the health management standpoint, continuous, timely monitoring of HACSC rates is a sentinel indicator fundamental to assessing the quality of primary care offered to older adults in Brazil, because it can be used to identify areas of fragility in the health system.

Given the high prevalence of HACSCs in older adults in Brazil, this study highlights the importance of primary health care as a crucial tool in preventing and controlling ACSCs. Government must strengthen and prioritise PHC, because it is the main means of guaranteeing access to health care and, as a result, to maintaining quality of life for the user population. Accordingly, there is a need to invest in public policies that promote health service access and quality, with special attention to the population

of older adults and underserved regions, so as to reduce the inequalities and help maintain quality of life.

Future studies, which should be both qualitative and quantitative, are needed to pursue this discussion in greater depth and produce evidence on regional disparities and sociodemographic inequalities in HACSCs.

Collaborators

DR worked on conception, final draft, and research. NA worked on conception, final draft, and research. VSSC worked on final draft and research. APM worked on final review and methodology. GNNA worked on research. JFS worked on research.

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