CLINICAL AND EPIDEMIOLOGICAL PROFILE OF PATIENTS TREATED AT A GASTROENTEROLOGY SERVICE OF A UNIVERSITY HOSPITAL IN THE BRAZILIAN AMAZON

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Abstract: Background: Gastrointestinal diseases constitute an important cause of morbidity and mortality, especially in regions characterized by social inequalities, geographical barriers and limited access to specialized healthcare. In the Brazilian Amazon, these factors contribute to delayed diagnosis and advanced clinical presentation. Objective: To characterize the clinical and epidemiological profile of patients treated at the Diagnostic Imaging Unit of the Gastroenterology Service of the Hospital Universitário Getúlio Vargas, Manaus, Amazonas, Brazil. Methods: Observational, descriptive and exploratory study based on secondary data from 237 medical records collected between 2019 and 2020. Demographic, socioeconomic, clinical and territorial variables were analyzed using descriptive statistics integrated with an interpretative epidemiological approach. Results: Most patients were male, aged 50 years or older, had low educational level and originated from municipalities in the interior of Amazonas. Chronic gastritis, esophageal varices and liver cirrhosis were the most prevalent diagnoses, frequently associated with hypertension, diabetes mellitus and chronic liver diseases. The findings indicate a predominance of advanced clinical conditions requiring specialized tertiary care. Conclusions: The observed epidemiological profile reflects both the burden of gastrointestinal diseases and structural inequalities affecting healthcare access in the Amazon region. Strengthening primary healthcare, expanding regional diagnostic capacity and adopting territorially oriented public policies

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are essential to reduce health inequities.

Keywords: Gastroenterology; Epidemiology; Public Health; Amazon; Delayed Diagnosis; Health Services.

Introduction

Gastroenterological diseases are an important public health problem on a global scale, being responsible for a high burden of morbidity, hospitalizations, functional disability, and mortality (BRAY et al, 2024; WHO, 2024). Among these diseases, chronic liver diseases, inflammatory diseases of the digestive tract, ulcerative diseases, digestive hemorrhages, and gastrointestinal neoplasms stand out, whose clinical evolution depends, to a large extent, on the timeliness of diagnosis and the availability of specialized treatment.

In Brazil, despite the expansion of access to health services promoted by the Unified Health System (SUS), important regional inequalities persist related to the distribution of human resources, diagnostic infrastructure, and organization of care networks (BRASIL-MS, 2017; BRAZIL-MS, 2010; GIOVANELLA et al, 2024). These disparities become particularly evident in the Amazon Region, where the extensive territorial size, population dispersion, the predominance of river transport and logistical difficulties impose additional barriers to timely access to specialized services (SANTOS, 2006; PAHO, 2022; IBGE, 2024).

In this context, the Getúlio Vargas University Hospital (HUGV), linked to the Federal University of Amazonas, plays a strategic role as a reference center in gastroenterology for patients from the capital, the interior of the state and, in several situations, from other units of the federation. Consequently, the profile of the patients treated in this service goes beyond the simple clinical description of the cases, constituting an important indicator of the regional organization of care and the conditions of access to specialized diagnosis.

Epidemiological studies carried out in reference services are particularly relevant becau-

se they allow the identification of patterns of illness, demographic characteristics of the population served, distribution of the main diseases, and factors associated with clinical worsening. In addition, they provide subsidies for health planning, the organization of lines of care, and the formulation of public policies guided by equity (ROTHMAN, GREENLAND, LASH, 2008; TRAVASSOS, CASTRO, 2024; GIOVANELLA et al, 2024).

In the Amazon, however, there are still few studies that describe in an integrated way the clinical, epidemiological and territorial aspects of the population treated in specialized gastroenterology services. Most investigations focus on specific diseases, without considering the set of clinical conditions treated or their relationship with the social and geographic characteristics of the population using the health system.

In view of this gap, the present study aims to characterize the clinical and epidemiological profile of patients treated at the Diagnostic Imaging Unit of the Gastroenterology Service of the Getúlio Vargas University Hospital, identifying the main demographic, socioeconomic and clinical characteristics of the population studied. By describing this profile, it is intended to contribute to the improvement of care planning, to the qualification of early diagnosis strategies and to the strengthening of public policies aimed at reducing health inequalities in the Amazon Region.

Method

Study design

This is an observational, cross-sectional, descriptive and analytical-exploratory study, developed from secondary data obtained from the clinical records of patients treated at the Diagnostic Imaging Unit of the Gastroenterology Service of the Getúlio Vargas University Hospital (HUGV), in Manaus, Amazonas.

The study design observed classic methodological recommendations for observational studies described by Rothman, Greenland, and Lash (2008).

The HUGV is a high-complexity university hospital linked to the Federal University of Amazonas and is part of the specialized care network of the Unified Health System (SUS), playing a regional reference role for diagnostic and therapeutic procedures in gastroenterology.

Population and sample

All eligible medical records of patients treated between January 2019 and December 2020 were included.

After applying the eligibility criteria and excluding inconsistent or incomplete records, the final sample consisted of 237 patients, which was considered representative of the care profile of the service during the study period.

Variables studied

The following variables were analyzed:

Sociodemographic

sex; age; age group; education; marital status; naturalness; MERIT.

Clinics

main diagnosis; associated comorbidities; liver diseases; gastroesophageal diseases; digestive neoplasms; portal hypertension.

Statistical analysis

Initially, a descriptive analysis was performed by calculating absolute frequencies, relative frequencies, means and distribution by categories.

The variables were later analyzed according to an integrated epidemiological perspective, allowing the characterization of the clinical profile of the population served.

Considering the observational nature of the study and the characteristics of the database, we chose to favor the epidemiological description of the findings, complemented by an interpretation based on the scientific literature on gastroenterological diseases, hospital epidemiology, and organization of health services.

Ethical aspects

The study used exclusively secondary data from clinical records, preserving the anonymity of patients and observing the ethical principles provided for in Resolution No. 466/2012 of the National Health Council (BRASIL-MS, 2017).

Results

General characterization of the population

237 medical records of patients treated at the Gastroenterology Service of the Getúlio Vargas University Hospital between 2019 and 2020 were analyzed.

The study population presented a profile predominantly composed of adults and the elderly, reflecting the high participation of chronic and degenerative diseases in the demand for specialized services.

Age ranged from 18 to 88 years, with an approximate mean of 62 years. A significant con-

centration of individuals aged 50 years or older was observed, which corresponded to more than two-thirds of the sample.

This age pattern demonstrates that the demand for care is strongly related to population aging and gastroenterological diseases of prolonged evolution (OMRAN, 1971; BRAY et al, 2024; WHO, 2024).

The aging observed in the population studied follows the epidemiological transition originally described by Omran (1971) and later expanded by the Global Burden of Disease studies, which demonstrate a continuous growth in chronic non-communicable diseases in recent decades (WHO, 2024).

The increase in life expectancy has been accompanied by an expanding incidence of chronic gastrointestinal diseases, including gastroesophageal reflux disease, atrophic gastritis, liver diseases, and digestive neoplasms (EL-SERAG, 2014; BRAY et al, 2024; SUNG et al, 2020).

Distribution by sex

There was a slight predominance of males, responsible for approximately 58% of the consultations.

The male predominance observed in this study is consistent with studies carried out in Europe, Asia, and Latin America, which demonstrate a higher frequency of chronic liver diseases and portal hypertension among men, particularly in populations exposed to alcoholism and viral hepatitis (GARCIA-TSAO, BOSCH, 2010; BRAY et al, 2024; WHO, 2024).

Although relatively balanced, this distribution follows the profile described in national studies involving chronic liver diseases, portal hypertension, and gastroesophageal complications.

The male predominance probably reflects greater historical exposure to risk factors, including alcoholism, viral hepatitis, and lower preventive use of health services (GARCIA-TSAO, BOSCH, 2010).

Origin of the patients

The territorial analysis revealed one of the main findings of the study.

Almost all of the patients treated came from municipalities in the interior of Amazonas, while the participation of residents of the capital was greatly reduced.

This pattern shows that the Getúlio Vargas University Hospital performs the function of a macro-regional referral center, absorbing patients referred after long care courses.

From the epidemiological perspective, this distribution demonstrates a high concentration of specialized care in the state capital, a historical characteristic of the organization of the health care network in the Amazon.

Education

Regarding educational level, there was a predominance of patients with low education.

More than 60% of the population had incomplete primary education, no formal schooling, or no information not recorded in the medical records.

The reduced participation of individuals with higher education evidences the important social vulnerability of the population served.

In addition, the high proportion of incomplete records reveals the fragility of hospital information systems, an aspect that deserves attention both for research and for service planning.

The low level of education observed in this study should not be interpreted only as a demographic characteristic, but as an important marker of social inequalities that influence access to services, health literacy and therapeutic adherence, as widely discussed by Marmot et al. (2006), Buss and Pellegrini Filho (2007).

Clinical profile

The diagnostic profile was characterized by the predominance of chronic gastroenterological diseases.

Gastritis and esophagitis were the most frequent diagnostic group, followed by esophageal varices and liver cirrhosis.

Ulcerated lesions, gastroesophageal reflux disease, and a reduced number of digestive neoplasms were also identified.

The set of these diagnoses demonstrates that most patients enter the specialized service with already established diseases, often requiring more complex diagnostic and therapeutic procedures.

Associated comorbidities

Chronic non-communicable diseases represented an important component of the epidemiological profile observed.

Systemic arterial hypertension was the most frequent comorbidity, followed by diabetes mellitus, viral hepatitis, and chronic respiratory diseases.

The high simultaneous occurrence of these conditions characterizes a population of high clinical complexity, requiring continuous multidisciplinary follow-up and integration between different levels of care.

Summary of results

The results show that the population attended at the Gastroenterology Service of the HUGV has a profile characterized by:

- male predominance;
- concentration of individuals over fifty years of age;
- low education;
- high dependence on municipalities in the interior of Amazonas;
- predominance of chronic gastroenterological diseases;
- high frequency of liver diseases and portal hypertension;
- An important burden of associated chronic non-communicable diseases.

This set of characteristics demonstrates that the service acts predominantly on patients with a high degree of clinical complexity, coming from territories marked by important limitations in access to specialized care.

The results reinforce the literature that demonstrates an association between low problem-solving capacity of Primary Care and greater use of tertiary services for potentially diagnosable conditions in early stages (STARFIELD, 1998; MENDES, 2011; TRAVASSOS, CASTRO, 2024; GIOVANELLA et al, 2024; VICTORA et al, 2011).

Traditionally, hospital studies describe only the profile of the patients treated. However, the results obtained suggest that hospital epidemiology can be used as an indirect tool to evaluate the organization of care networks, expanding its analytical potential beyond clinical description.

Discussion

The present study allowed us to characterize the clinical and epidemiological profile of patients treated at the Diagnostic Imaging Unit of the Gastroenterology Service of the Getúlio Vargas University Hospital, evidencing a set of characteristics that go beyond the strictly clinical dimension and reflect important demographic, social, and organizational inequalities of the health system in the Brazilian Amazon.

The predominance of individuals aged fifty years or older confirms the influence of the demographic and epidemiological transition process on the demand for specialized gastroenterology services (OMRAN, 1971; BRAY et al, 2024; WHO, 2024). Population aging has been accompanied by an increase in the incidence of chronic gastrointestinal diseases, liver diseases, digestive neoplasms and associated metabolic diseases, a phenomenon observed in several countries and particularly evident in developing regions. This scenario increases the need for specialized services capable of performing early diagnosis, continuous monitoring, and timely treatment.

The slight predominance of males observed in this study follows the results described in national and international investigations involving chronic liver diseases and portal hypertension. Such distribution may be related to the greater historical exposure of the male population to risk factors such as alcohol abuse, viral hepatitis, and lower use of preventive health services. However, the significant participation of women demonstrates that gastroenterological diseases are an important problem for both sexes, requiring comprehensive preventive strategies.

One of the most relevant findings refers to the socio-educational profile of the population studied. The predominance of individuals with low schooling reinforces the importance of social determinants of health in understanding gastroenterological disease. Schooling represents an important indicator of living conditions, directly influencing health literacy, early recognition of signs and symptoms, the ability to navigate care services and adherence to preventive and therapeutic measures (MARMOT, WILKINSON, 2006; BUSS, PELLEGRINI FILHO, 2007). Thus, the educational vulnerability observed probably contributes to the late entry of patients into specialized care.

In addition to the low educational level, the high frequency of incomplete records in the sociodemographic variables deserves specific reflection. Often interpreted only as a methodological limitation, the incompleteness of information can also be understood as an indirect indicator of the fragility of health information systems (ROTHMAN, GREENLAND, LASH, 2008; MINAYO, 2014). The absence of records compromises care planning, reduces epidemiological monitoring capacity, and hinders the formulation of evidence-based public policies. Investments in the qualification of

electronic medical records and in the training of care teams become, therefore, important components of improving health management.

From a territorial point of view, the results showed a strong concentration of patients from municipalities in the interior of Amazonas. This pattern confirms the role of the Getúlio Vargas University Hospital as a macro-regional reference center in gastroenterology and evidences the persistent centralization of specialized care in the state capital (MENDES, 2011; SANTOS, 2006; BRAZIL-MS, 2010; GIOVANELLA et al, 2024).

Although regionalization is a structuring principle of the Unified Health System, its operationalization faces significant challenges in the Amazon. The vast territorial extension, the low population density, the dependence on river transport and the limitations of the health infrastructure make it difficult to offer specialized tests in a decentralized way (SANTOS, 2006; PAHO, 2022; IBGE, 2024). As a result, many patients travel hundreds of kilometers to reach more complex services, often after a long care trajectory.

This context contributes to explain the high frequency of diseases in advanced stages observed in this investigation. The predominance of esophageal varices, liver cirrhosis, chronic gastritis, and other long-term conditions suggests that a significant portion of patients only access specialized services when the pathological process is already established. The high frequency of esophageal varices and liver cirrhosis follows the international literature on portal hypertension and chronic liver diseases (GARCIA-TSAO, BOSCH, 2010). This pattern reinforces the need to strengthen primary care, expand the problem-solving capacity of secondary care, and progressively decentralize diagnostic methods of greater complexity.

Another important aspect refers to the high burden of associated chronic non-communicable diseases, especially systemic arterial hypertension and diabetes mellitus. The coexistence of these diseases characterizes a profile of multimorbidity that requires an integrated, interdisciplinary and longitudinal approach. This coexistence of arterial hypertension and diabetes mellitus characterizes a scenario of multimorbidity typical of the epidemiological transition (OMRAN, 1971; ROSE, 1992).

The fragmentation of care, still present in several health systems, tends to compromise the effectiveness of interventions and increase care costs, especially in aging populations.

The results of this study dialogue directly with the literature on the organization of health care networks. Care models that are strongly hospital-centric, dependent on tertiary services and with low diagnostic capacity at the primary and secondary levels tend to produce longer care trajectories, diagnostic delays, greater clinical severity at the time of specialized care and less coordination of care (STARFIELD, 1998; MENDES, 2011; GIOVANELLA et al, 2024). From this perspective, the epidemiological profile observed should not be interpreted exclusively as an expression of the natural burden of gastroenterological diseases, but also as a consequence of the way in which the care network is organized.

This interpretation expands the traditional understanding of epidemiological studies. Instead of considering only the distribution of diseases, it is possible to analyze how social, territorial, and organizational characteristics interact to produce different patterns of illness. The integration between clinical epidemiology, health geography, social determinants and organization of services allows us to understand the care profile of the HUGV as a result of a complex system, in which biological factors coexist with structural conditioning factors and broaden the understanding of the health-disease process (MARMOT, WILKINSON, 2006; BUSS, PELLEGRINI FILHO, 2007; SANTOS, 2006).

Among the limitations of the study are the use of secondary data, the dependence on the quality of clinical records, and the impossibility of longitudinally monitoring patients after specialized care. In addition, the high proportion of missing information in some variables restricts certain comparative analyses. However, these limitations do not compromise the consistency of the main findings, since the sample adequately represents the care profile of the service and was analyzed using an integrated epidemiological approach.

On the other hand, the study presents important strengths. The use of a database composed of patients treated at a regional reference university hospital provides a comprehensive view of the specialized demand for gastroenterology in the Amazon. In addition, the integration between clinical,

demographic, and territorial variables expands the analytical potential of the investigation and offers relevant subsidies for the planning of care and for future research in public health.

Finally, the findings reinforce that the epidemiological profile of patients treated at the Gastroenterology Service of the Getúlio Vargas University Hospital is an important indicator of the inequalities that exist in the organization of specialized care in the Amazon Region. More than characterizing a hospital population, this investigation highlights structural challenges related to access, territorial distribution of services, and the diagnostic capacity of the health system, pointing out ways to strengthen public policies guided by the principles of equity, integrality, and regionalization of the SUS.

Conclusion

The patients treated at the Diagnostic Imaging Unit of the Gastroenterology Service of the Getúlio Vargas University Hospital have a profile characterized by a predominance of men, individuals over fifty years of age, low education, high frequency of chronic gastroenterological diseases, and a significant burden of associated comorbidities. The concentration of patients from the interior of Amazonas highlights the strategic role of the hospital as a regional referral center, while revealing limitations in the territorial distribution of specialized care and timely access to health services.

The results show that the observed profile reflects not only the occurrence of gastroenterological diseases, but also the influence of structural factors related to socioeconomic conditions, geographical barriers and the organization of the care network. The high participation of patients from municipalities in the interior, associated with the predominance of diseases in advanced stages and the significant burden of multimorbidity, suggests that the care demand of the Getúlio Vargas University Hospital represents the final stage of trajectories marked by social vulnerabilities, difficulties of access, and organizational limitations of the health system.

In this context, the epidemiological profile identified goes beyond its merely descriptive di-

mension and assumes potential as an indirect indicator of the response capacity of the regional health care network. This interpretation expands the possibilities of using the results both for the planning of public policies and for the development of analytical models applied to hospital epidemiology, health service management, and the evaluation of care regionalization.

The findings reinforce the need to strengthen Primary Health Care, expand regional diagnostic capacity, qualify health information systems, and develop territorialized strategies capable of reducing late diagnosis and promoting greater equity in gastroenterological care. In addition, they show that the confrontation of gastroenterological diseases in the Amazon requires integrated approaches that articulate the social determinants of health, the regionalization of care and the strengthening of Health Care Networks, as recommended by the national and international literature (MARMOT, WILKINSON, 2006; BUSS, PELLEGRINI FILHO, 2007; STARFIELD, 1998; MENDES, 2011; SANTOS, 2006; BRAZIL-MS, 2017; BRAZIL-MS, 2010; PAHO, 2022).

By integrating clinical epidemiology, organization of care, and territorial analysis, this study contributes to consolidating an interdisciplinary approach capable of broadening the understanding of gastroenterological diseases beyond their clinical dimension, offering subsidies for the planning, management, and strengthening of the Unified Health System in contexts marked by high territorial vulnerability, such as the Brazilian Amazon.

Study contributions

This study contributes to the literature by offering an integrated characterization of the clinical and epidemiological profile of patients treated at a tertiary gastroenterology service in the Brazilian Amazon. By articulating demographic, clinical, and care variables, it provides evidence capable of supporting regional health planning, the reorganization of lines of care, and the development of public policies aimed at reducing territorial inequalities in access to specialized diagnosis.

Implications for Health Management

The results of this investigation have relevant implications for the planning and organization of gastroenterological care in the Unified Health System, especially in regions characterized by extensive geographical barriers and high social vulnerability, such as the Brazilian Amazon.

The predominance of patients from municipalities in the interior shows that the current configuration of the care network remains strongly dependent on the concentration of specialized services in the capital. Although the Getúlio Vargas University Hospital plays a strategic role as a regional referral center, the high demand from distant locations suggests limitations in the diagnostic capacity installed at the primary and secondary levels of care.

In this context, it is necessary to expand the regional offer of diagnostic tests, particularly digestive endoscopy, specialized ultrasonography, and complementary methods aimed at the early investigation of the main gastroenterological diseases. The decentralization of these technologies can reduce the time to diagnosis, minimize prolonged displacements, and favor therapeutic interventions in less advanced stages of the diseases.

The results also reinforce the importance of the permanent qualification of Primary Health Care teams. Continuing education strategies aimed at early recognition of gastroenterological warning signs, initial management of chronic liver diseases, and adequate risk stratification can significantly increase the problem-solving capacity of local services.

Another priority aspect refers to the strengthening of integration between the different levels of care. The adoption of regionalized clinical protocols, computerized referral and counter-referral systems, specialized teleconsulting, and the expansion of Telehealth can reduce the fragmentation of care currently observed in several Amazonian regions.

Likewise, the high proportion of incomplete information identified in the medical records evidences the need for investments in the qualification of hospital information systems (ROTHMAN, GREENLAND, LASH, 2008; TRAVASSOS, CASTRO, 2024). Consistent clinical records are a fun-

damental element for both care and epidemiological monitoring and the evaluation of public policies.

From the perspective of regional management, the results suggest that the territorial distribution of diagnostic supply should consider not only population criteria, but also geographical, logistical, and epidemiological factors characteristic of the Legal Amazon. Homogeneous planning models tend to reproduce historical inequalities when applied to territories marked by great distances and mobility limitations.

Finally, this study demonstrates that interventions aimed exclusively at expanding hospital capacity are likely to be insufficient to modify the observed care profile. The reduction of late diagnosis depends on a systemic reorganization of the care network, integrating prevention, early diagnosis, regionalization of care (MENDES, 2011; BRAZIL-MS, 2010) and strengthening of Primary Care (STARFIELD, 1998; MENDES, 2011; BRAZIL-MS, 2017).

Prospects for Future Research

The results obtained open several possibilities for deepening investigations on gastroenterology and organization of health services in the Amazon.

Longitudinal studies can evaluate the impact of the time elapsed between the onset of symptoms, the definitive diagnosis and the start of treatment on the clinical outcomes of the main gastroenterological diseases.

Another perspective consists of the incorporation of spatial analysis and geoprocessing techniques (SANTOS, 2006; TRAVASSOS, CASTRO, 2024), allowing the identification of priority areas for expanding the diagnostic offer, building regionalized lines of care, and continuous monitoring of territorial inequalities in health.

Multicenter investigations involving university hospitals and specialized services in other Amazonian states may increase the representativeness of the findings and contribute to the construction of specific epidemiological indicators in the Northern region.

In addition, economic evaluation studies will be able to estimate the financial impact resulting from the late diagnosis of gastroenterological diseases, comparing the care costs related to the treatment of advanced cases with those resulting from the implementation of early diagnosis strategies and technological decentralization.

Finally, it is recommended the construction and validation of predictive models capable of integrating clinical, demographic, territorial, and care information for the early identification of populations at higher risk of unfavorable evolution. Such tools can support health surveillance strategies and support decision-making processes in the management of the Unified Health System.

Central Message of the Article

The clinical and epidemiological profile observed in the Gastroenterology Service of the Getúlio Vargas University Hospital demonstrates that the specialized demand in the Amazon results from the interaction between population aging, high burden of chronic gastroenterological diseases, social vulnerabilities and structural limitations of the organization of the care network. More than characterizing a hospital population, this study shows how territorial and organizational factors influence access to diagnosis and the pattern of illness, offering subsidies for the regional planning of public policies guided by equity and comprehensiveness of care.

Originality and Scientific Contribution of the Study

Although descriptive studies on the profile of hospital patients are relatively frequent in the literature, the present investigation proposes a different analytical approach by understanding the epidemiological profile as an indirect expression of the organization of the care network.

Traditionally, hospital epidemiological studies have focused on the demographic and clinical characterization of the populations served. In this investigation, however, these variables are interpre-

ted in an integrated manner with the territorial, social and organizational determinants of the Unified Health System, allowing us to understand that the profile observed does not result exclusively from the natural distribution of diseases, but also from the ways in which health services are organized.

From this perspective, the high frequency of patients from the interior of Amazonas, associated with the predominance of diseases in advanced stages and the high burden of comorbidities, constitutes indirect evidence of the regional concentration of specialized care, the difficulties in timely access to diagnostic methods, and the structural limitations of the care network.

This interpretation expands the analytical potential of hospital epidemiology by incorporating contributions from geoepidemiology, health geography, and the organization of health systems, bringing together different fields of knowledge traditionally analyzed in isolation.

Thus, the present study proposes that the clinical and epidemiological profile of patients treated in tertiary hospitals can be understood as a sentinel indicator of the problem-solving capacity of the regional health care network.

This perspective may contribute to future investigations aimed at evaluating the efficiency of care networks, especially in regions characterized by great territorial inequalities, such as the Brazilian Amazon.

Potential Applications of the Results

The results of this investigation have potential for application at different levels of health planning.

In the context of care, the findings allow the identification of priority population groups for screening strategies, early diagnosis, and longitudinal follow-up of gastroenterological diseases.

In the field of management, the results support processes of regionalization of care, planning of the distribution of specialized services and definition of criteria for the expansion of diagnostic infrastructure in areas of greater territorial vulnerability.

In health surveillance, the indicators identified can contribute to the construction of monitoring systems capable of early detection of changes in the epidemiological profile of gastroenterological diseases, supporting timely interventions.

Finally, in the academic field, the study offers a methodological model that can be reproduced in other Brazilian university hospitals, allowing comparative analyses between different regions of the country and strengthening scientific production in hospital epidemiology and organization of health services.

Limitations and Strengths

The main limitation of this investigation refers to the use of secondary data from clinical records, subject to incomplete records and heterogeneity in the completion of information. In addition, the cross-sectional design makes it impossible to establish causal relationships between the variables analyzed.

However, these limitations are partially compensated by important methodological strengths. The sample includes all eligible patients treated during the study period, reducing selection biases. The Getúlio Vargas University Hospital is a macro-regional reference center, allowing the analyzed population to consistently represent the specialized demand for gastroenterology in the Western Amazon.

Another strength lies in the integration between clinical, epidemiological and territorial analyses, an approach that has not yet been explored in Brazilian hospital studies. This strategy expands the interpretative capacity of the results and brings the research closer to the concrete needs of regional health planning.

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