LUMEN ET VIRTUS

Evaluation of determinant factors of length of stay in internal medicine: Systematic review

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ABSTRACT

The analysis of the determinant factors of the length of hospitalization in internal medicine allows us to understand variables that influence the length of stay of patients. Aspects such as the severity of the clinical condition, the efficiency of treatment protocols, the organization of health services, and the management of hospital resources play a fundamental role in defining this time. Understanding these factors allows optimizing bed management, reducing prolonged hospitalizations, and improving the quality of hospital care. This study aimed to identify and analyze the main factors that influence the length of stay of patients in medical clinics. Based on this, the systematic review methodology was adopted, according to the guidelines of the PRISMA protocol. Data collection involved research in academic databases such as Medline, Scielo, and Lilacs, focusing on publications from 2019 to 2024. Studies were selected based on strict inclusion and quality criteria, resulting in 4 articles that met the analysis criteria. Based on the analysis of the results, it was concluded that the severity of the disease, comorbidities, age and pre-hospital care are crucial factors that influence the length of stay of patients in medical clinics. The study revealed that effective pre-hospital care and proper management of hospital resources are essential to optimize length of stay and improve the quality of care. Managerial interventions and efficient communication between teams can help reduce the length of hospitalization. However, variation in practices and resources between institutions may limit the applicability of the results.

Keywords: Length of Hospitalization, Determining Factors, Hospital Management.

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INTRODUCTION

The length of stay in internal medicine is an important factor for the quality of care and the efficiency of the health system, especially in the context of the Unified Health System (SUS) in Brazil (Branquinho, 2023). Proper management of hospitalization time is vital to ensure that hospital resources are used effectively, avoiding both overcrowding and idle beds, which is directly reflected in the system's ability to meet the demands of the population (Cruz et al., 2021).

The National Hospital Care Policy (PNHOSP) emerges as a response to the need to reorganize and qualify hospital care in the SUS, proposing the creation of Internal Regulation Centers. One of these centers is to optimize the use of hospital beds, monitoring the occupancy rate and the average length of stay of patients in the various sectors of the hospital. This approach aims to ensure that beds are available to those who really need them, promoting a dynamic and efficient use of hospital resources (Mourão, 2024).

However, according to Santos (2024), hospital management in the public service faces significant challenges, mainly due to the accelerated demographic transition and the predominance of chronic conditions, which increase the demand for hospitalizations. The overcrowding of emergency units, often aimed at treating acute conditions, contributes to prolonged and unnecessary hospitalizations, which entails high costs for the health system and reduces the availability of beds for new patients.

The use of indicators to monitor the length of hospital stay is an increasingly common and necessary practice, especially in a scenario of limited resources. According to Mourão (2024), the objective is to avoid long hospitalizations that, in addition to increasing costs, can harm the health of patients, exposing them to risks such as hospital infections, pressure ulcers, malnutrition, and falls. These conditions not only affect the quality of life of patients, but can also have irreversible consequences.

Therefore, reducing the length of hospital stay should be a constant goal, achieved through continuous and systematic evaluations of the care offered in health institutions. The use of clinical management tools, such as care indicators, allows for the identification of avoidable risks and the implementation of corrective actions, in addition to promoting the appreciation of health professionals and continuing education (Santos *et al*., 2023). In this way, the effective management of hospitalization time contributes not only to the efficiency of the health system, but also to the safety and well-being of patients, which is the ultimate goal of any public health policy (Assunção *et al.,* 2024).

In this context, the general purpose of this study was to identify and analyze the main factors that influence the length of stay of patients in medical clinics.

METHODOLOGY

This study used a systematic review approach, according to the guidelines established by the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) protocol. The main objective was to identify and analyze the main factors that influence the length of stay of patients in medical clinics.

Data collection was carried out from an extensive search in recognized academic databases, such as *Medical Literature Analysis and Retrieval System Online* (Medline), *Scientific Electronic Library Online* (Scielo) and Latin American and Caribbean Literature on Health Sciences (Lilacs). The search focused on original study publications available in Portuguese and English, dated between 2019 and 2024. The descriptors used included "Length of Stay", "Determining Factors", "Hospital Efficiency" and "Hospital Management". Studies that were incomplete, duplicated, or did not meet the inclusion criteria were excluded.

The selection of articles was conducted by two independent reviewers, following a three-step process. First, inclusion criteria based on the title and abstract of the articles were applied. Then, the duplicate articles were removed. Finally, the selection was refined based on the quality of the studies, which was assessed using the Checklist for Measuring Quality. This evaluation took into account internal validity, external validity, and the ability of the studies to identify significant effects on the factors analyzed.

After the initial analysis of the titles and abstracts, 12 articles were selected for the second phase, which involved the complete reading of the texts. In the end, 4 articles met all the inclusion criteria. Therefore, only studies that met all quality criteria were included in the final analysis, allowing a comprehensive and accurate view of the determinant factors of length of stay in internal medicine.

RESULTS AND DISCUSSION

By applying the inclusion and exclusion criteria outlined in this study, 4 scientific articles were selected. Chart 1 below shows relevant information on these studies.

Table 1 – Study selection for this systematic review - August 2024

Author/year	Title	Objective	Results
Marques, Vieira and Ferreira (2023)	The importance of pre-hospital care in reducing the length of hospital stay	To understand the relationship between the importance of pre-hospital care and the reduction of hospital stay in patients treated in emergencies.	Pre-hospital care collaborates with the reduction of the length of stay in emergency patients, highlighting the need for investments in research, training, and public policies to improve this care and improve health outcomes and the

			efficiency of the health system.
Cunha *et al*. (2023)	Factors that contribute to the increase in the length of hospital stay	To identify the factors that contribute to the increase in the length of stay in the Internal Medicine Unit of a public hospital in the Federal District.	The delay in the exams occurred due to the slowness in scheduling by the regulation system and the lack of transport and drivers by the Patient Support and Removal Center, problems that can be solved with the intervention of local managers.
Duarte *et al.* (2023)	Severity and length of hospitalization of non-critical patients with acute kidney injury	To assess the severity and length of hospital stay of non-critical patients with acute kidney injury.	More than half of the patients had acute kidney injury, with KDIGO 2 and 3 associated with mortality and longer hospital stay. Macronebulization in patients with tracheostomy increased hospitalization.
Alcântara Júnior *et al*. (2021)	Factors related to prolonged length of stay in a medical clinic ward	To evaluate factors that contribute to the length of hospital stay of patients in the Medical Clinic Nurse of a hospital in the metropolitan region of a municipality in the state of Pará.	It was observed that the clinical decompensation of the underlying disease, including complications of liver cirrhosis and unspecified diabetes mellitus, were the main factors responsible for the increase in the length of hospital stay.

Source: Prepared by the authors.

In this discussion of the results, it is observed that several factors impact the length of stay in medical clinics. Prehospital care, the presence of comorbidities, and the quality of medical support are significant determinants of the duration of hospitalization. Delays in carrying out exams and logistical problems are also identified as main causes of prolonged hospitalization. In addition, the severity of specific conditions, such as acute kidney injury, and underlying diseases contribute to prolonged stay. The analysis suggests that early interventions and improvements in communication and management can optimize length of hospital stay and quality of care.

The work of Marques, Vieira and Ferreira (2023) identifies and analyzes the main factors that influence the length of stay of patients in medical clinics, highlighting the importance of pre-hospital care as an important element in this context. The authors emphasize that the severity of the disease, the presence of comorbidities, the patient's age, and the quality of prehospital support are significant determinants that can directly impact the length of hospitalization. In addition, the availability of beds, access to medicines and medical equipment, as well as the presence of qualified professionals, are factors that also play an important role in defining the length of hospitalization. Understanding these elements is essential for the implementation of interventions aimed at reducing the length of hospital stay without compromising the quality of care.

The analysis carried out by Marques, Vieira, and Ferreira (2023) emphasizes that pre-hospital care not only influences the speed of diagnosis and the effectiveness of treatment, but also affects the patient's experience and satisfaction with the care received. They argue that the adoption of evidence-based practices and the continuous training of health professionals are essential to ensure quality care, which can result in a safe and effective discharge. Thus, the study concludes that the identification and intervention on the factors that prolong hospitalization are crucial to improve patients' health outcomes and optimize health system resources, promoting more efficient and effective management.

Cunha *et al.* (2023) develop an investigation with data collection with 15 health professionals from the Medical Clinic Unit of a public hospital. The researchers point out that the delay in carrying out exams is one of the main factors that contribute to the prolongation of hospitalization, and is often caused by delays in scheduling by the regulation system and by the lack of logistics of the Patient Support and Removal Center, which faces difficulties such as the absence of transport and drivers. These bottlenecks in the care process not only affect the quality of care, but also result in additional costs for the health institution.

In addition to identifying the factors that lead to increased length of stay, the study also emphasizes the importance of managerial interventions to optimize these processes. Cunha *et al.* (2023) suggest that improved communication and coordination between multiprofessional teams can facilitate dehospitalization and the development of more effective therapeutic plans for patients with complex clinical conditions. By addressing local needs and the difficulties faced by professionals, the work of Cunha et al. contributes to a deeper understanding of the dynamics that affect hospital stay, offering subsidies for actions aimed at the continuous improvement of care and the reduction of unnecessary hospitalization time.

The research by Duarte *et al.* (2023), through a prospective observational study that followed 137 patients, collected sociodemographic, clinical, and laboratory data, such as age, gender, comorbidities, creatinine and hemoglobin levels, as well as information on the mobility and level of consciousness of the patients. The statistical analysis revealed that the severity of acute kidney injury (AKI), as measured by the KDIGO criteria, and the presence of comorbidities, such as hypertension and diabetes mellitus, are associated with a significant increase in the length of hospital stay. In addition, factors such as the need for macronebulization by tracheostomy and the reduction in hemoglobin were also identified as indicators of greater severity, directly impacting hospital stay.

The results showed that patients with more severe AKI (KDIGO 2 or 3) had a median length of stay of 34 days, with a mortality rate of 19.7% during hospitalization and 20.4% after discharge. The research highlights the importance of measures for early identification and treatment of reversible conditions, suggesting that appropriate interventions can reduce length of hospital stay and

improve clinical outcomes. Thus, the work of Duarte et al. (2023) contributes to the understanding of the factors that affect the stay of patients in medical clinics, emphasizing the need for individualized and qualified care to optimize the management of patients with AKI.

In the study by Alcântara Júnior *et al.* (2021), data were collected from the medical records of patients aged 18 years or older, admitted to a medical clinic ward in a hospital in the metropolitan region of the state of Pará, during the period from January to February 2017. The survey revealed that the mean age of the patients was 54.2 years, with a predominance of males and a mean length of stay of 34.5 days. The authors highlight that clinical decompensation of underlying diseases, such as complications of liver cirrhosis and unspecified diabetes mellitus, were the main factors responsible for the increase in the length of hospital stay.

Alcântara Júnior *et al.* (2021) emphasize that multiple factors may be related to the length of hospitalization, including waiting for complementary tests and delays in the release of reports, which directly impact hospital discharge. The authors also mention that the quality of health care and the coverage of the health system are crucial for reducing hospitalization rates, suggesting that quality outpatient care can reduce the need for prolonged hospitalizations. Thus, the research not only provides a detailed view of the factors that contribute to hospital stay, but also suggests implications for improving hospital management and patient care.

FINAL CONSIDERATIONS

The study aimed to identify and analyze the main factors that influence the length of stay of patients in medical clinics and achieved its objectives by exploring a series of relevant determinants. The analysis of the results revealed that the severity of the disease, the presence of comorbidities, the patient's age, and the quality of prehospital care are crucial factors that directly impact the length of hospital stay. Additionally, the availability of beds, access to medicines and medical equipment, and the presence of skilled professionals also play significant roles.

The main conclusion of the study is that pre-hospital care and effectiveness in the management of hospital resources are important determinants of the length of hospital stay. Proper prehospital care not only influences diagnosis and treatment, but also affects patient experience and satisfaction. Management interventions and improvements in communication between multiprofessional teams are recommended to optimize the dehospitalization process and reduce hospitalization time without compromising the quality of care. The study highlights that the identification and intervention on factors that prolong hospitalization are essential to improve patient health outcomes and optimize health system resources.

One limitation of the study is the variation in practices and resources between different health institutions, which may affect the generalizability of the results. Research based on data from

different contexts and locations may encounter challenges in standardizing proposed interventions and evaluating their effectiveness in varied contexts.

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