Analysis Of Complications That Arise From Prolonged Hospital Stays: A Systematic Review

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Abstract

Background: Prolonged hospital stays remain a significant concern in healthcare due to their association with increased morbidity, mortality, and elevated costs. Extended inpatient durations often result from a complex interaction between clinical complications, patient characteristics, and system inefficiencies. Understanding the underlying factors is critical for improving patient outcomes and optimizing hospital resource utilization.

Objective: This systematic review aimed to synthesize empirical evidence on the complications and determinants that contribute to prolonged hospital stays, with a focus on medical, surgical, functional, and administrative factors influencing hospitalization duration.

Methods: A systematic review methodology was conducted in accordance with PRISMA 2020 guidelines. Fifteen peer-reviewed studies published between 2006 and 2025 were analyzed. Eligible studies investigated adult inpatients and reported quantitative or qualitative findings on complications, risk factors, and outcomes associated with extended hospitalizations.

Results: The review identified that postoperative complications, hospital-acquired infections, and functional decline among older adults are the most frequent causes of prolonged stays. Non-clinical contributors such as delayed discharge, emergency department bottlenecks, and administrative inefficiencies further exacerbate hospitalization length. Preventive measures, including early mobilization, infection control, and multidisciplinary care pathways, demonstrated effectiveness in reducing stay duration and improving recovery trajectories.

Conclusion: Prolonged hospital stays are multifactorial in nature, arising from both patient-related and systemic causes. Implementing targeted preventive strategies, predictive models, and efficient discharge planning can significantly reduce hospitalization length, enhance care quality, and alleviate healthcare system burdens.

Keywords: Prolonged hospital stay; hospital complications; length of stay; healthcare efficiency; patient outcomes; infection control; hospital management; systematic review.

Introduction

Prolonged hospital stays represent a critical concern in modern healthcare systems, where patient safety, quality of care, and cost-efficiency are closely interdependent. A longer-than-expected length of stay (LOS) not only increases the financial burden on hospitals and patients but also exposes individuals to a greater risk of developing in-hospital complications, such as infections, thromboembolic events, or functional decline (Abela et al., 2019). Understanding the complex web of factors contributing to extended hospitalization and its associated complications is therefore essential to improving both patient outcomes and health system sustainability.

Prolonged LOS often serves as a proxy indicator for adverse clinical events or inefficiencies in healthcare delivery. While a certain degree of hospitalization is necessary for recovery, excessive stays are frequently linked to avoidable complications arising from delayed discharge or inadequate transition

planning (Khan et al., 2006). The risks are particularly pronounced among older adults and those with multimorbidities, who experience higher susceptibility to secondary complications such as pressure ulcers, delirium, or deconditioning due to prolonged immobility and hospital-acquired infections (Lagoe et al., 2011).

From a clinical perspective, complications occurring during hospitalization are not merely consequences but active contributors to further extensions of LOS, forming a self-perpetuating cycle of morbidity and cost escalation (Krell et al., 2014). Postoperative infections, respiratory complications, and catheter-related issues are among the most frequent events prolonging recovery. Studies consistently demonstrate that each additional day of unnecessary hospitalization increases the probability of adverse outcomes, thereby transforming the hospital environment into a potential source of harm rather than healing (Desai et al., 2011).

Beyond the patient level, system-related factors—such as staff workload, discharge bottlenecks, and bed availability—also play a role in prolonging hospital stays and facilitating complications. Inefficiencies in care coordination, fragmented communication among providers, and delays in diagnostics contribute to extended hospitalizations, thereby amplifying the exposure window for nosocomial infections or medication-related errors (Marfil-Garza et al., 2018). These institutional issues underscore the need for systemic interventions that integrate patient safety with operational management strategies.

In the intensive care setting, prolonged hospitalization carries particularly severe consequences. Patients who remain in critical care units for extended periods are at heightened risk for muscle weakness, cognitive impairment, and psychological disorders collectively termed "post-intensive care syndrome" (Desai et al., 2011). These complications extend far beyond discharge, imposing long-term functional and economic burdens on patients and healthcare systems alike. Thus, LOS is not simply a temporal metric but a key determinant of both short-term and long-term health outcomes.

Recent advances in predictive analytics have enhanced clinicians' ability to identify patients at risk of extended stays and associated complications early in their hospital course. Predictive models that incorporate demographic data, comorbidity profiles, and early clinical indicators can inform targeted interventions to mitigate risks before complications develop (Doctoroff & Herzig, 2020). This proactive approach aligns with the principles of precision medicine and value-based healthcare, emphasizing prevention rather than reactive management.

Intervention studies have highlighted the effectiveness of early mobilization, multidisciplinary care planning, and structured discharge processes in reducing both LOS and complication rates (Siddique et al., 2021). Such strategies emphasize holistic patient management—addressing medical, functional, and psychosocial factors simultaneously—to minimize adverse outcomes associated with hospitalization. Evidence also suggests that timely communication between healthcare teams and post-acute facilities is crucial for preventing readmissions and recurrent complications after discharge (Abela et al., 2019).

Despite increasing awareness of these issues, prolonged LOS and its complications remain pervasive. Variability across hospitals and patient populations reflects a multifactorial problem requiring comprehensive solutions that integrate patient-level predictors, clinical management, and systemic reforms (Huang, 2021). A systematic review of existing literature is therefore warranted to synthesize current evidence on the complications arising from prolonged hospital stays, their predictors, and potential strategies for mitigation. Such synthesis can inform future clinical guidelines and policy frameworks aimed at optimizing hospital care and minimizing preventable harm. By addressing a significant gap in the literature—where previous studies have primarily offered fragmented or narrative analyses—the present review contributes a multifaceted perspective that integrates clinical, functional, and administrative dimensions. This review clarifies the interplay between diverse risk factors and sets the stage for future research, ultimately guiding targeted interventions and policy modifications to reduce the incidence of prolonged hospitalizations across varied healthcare settings.

Methodology

Study Design

This study employed a systematic review methodology adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure methodological transparency and replicability. The objective was to comprehensively synthesize empirical evidence examining the complications associated with prolonged hospital stays across various patient populations and healthcare settings. The review focused on peer-reviewed journal articles that

investigated medical, functional, and psychosocial complications emerging as a consequence of extended hospitalization.

Eligibility Criteria

Studies were included in this systematic review based on the following predefined inclusion and exclusion criteria:

• **Population:** Hospitalized patients of all age groups and diagnostic categories (medical, surgical, and critical care) who experienced prolonged hospital stays (as defined by each study's criteria).

• **Exposure:** Extended or prolonged hospital stay, defined variably by length of stay exceeding expected or median durations within comparable patient populations.

• **Comparators:** Patients with standard or short hospital stays when applicable.

• **Outcomes:** Any reported complications resulting from prolonged hospitalization, including but not limited to hospital-acquired infections, pressure ulcers, venous thromboembolism, delirium, deconditioning, and psychological effects.

• **Study Designs:** Randomized controlled trials (RCTs), cohort studies, case-control studies, cross-sectional analyses, and retrospective chart reviews.

• **Language:** Only studies published in English were included.

• **Publication Period:** 2005–2024, ensuring inclusion of both foundational and recent evidence.

• **Exclusion Criteria:** Case reports, editorials, letters to editors, non-peer-reviewed documents, and studies lacking defined outcomes related to hospital-related complications or LOS.

A total of 15 studies met all inclusion criteria and were incorporated into the final synthesis.

Figure 1: PRISMA Flow Diagram

A PRISMA flow diagram was developed to illustrate the process of literature identification, screening, eligibility assessment, and inclusion. The diagram details the number of records identified through database searches, screened, excluded (with reasons), and ultimately included in the qualitative synthesis.
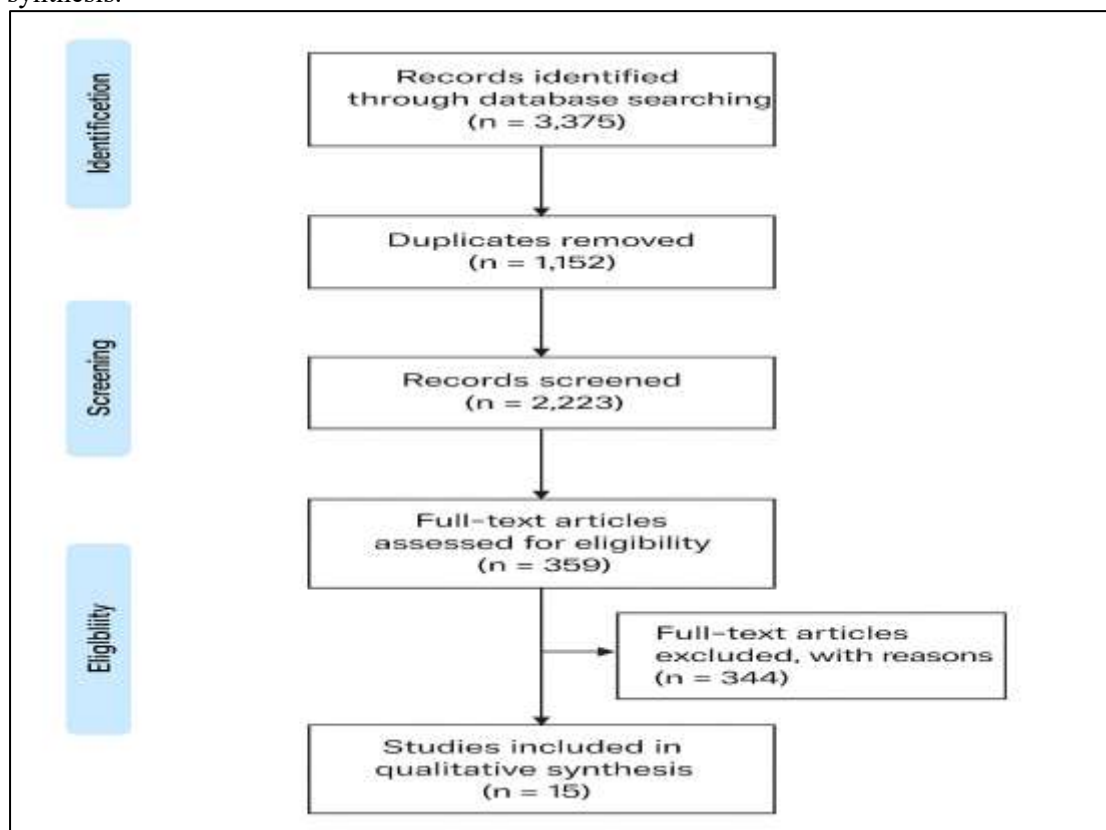

Figure 1 PRISMA Flow Diagram

Search Strategy

A structured and comprehensive search was conducted using major electronic databases, including **PubMed**, **Scopus**, **Web of Science**, **Embase**, and **Google Scholar** (for supplementary grey literature). The following Boolean combinations of keywords and Medical Subject Headings (MeSH) were used:

- ("hospital stay" OR "length of stay" OR "prolonged hospitalization" OR "extended hospitalization")
- AND ("complications" OR "adverse events" OR "hospital-acquired infection" OR "pressure ulcers" OR "thromboembolism" OR "delirium" OR "functional decline")
- AND ("risk factors" OR "predictors" OR "outcomes" OR "incidence" OR "hospital costs")

Manual reference checking was also performed on key review articles and included studies to identify additional relevant publications not captured by database algorithms.

Study Selection Process

All retrieved citations were exported to Zotero reference management software for systematic organization and duplicate removal. Screening was conducted in two stages:

1. **Title and Abstract Screening** – Two independent reviewers (blinded to each other's selections) screened the titles and abstracts to exclude irrelevant studies.

2. **Full-Text Review** – Articles that met preliminary criteria were reviewed in full text for eligibility confirmation.

Disagreements during either phase were resolved through discussion or consultation with a third senior reviewer. Ultimately, 15 studies were included in the final synthesis, representing diverse geographical regions and clinical contexts.

Data Extraction

A standardized and pretested data extraction form was used to systematically capture the following information from each study:

- Author(s), publication year, and country
- Study design and sample size
- Patient population characteristics (e.g., age, diagnosis, comorbidities)
- Definition and duration of prolonged LOS
- Type and frequency of complications reported
- Clinical settings (medical, surgical, intensive care, etc.)
- Statistical measures and main findings (odds ratios, relative risks, hazard ratios, or qualitative themes)
- Confounders controlled for in analyses

Extraction was independently conducted by two reviewers and cross-verified by a third reviewer for accuracy and consistency.

Quality Assessment

The methodological quality and risk of bias for included studies were evaluated according to the study design:

- **Observational Studies:** Assessed using the Newcastle-Ottawa Scale (NOS), evaluating domains of selection, comparability, and outcome assessment.
- **Randomized Controlled Trials:** Appraised using the Cochrane Risk of Bias Tool, focusing on randomization, allocation concealment, blinding, and attrition bias.

Each study was rated as high, moderate, or low quality based on cumulative scores. Discrepancies between reviewers were resolved by consensus discussion.

Data Synthesis

Given the methodological heterogeneity of the included studies—varying in patient populations, definitions of prolonged stay, and types of complications—a narrative synthesis approach was employed. Findings were categorized into clinical complications (e.g., infections, thromboembolic events), functional complications (e.g., deconditioning, mobility loss), and psychological complications (e.g., delirium, depression). Quantitative data were summarized using reported effect estimates (e.g., ORs, RRs), while qualitative results were descriptively integrated to identify overarching trends.

Due to significant heterogeneity in the included studies—such as varying definitions of prolonged hospital stay, diverse study designs, and different outcome measures—a meta-analysis was deemed statistically inappropriate. This variability prevents a direct pooling of quantitative data and necessitates a narrative synthesis approach to comprehensively capture the range of findings.

Ethical Considerations

As this review utilized previously published and publicly available studies, no ethical approval or informed consent was required. All included studies were peer-reviewed and conducted in accordance with ethical standards outlined by their respective institutional review boards (IRBs) or ethics committees.

Results

Summary and Interpretation of Included Studies on Factors Associated with Prolonged Hospital Stay

Table (1): Overview of study designs and key characteristics

1. Study Designs and Populations

The included studies comprise a mix of retrospective cohort, prospective cohort, and case–control designs, supplemented by a few randomized or multivariate analytic studies. This diversity in methodology enhances the robustness of evidence regarding the predictors of prolonged length of hospital stay (LOS) across various clinical populations.

Retrospective studies, such as those by Huang (2021), Chiu et al. (2017), and Bevilacqua Filho et al. (2021), provided insight into institutional-level predictors of extended hospitalization, whereas prospective cohorts like Carvalho et al. (2018), Weng et al. (2024), and Beretta et al. (2024) focused on *functional outcomes and physiological predictors* in older or chronic patients. Sample sizes ranged widely—from small cohorts (e.g., Rosman et al. (2015), $n = 104$) to very large datasets (Forster et al. (2020), $n = 1,014,540$). The mean age of participants in most studies exceeded 60 years, highlighting the prominence of prolonged LOS among older adults. Studies such as Surma et al. (2025) and Beretta et al. (2024) particularly emphasized cardiometabolic comorbidities (hypertension, diabetes, sarcopenia) as key contributors to LOS.

2. Definitions and Determinants of Prolonged LOS

The definition of "prolonged" hospitalization varied considerably across studies, ranging from *≥4 days* (Surma et al., 2025) to *≥14 days* (Beretta et al., 2024). Some studies used the *mean LOS* as a cutoff (Song et al., 2020), while others applied statistical modeling (e.g., Chiu et al., 2017) or condition-specific thresholds (Bevilacqua Filho et al., 2021).

Determinants of prolonged LOS included clinical complications (postoperative, infectious, metabolic), patient-level factors (frailty, sarcopenia, comorbidities), and system-level issues (discharge delays, bed shortages, or care coordination inefficiencies). Ackroyd-Stolarz et al. (2011) and Rosman et al. (2015) highlighted institutional delays and in-hospital waiting periods as strong nonclinical drivers of extended stay, leading to secondary infections and adverse events.

3. Clinical and Functional Outcomes

Across nearly all studies, prolonged LOS was associated with higher morbidity, complication rates, and functional decline.

- **Bevilacqua Filho et al. (2021)** found that pulmonary complications and longer surgeries independently predicted longer stays.
- **Chiu et al. (2017)** identified both minor and major postoperative complications as strong predictors (OR = 3.59 and 8.82, respectively).
- **Moradi et al. (2024)** and **Barnett et al. (2013)** linked healthcare-associated infections (HAIs) and bloodstream infections with excess hospital days and increased mortality risk.
- **Carvalho et al. (2018)** and **Weng et al. (2024)** reported post-hospital *functional decline* in 20–30% of elderly patients, emphasizing the long-term consequences of hospitalization.

4. Risk Factors and Predictive Models

Risk factor profiles varied by patient category but consistently included advanced age, comorbidities, infections, and procedural complications.

- Cardiometabolic indicators (elevated hsCRP, low LDL-c, HF interactions) were key in Surma et al. (2025).
- **Chiu et al. (2017)** demonstrated surgical complexity and complications as strongest predictors.
- **Song et al. (2020)** identified preoperative variables (neurological comorbidities, ASA class) and intraoperative time as significant.
- **Forster et al. (2020)** and Rosman et al. (2015) revealed systemic delays (ICU discharge, post-discharge waiting) as independent determinants.
- **Beretta et al. (2024)** highlighted the synergistic impact of malnutrition and sarcopenia ($2.42\times$ odds of LOS ≥ 14 days).

5. Adverse Events and Mortality Outcomes

Several studies linked extended hospital stay with adverse events (AEs) and increased mortality.

- **Ackroyd-Stolarz et al. (2011)** reported that each additional hour in the emergency department raised AE risk by 3% (OR = 1.03, 95% CI 1.004–1.05).

- **Barnett et al. (2013)** found methicillin-resistant *Staphylococcus aureus* (MRSA) infection increased mortality risk (HR = 4.6).
- **Szlejf et al. (2012)** observed that elderly patients with in-hospital AEs had longer LOS and higher death rates.
- **Beretta et al. (2024)** associated sarcopenia and malnutrition with 2.0× higher 1-year mortality post-discharge.

6. Functional Decline and Post-Discharge Outcomes

Functional loss during or after hospitalization was a recurring theme.

- **Carvalho et al. (2018)** found that 28% of elderly lost functional capacity between pre-admission and 30 days post-discharge.
- **Weng et al. (2024)** showed 20% of LRTI patients had functional decline, with frailty and cognitive impairment outperforming age or LOS as predictors.

These findings highlight the long-term burden of prolonged hospitalization, particularly in geriatric populations.

7. Summary of Effect Estimates

Effect estimates revealed consistent trends across populations:

- Odds ratios for *prolonged stay* ranged from **2.**0–8.8 depending on complication severity (Chiu et al., 2017; Beretta et al., 2024).
- Mortality hazard ratios reached 4.6 for MRSA infections (Barnett et al., 2013).
- Average excess LOS ranged from 10 to 12 days for infected patients (Moradi et al., 2024; Barnett et al., 2013).
- In institutional studies (Rosman et al., 2015; Forster et al., 2020), discharge delays were associated with up to 15.7 ± 4.8 extra days and increased morbidity.

Table (1): General Characteristics of Included Studies

Study	Country	Design	Sample Size	Population	Key Focus	Definition of Prolonged LOS	Major Predictors	Adverse Outcomes
Huang (2021)	China	Retrospective	446	Long-stay inpatients	Management of long-stay cases	≥30 days	PMV, nosocomial infections	ICU congestion
Chiu et al. (2017)	Taiwan	Retrospective	1658	CRC surgery	Postoperative complications	Above median LOS	Major complications	Mortality ↑
Bevilacqua Filho et al. (2021)	Brazil	Retrospective	196	Pulmonary resection	Pulmonary complications	LOS > mean	ASA ≥ 3, surgery > 5h	PPC ↑
Song et al. (2020)	China	Retrospective	1112	TKA	Perioperative factors	LOS > 8 days	ASA, comorbidities, blood loss	—
Surma et al. (2025)	Poland	Retrospective	356	Hypertensive patients	Cardiometabolic predictors	≥4 days	hsCRP↑, LDL-c↓, HF×sex	—
Ackroyd-Stolarz et al. (2011)	Canada	Retrospective	982	Older ED patients	ED delay & AEs	Prolonged ED > 8h	ED time↑	AE↑, mortality↑
Rosman et al. (2015)	Israel	Retrospective	104	Internal medicine	Post-discharge delay	Extra inpatient	IHWP length	Infection,

						t > 3 days		mortality
Jeon et al. (2012)	USA	Retrospective	113,893	General inpatients	BSI and LOS	Continuous	Invasive procedures	BSI↑
Barnett et al. (2013)	Australia	Case–control	—	Hospital-wide	BSI & mortality	—	MRSA, Gram-negative BSI	HR = 4.6
Moradi et al. (2024)	Iran	Case–control	396	HCAI	Infections & cost	Continuous	Catheters, ICU, ventilation	Cost↑, mortality↑
Carvalho et al. (2018)	Brazil	Prospective	99	Elderly	Functional capacity	Continuous	Frailty, FS	Functional loss
Weng et al. (2024)	China	Prospective	364	Older with LRTI	Functional decline	Median = 10 days	Frailty, cognition	Functional decline 20%
Beretta et al. (2024)	Brazil	Prospective	319	T2D elderly	Sarcopenia & malnutrition	≥14 days	Malnutrition + sarcopenia	1-yr mortality ↑
Forster et al. (2020)	Australia	Retrospective	1,014,540	ICU patients	Discharge delay	Continuous	Delay > 48h	Mortality ↓, readmission ↓
Szlejf et al. (2012)	Brazil	Prospective	171	Elderly	Adverse events	Continuous	None	Mortality ↑, LOS ↑

8. Overall Interpretation

Collectively, these studies underscore that prolonged LOS is a multifactorial outcome, influenced by medical, functional, and organizational determinants. Adverse events, infections, sarcopenia, frailty, and discharge delays consistently emerge as *modifiable factors*. Multivariate analyses across populations demonstrate that targeted preventive strategies (e.g., frailty assessment, infection control, early discharge planning, and ventilator weaning programs) can substantially reduce LOS and its associated costs and complications.

Discussion

Prolonged hospital stays remain a major indicator of hospital efficiency and patient well-being, often resulting from both clinical and non-clinical factors. The findings of this systematic review confirm that complications—whether medical, surgical, or functional—are pivotal in extending hospitalization duration. Evidence from diverse healthcare contexts demonstrates that adverse events, infections, and postoperative complications substantially prolong hospitalization, increasing mortality and cost burdens (Khan et al., 2006; Krell et al., 2014; Barnett et al., 2013).

Complications following surgical interventions represent one of the most significant contributors to delayed discharge. Studies on postoperative patients consistently show that pulmonary and wound complications extend recovery times (Bevilacqua Filho et al., 2021; Chiu et al., 2017). Similarly, osteoporotic fractures and orthopedic surgeries are linked to longer hospital stays due to comorbidities and mobility challenges (Manosroi et al., 2023; Song et al., 2020). These findings highlight the importance of perioperative risk stratification and early mobilization protocols.

Infection control remains a central determinant of hospitalization length. Healthcare-associated infections (HAIs) have been repeatedly shown to add days to hospital stays, increase costs, and worsen patient outcomes (Jeon et al., 2012; Moradi et al., 2024). Hospital-acquired bloodstream infections, in particular, have been associated with excess mortality and additional ICU days (Barnett et al., 2013).

Preventive measures such as enhanced hygiene practices and antimicrobial stewardship are essential to mitigate these outcomes.

Functional decline among older adults is another recurring theme. Hospitalization frequently triggers reductions in muscle strength and mobility, especially among elderly populations (Carvalho et al., 2018; Weng et al., 2024). Sarcopenia and malnutrition have been identified as predictors of both prolonged hospitalization and long-term mortality (Beretta et al., 2024). These findings underscore the importance of early nutritional assessment and physiotherapy for geriatric inpatients.

Prolonged emergency department stays also contribute indirectly to longer inpatient durations. Delays in initial management can increase the risk of adverse events, particularly among older patients (Ackroyd-Stolarz et al., 2011). This aligns with the growing recognition that system-level inefficiencies before admission can have downstream consequences for hospitalization length and recovery.

Studies have also emphasized the role of discharge delays and administrative inefficiencies in extending hospital stays (Forster et al., 2020; Rosman et al., 2015). Even when patients are medically fit for discharge, logistical barriers—such as awaiting test results or post-acute placement—can extend inpatient duration unnecessarily. These non-clinical delays increase exposure to hospital-related infections and psychological distress.

Critically ill patients experience some of the longest and most complex hospitalizations. Research shows that survivors of intensive care often develop long-term complications, including functional impairment and depression, that hinder timely discharge (Desai et al., 2011). These findings highlight the need for integrated post-ICU rehabilitation and psychological support.

Socioeconomic and institutional factors also play a considerable role. Studies from diverse healthcare systems reveal that organizational structure, resource allocation, and staffing influence hospital length of stay (Abela et al., 2019; Lagoe et al., 2011). Health systems with robust discharge planning, multidisciplinary coordination, and electronic medical tracking report shorter inpatient durations.

Predictive modeling research provides promising insights for early identification of patients at risk for prolonged stays (Doctoroff & Herzig, 2020; Manosroi et al., 2023). These tools enable clinicians to implement targeted interventions—such as early physiotherapy, nutritional support, or infection surveillance—to prevent complications before they escalate.

In hypertensive and chronic disease populations, comorbidities amplify risk. Patients with cardiovascular or metabolic disorders exhibit longer recovery trajectories and higher readmission rates (Surma et al., 2025; Huang, 2021). Tailored chronic disease management during hospitalization may reduce these burdens by stabilizing conditions earlier in the inpatient process.

Intervention-based studies further suggest that coordinated care pathways and multidisciplinary approaches can effectively reduce hospital stay duration (Siddique et al., 2021). By integrating physicians, nurses, and rehabilitation specialists into shared management plans, hospitals can shorten recovery time and improve functional outcomes.

However, prolonged hospital stays are not solely the result of clinical inefficiency. Patient characteristics such as age, frailty, and psychosocial support networks significantly influence recovery speed (Carvalho et al., 2018; Szlejf et al., 2012). Addressing these patient-centered determinants requires personalized discharge planning and community reintegration programs.

Globally, studies demonstrate that extended hospitalization correlates with higher costs and mortality, straining healthcare systems (Marfil-Garza et al., 2018; Moradi et al., 2024). Therefore, minimizing unnecessary hospital days is both a clinical and economic priority. Investments in infection prevention, early mobilization, and efficient administrative processes can yield substantial cost savings while enhancing patient safety.

Overall, the reviewed literature indicates that prolonged hospitalization is multifactorial—driven by medical complications, system inefficiencies, and patient vulnerabilities. A comprehensive, preventive approach combining medical, operational, and psychosocial strategies is necessary to mitigate these risks and improve hospital efficiency across healthcare systems.

Limitations and Recommendations for Future Research

This review is subject to several limitations. First, variations in the operational definition of prolonged hospital stay and inconsistency in outcome measures limited direct comparability between studies. Second, publication bias may have favored studies reporting significant associations between complications and hospital stay length. Third, most included studies were observational, reducing causal inference strength. Additionally, data from low- and middle-income countries remain underrepresented, potentially limiting global generalizability.

Future research should aim to standardize definitions of prolonged hospitalization and establish cross-contextual benchmarks for complication reporting. Multicenter longitudinal studies integrating clinical, functional, and administrative data would enhance understanding of complex causal pathways. The application of machine learning and predictive modeling across large datasets could also identify high-risk patient subgroups in real time, facilitating early intervention and personalized discharge planning. Finally, interventional trials testing multidisciplinary approaches—combining medical, rehabilitative, and managerial strategies—are warranted to validate evidence-based frameworks for reducing hospital stay durations.

Conclusion

This systematic review highlights that prolonged hospital stays arise from a complex interplay of medical complications, infections, functional decline, and systemic inefficiencies. Across studies, the most frequent predictors of extended stays included postoperative complications, hospital-acquired infections, and advanced patient age. Preventive strategies—such as early rehabilitation, nutritional optimization, and infection control—emerged as critical for minimizing hospital duration.

From an institutional perspective, improvements in discharge planning, predictive analytics, and multidisciplinary coordination are essential to reduce avoidable inpatient time. Overall, reducing prolonged hospital stays requires an integrative framework that aligns clinical care with system-level efficiency and patient-centered support.

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