Balanced Scorecard for Hospital Performance Evaluation: A Systematic Review of Implementation, Outcomes, and Challenges

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ABSTRACT

Hospitals must demonstrate financial sustainability, clinical quality, patient safety, patient-centeredness, operational efficiency, workforce development, and accountability. Financially oriented performance measurement alone is insufficient for this multidimensional environment. The Balanced Scorecard (BSC) translates organizational strategy into integrated indicators across financial, customer, internal business process, and learning and growth perspectives. This review aimed to synthesize the implementation, outcomes, benefits, and challenges of BSC use in hospital performance evaluation. A systematic review was conducted in accordance with PRISMA 2020. PubMed, Scopus, Google Scholar, and DOAJ were searched for studies published from January 2010 to December 2025. The timeframe was selected to capture contemporary hospital management evidence after BSC use in healthcare had matured and to reflect the period of increasing digitalization, quality governance, and performance accountability in hospitals. Eligible studies examined BSC implementation, BSC-based performance evaluation, or BSC framework development in hospital settings. Two reviewers independently screened records, extracted data, and appraised study quality using design-appropriate Joanna Briggs Institute tools. Findings were synthesized narratively and mapped to the four BSC perspectives. From 312 records identified, 287 records remained after duplicate removal and were screened. Forty-two full-text reports were assessed, and 14 studies met the eligibility criteria. The included studies came from Indonesia, Qatar, Taiwan, Spain, Turkey, and global healthcare settings. BSC implementation was associated with improved strategic alignment, cost control, patient satisfaction, service quality, waiting-time reduction, clinical process monitoring, staff competency, employee engagement, and organizational learning. The most common barriers were weak data quality, limited integration with hospital information systems, resistance to change, insufficient staff understanding of BSC concepts, and inadequate managerial commitment.BSC is an effective and adaptable framework for hospital performance evaluation because it integrates financial and non-financial indicators and links strategic objectives with operational performance. The novelty of this review lies in its synthesis of recent international and Indonesian evidence, analytical mapping of BSC indicators across hospital domains, and emphasis on integration with digital hospital information systems and real-time performance dashboards as an emerging direction for hospital governance.

I. Introduction

Hospitals operate in an increasingly complex environment characterized by rising patient expectations, technological innovation, cost pressure, regulatory demands, workforce constraints, and the need for transparent accountability. Hospital performance cannot be evaluated adequately by financial indicators alone. A financially stable hospital may still experience poor patient experience, long waiting times, inadequate clinical quality, weak staff development, or patient-safety risks. Conversely, improvement in clinical and service processes may not be sustainable if it is not aligned with strategic governance and resource allocation. Therefore, hospital performance evaluation requires an integrated framework that connects strategic objectives with measurable operational outcomes (Donabedian, 1988; Kaplan & Norton, 1992).

The Balanced Scorecard (BSC) was introduced by Kaplan and Norton (1992) to address the limitations of traditional financial measurement. After first introduction, the term BSC is used consistently throughout this article. The theoretical contribution of BSC is that organizational performance should be viewed through four complementary perspectives: financial, customer, internal business process, and learning and growth. The financial perspective evaluates economic sustainability and resource stewardship; the customer perspective captures satisfaction, trust, service quality, and patient-centeredness; the internal business process perspective measures the quality and efficiency of clinical and operational processes; and the learning and growth perspective evaluates human capital, organizational culture, innovation, and information-system capacity (Kaplan & Norton, 1996, 2001).

BSC is particularly useful in the hospital industry because hospitals must balance social responsibility, clinical effectiveness, patient safety, education, research, employee development, and financial accountability. Unlike single-dimensional scorecards, BSC links intangible resources such as staff competence, organizational learning, and digital infrastructure with operational performance and patient outcomes. This causal logic is highly relevant for healthcare organizations, in which improvements in people, data systems, and internal processes are expected to enhance patient experience and ultimately support financial sustainability (Amer et al., 2022; Betto et al., 2022).

Previous studies have reported that BSC implementation in healthcare organizations can improve patient satisfaction, financial performance, service quality, clinical-process monitoring, and managerial decision-making (Al-Kaabi et al., 2019; Bisbe & Barrubes, 2012; Lin et al., 2023). However, the effectiveness of BSC varies across hospital ownership, hospital type, data-system readiness, leadership style, and organizational culture. In some hospitals, BSC is implemented as a strategic management system, whereas in others it remains a reporting instrument with limited influence on managerial action. This gap is particularly important in developing-country hospital settings, where performance culture, information systems, and managerial capacity may be uneven.

The novelty of this review is threefold. First, it synthesizes recent evidence from both international and Indonesian hospital settings, enabling comparison between mature and developing healthcare management contexts. Second, it maps hospital performance indicators explicitly across the four BSC perspectives and interprets which domains act as drivers or outcomes. Third, it highlights the emerging need to integrate BSC with Hospital Management Information Systems, electronic medical records, real-time dashboards, and data-driven governance. This review therefore contributes practical and theoretical insight into how BSC can be used not merely as a measurement tool, but as a strategic framework for hospital transformation.

This study aimed to systematically review the implementation of BSC in hospitals and to identify its reported benefits, effectiveness, outcomes, and implementation challenges.

II. Methods

This study employed a systematic review design and was reported in accordance with the PRISMA 2020 statement (Page et al., 2021). The review focused on studies evaluating the implementation, design, use, or outcomes of BSC in hospital performance measurement. Because the included literature was expected to be heterogeneous in design, setting, and outcome measurement, a narrative synthesis approach was used rather than meta-analysis (Snyder, 2019; Thomas & Harden, 2008).

The search covered articles published from January 2010 to December 2025, with the final search updated in June 2026. The year 2010 was selected as the starting point because it represents a contemporary period in which BSC application in healthcare had moved beyond early conceptual

adoption toward implementation, evaluation, and integration with quality and information-system agendas. The endpoint of 2025 was chosen to include the most recent complete publication year before the final search update, thereby minimizing incomplete indexing from the current year.

The literature search was conducted in PubMed, Scopus, Google Scholar, and the Directory of Open Access Journals (DOAJ). Search terms were developed around three concepts: BSC, hospital or healthcare organization, and performance evaluation or strategic management. Boolean operators, truncation, and database-specific fields were applied where available.

Search Strategy

Database	Complete search strategy
PubMed	(("balanced scorecard"[Title/Abstract]) OR ("BSC"[Title/Abstract])) AND ((hospital*[Title/Abstract]) OR (healthcare[Title/Abstract]) OR ("health care"[Title/Abstract]) OR ("healthcare organization"[Title/Abstract])) AND ((performance[Title/Abstract]) OR ("performance measurement"[Title/Abstract]) OR ("performance evaluation"[Title/Abstract]) OR ("strategic management"[Title/Abstract])) Filters: English or Indonesian; 2010-2025.
Scopus	TITLE-ABS-KEY("balanced scorecard" OR BSC) AND TITLE-ABS-KEY(hospital* OR healthcare OR "health care" OR "healthcare organization") AND TITLE-ABS-KEY("performance measurement" OR "performance evaluation" OR performance OR "strategic management") AND PUBYEAR > 2009 AND PUBYEAR < 2026.
Google Scholar	"balanced scorecard" "hospital performance"; "balanced scorecard" "healthcare management"; "balanced scorecard" "hospital" "performance measurement". The first 200 results were screened by relevance because Google Scholar ranks records by a combination of relevance, citation, and indexing factors.
DOAJ	"balanced scorecard" AND (hospital OR healthcare OR "health care") AND (performance OR "performance measurement" OR "performance evaluation"). Filters: peer-reviewed journal articles; 2010-2025; English or Indonesian where available.

Eligibility Criteria and Study Selection

Inclusion criteria were defined to ensure that selected studies were directly relevant to BSC use in hospital performance evaluation. Studies were included when they: (1) examined BSC implementation, BSC-based performance measurement, or BSC framework development in hospital settings; (2) focused on hospitals, hospital departments, or healthcare organizations that delivered hospital-related services; (3) reported indicators, outcomes, barriers, or implementation processes related to at least one BSC perspective; (4) were empirical studies, case studies, framework-development studies, review articles, conceptual studies, or implementation reports; (5) were published between 2010 and 2025; (6) were written in English or Indonesian; and (7) had accessible full text.

Exclusion criteria were applied in several stages. Records were excluded when they: (1) were conducted outside hospital or healthcare organizational settings; (2) mentioned BSC but did not use it as the primary framework; (3) were editorials, opinion pieces, conference abstracts without full text, theses, or non-scientific publications; (4) lacked sufficient information on BSC indicators, outcomes, implementation process, or barriers; or (5) were duplicate or overlapping reports. Out of 287 screened records after duplicate removal, 273 were excluded overall: 245 after title and abstract screening and 28 after full-text assessment. This large reduction occurred because many records used the term performance measurement without applying BSC, were conducted in non-hospital organizations, lacked full-text access, or did not report extractable BSC indicators and outcomes.

Two reviewers independently screened titles and abstracts against the eligibility criteria. Potentially relevant reports were retrieved in full text and assessed for final inclusion. Disagreements were resolved through discussion with a third reviewer. Reasons for full-text exclusion were recorded and incorporated into the PRISMA flow diagram.

Data Extraction and Quality Assessment

Data extraction was performed using a standardized extraction form. Extracted variables included author, year, country, study design, study population or sample, hospital type or setting, data-collection methods, objective, BSC perspectives and indicators used, key findings, implementation barriers, and limitations. One reviewer extracted the data and a second reviewer verified completeness and accuracy. Discrepancies were resolved by consensus.

Methodological quality was assessed using Joanna Briggs Institute critical appraisal tools selected according to study design (Joanna Briggs Institute, 2017). For conceptual and framework-development studies, appraisal emphasized clarity of objectives, relevance of the framework, transparency of data source or rationale, and acknowledgement of limitations. The quality appraisal was not used to exclude studies; instead, it informed the interpretation of evidence strength and the confidence placed in each study finding.

PRISMA Flow Diagram

The study selection process is summarized in Figure 1.

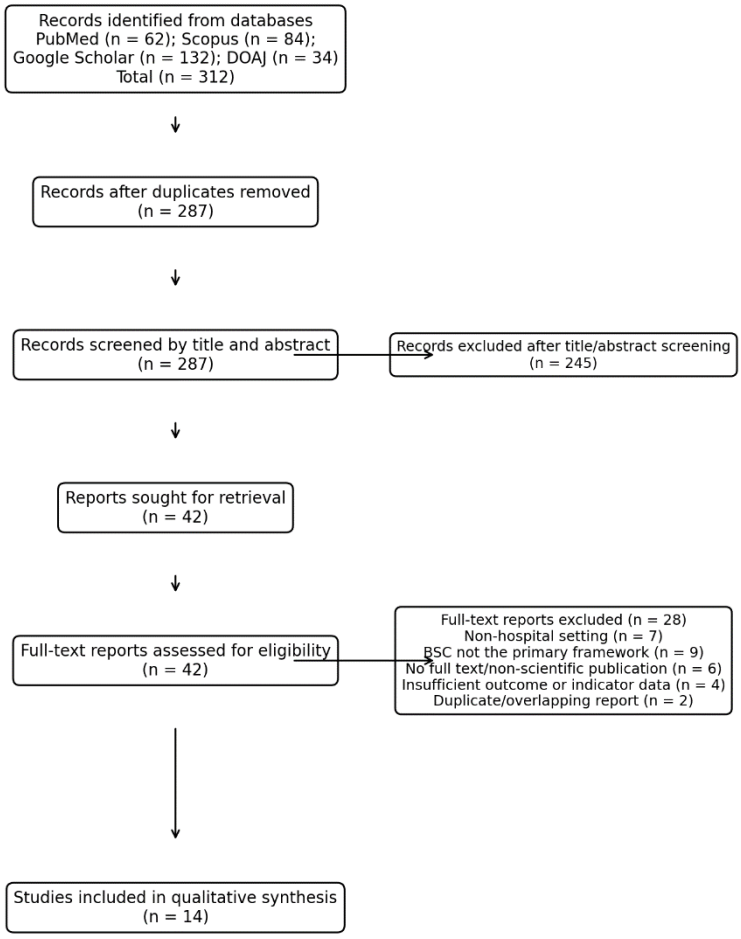

Figure 1. PRISMA 2020 flow diagram of study selection process.

III. Results and Discussion

Result

The database search identified 312 records. After duplicate removal, 287 records were screened by title and abstract. Forty-two full-text reports were assessed for eligibility, and 14 studies met the inclusion criteria and were included in the qualitative synthesis. The main reasons for exclusion at the full-text stage were non-hospital setting, BSC not being the primary framework, inaccessible or non-scientific full text, insufficient outcome or indicator data, and duplicate or overlapping reports.

The included studies demonstrated methodological heterogeneity. They consisted of empirical hospital performance evaluations, case studies, BSC framework-development studies, conceptual

reviews, and systematic reviews. The studies were conducted in Indonesia, Qatar, Taiwan, Spain, Turkey, and global healthcare contexts. Most studies used the four original BSC perspectives, although the indicators used within each perspective varied according to hospital type, data availability, and managerial priorities.

Overall, BSC implementation was associated with positive contributions across all four perspectives. Financial improvements included better cost control, budget efficiency, cost effectiveness, and strategic resource allocation. The customer perspective was represented by patient satisfaction, service quality, responsiveness, accessibility, and patient-centered care. Internal business process indicators included waiting time, clinical pathways, quality of care, bed occupancy, length of stay, productivity, patient safety, and workflow efficiency. The learning and growth perspective included staff competency, training, employee retention, motivation, organizational culture, innovation capability, and information-system readiness.

Table 1. Characteristics of included studies, population or sample, hospital type, data collection methods, indicators, and findings.

Author/ year	Country	Design	Study population/sample	Hospital type/setting	Data collection methods	BSC indicators used	Key findings	Limitations
Guo et al. (2024)	Global	Conceptual review	Published literature and hospital management concepts	Hospital management/health care organizations	Conceptual synthesis of retention and organizational excellence literature	Financial, customer, internal process, learning and growth; emphasis on employee retention and engagement	BSC was interpreted as a strategic tool for employee engagement, retention, and organizational performance.	No empirical hospital dataset.
Lin et al. (2023)	Taiwan	AHP-DEMATEL study	Seven healthcare experts	Medical institutions/hospital service performance	Expert judgement using AHP-DEMATEL	22 BSC-based indicators across four perspectives	Mapped causal relationships among indicators and identified service quality as an influential performance driver.	Relied on expert opinion.
Abu Jaber & Nashwan (2022)	Qatar	Framework development	Government hospital performance constructs	Government hospitals	Framework development from literature and construct mapping	Operational indicators across financial, patient, process, and learning domains	Proposed a comprehensive BSC framework for hospital performance measurement.	Framework not empirically validated.
Bisbe & Barrubes (2012)	Spain	Empirical study	Hospital cardiology unit	Specialized hospital unit	Case-based implementation and strategy monitoring	Clinical process, financial stewardship, patient outcomes, learning and management indicators	Showed that BSC can assess and monitor strategy implementation in healthcare organizations.	Specialized single-unit setting.

Author/ year	Country	Design	Study population/sample	Hospital type/setting	Data collection methods	BSC indicators used	Key findings	Limitations
Al-Kaabi et al. (2019)	Qatar	Case study	Medical Commission Department, Ministry of Public Health	Government healthcare service organization	Document review, performance data, and organizational analysis	Budget efficiency, accessibility, waiting time, productivity, staff development	BSC improved process efficiency, service quality, and management monitoring.	Single institution.
Coskun & Senyigit (2010)	Turkey	Conceptual study	Healthcare organizations discussed conceptually	Healthcare organizations	Conceptual framework analysis	Cost management, patient value, workflow efficiency, employee capabilities	Proposed a healthcare BSC model and emphasized adaptation to service organizations.	No empirical data.
Betto et al. (2022)	Global	Systematic review	Healthcare BSC studies	Healthcare organizations	Systematic literature review	BSC design, implementation, use, and review indicators	Showed that BSC evolved from a measurement tool into a strategic and operational management system.	Heterogeneity among included studies.
Amer et al. (2022)	Global	Systematic review	Healthcare organizations in published studies	Healthcare organizations	Systematic review and synthesis	Patient satisfaction, financial performance, care quality, internal process, staff measures	Reported beneficial effects of BSC deployment in healthcare organizations, although certainty varied.	Risk of bias varied.

Author/ year	Country	Design	Study population/sample	Hospital type/setting	Data collection methods	BSC indicators used	Key findings	Limitations
Citradika & Satrio (2021)	Indonesia	Case study	Batang Regional General Hospital	Regional public hospital	Retrospective hospital data and BSC assessment	Revenue, patient satisfaction, BOR, LOS, waiting time, staff competence	Identified weaker customer and internal process performance requiring managerial improvement.	Retrospective data.
Amna (2023)	Indonesia	Review	Indonesian hospital literature	Indonesian hospitals	Narrative review	Financial, customer, internal process, learning and growth indicators	Supported BSC as a comprehensive hospital performance evaluation framework.	No quantitative synthesis.
Oktariyana et al. (2025)	Indonesia	Empirical study	St. Carolus Borromeus Hospital, Kupang	Private/faith-based hospital	Hospital performance data and BSC analysis	Financial ratios, service outcomes, medical processes, motivation and training	Internal processes were relatively strong, whereas financial performance required improvement.	Limited data availability.
Sibarani & Zahara (2025)	Indonesia	Case study	Bhayangkara Hospital, Bengkulu	Police/public hospital	BSC-based hospital assessment using available data	Budget efficiency, patient satisfaction, administrative and clinical processes, staff discipline	Performance improved mainly in internal process indicators.	Limited primary data.
Yastini et al. (2025)	Indonesia	Empirical study	Negara General Hospital, Jembrana	Regional public hospital	Hospital data and BSC performance analysis	Regional revenue, patient satisfaction, patient safety,	Internal process and learning/growth perspectives	Regional hospital setting.

Author/ year	Country	Design	Study population/sample	Hospital type/setting	Data collection methods	BSC indicators used	Key findings	Limitations
						service quality, training	performed well, while financial performance remained weak.	
Menna & Temesvari (2022)	Indonesia	Empirical study	Indonesian hospital sample	Indonesian hospitals	Hospital performance data and BSC analysis	Cost efficiency, patient satisfaction, clinical quality, service quality, human resource development	Improved patient-related and internal process outcomes, but financial performance remained suboptimal.	Small sample size.

Analytical Synthesis of BSC Perspectives

Table 2 presents an analytical synthesis rather than repeating individual indicators. It highlights cross-study patterns, interpretation, managerial implications, and evidence strength.

BSC perspective	Cross-study pattern	Analytical interpretation	Managerial implication	Evidence strength
Financial	Financial indicators were consistently included but showed the greatest variation across settings. Indonesian regional hospitals often reported weaker financial results than better-resourced international settings.	Financial outcomes appear to depend on governance autonomy, budget flexibility, and information-system capacity. Indicator monitoring alone is insufficient without managerial authority and strategic budgeting.	Connect BSC to performance-based budgeting, cost-control programs, service-line analysis, and investment planning.	Moderate
Customer	Patient satisfaction, responsiveness, accessibility, and service quality were frequently improved or prioritized.	Customer outcomes were strongly linked to waiting time, communication, service reliability, and perceived safety. This suggests	Use patient-related indicators as strategic signals for service redesign, communication	Moderate to high

BSC perspective	Cross-study pattern	Analytical interpretation	Managerial implication	Evidence strength
		that patient experience is an outcome of internal process quality.	improvement, and patient-centered care.	
Internal business process	This was the most operationally actionable perspective, including waiting time, clinical pathways, LOS, BOR, productivity, and patient safety.	Internal process indicators function as the bridge between strategy and daily hospital operations. They are also the domain most directly influenced by clinical governance and quality-improvement cycles.	Embed BSC into departmental reviews, clinical pathway monitoring, patient-safety programs, and continuous quality improvement.	High
Learning and growth	Staff competence, training, engagement, organizational culture, innovation, and information-system readiness acted as enabling factors.	Learning and growth is an upstream driver. Weak staff understanding, data literacy, and culture can cause BSC to become a documentation exercise rather than a strategic tool.	Invest in BSC training, leadership commitment, data-literacy development, and digital dashboard capability.	Moderate

Methodological Quality Assessment

Study group	Quality considerations	Overall appraisal
Empirical and case studies	Clear objectives and relevant BSC indicators were usually reported. However, several studies relied on retrospective data, single-hospital settings, or limited primary data.	Moderate
Framework and conceptual studies	These studies contributed to indicator development and conceptual clarity but lacked empirical validation.	Low to moderate
Systematic reviews	Reviews provided broad evidence on BSC deployment and evolution in healthcare. Heterogeneity and risk-of-bias concerns limited certainty.	Moderate to high

Discussion

This systematic review confirms that the Balanced Scorecard (BSC) remains a relevant and comprehensive framework for hospital performance evaluation. Its main advantage is not simply the presence of four categories of indicators, but the strategic logic connecting them. In hospitals, financial sustainability, patient experience, clinical quality, staff competence, and information-system readiness are mutually dependent. The BSC provides a structure for interpreting these relationships and for translating strategic priorities into measurable managerial actions (Kaplan & Norton, 1996, 2001; Betto et al., 2022).

The findings support the theoretical assumption that learning and growth and internal business processes are upstream drivers of customer and financial outcomes. Staff competence, employee engagement, organizational culture, and information-system readiness influence the ability of hospitals to improve workflows, reduce waiting times, standardize clinical processes, and strengthen quality management. These internal improvements then contribute to better patient satisfaction and more efficient use of resources. Therefore, hospitals should not interpret the BSC as a static reporting template, but as a strategic map that links capacity development with service and financial outcomes (Kaplan & Norton, 2001; Guo et al., 2024; Lin et al., 2023).

From the financial perspective, the BSC can support cost control, budget efficiency, and resource allocation. However, the financial impact was not uniform across studies. Public and regional hospitals, particularly in developing-country contexts, often showed weaker financial performance because of budget dependency, limited managerial autonomy, and insufficient investment in digital infrastructure. This finding indicates that the BSC cannot improve financial performance through measurement alone. Financial gains require integration with budgeting mechanisms, cost-accounting systems, service-line management, and leadership commitment (Al-Kaabi et al., 2019; Abu Jaber & Nashwan, 2022; Amer et al., 2022).

From the customer perspective, improvements in patient satisfaction and service quality were repeatedly reported. These outcomes were not independent from internal process performance. Waiting time, accessibility, clinical communication, and perceived responsiveness shape patients' perceptions of hospital quality. Thus, customer indicators should be interpreted as strategic outcome indicators that reflect the combined performance of workforce capacity, workflow efficiency, and service culture (Donabedian, 1988; Lin et al., 2023; Amer et al., 2022).

The internal business process perspective was the most operationally actionable domain across studies. Indicators such as waiting time, clinical pathway compliance, bed occupancy, length of stay, productivity, and patient safety are directly relevant to daily hospital management. The evidence suggests that the BSC becomes more useful when it is embedded in continuous quality improvement, clinical governance, departmental performance review, and accreditation preparation. Without these managerial routines, internal-process indicators may be collected but not translated into improvement (Bisbe & Barrubés, 2012; Al-Kaabi et al., 2019; Betto et al., 2022).

The learning and growth perspective emerged as a critical determinant of successful BSC implementation. Hospitals require trained staff, leadership commitment, data literacy, and a performance-oriented culture to use the BSC effectively. Without these foundations, the BSC may become a documentation exercise rather than a driver of organizational learning. This finding is especially important for developing-country hospitals, where performance measurement systems are often constrained by fragmented information systems and uneven staff familiarity with strategic management tools (Guo et al., 2024; Abu Jaber & Nashwan, 2022; Betto et al., 2022).

A major challenge identified in this review is the gap between BSC design and BSC implementation. Several hospitals were able to formulate indicators but faced barriers in data quality, information-system integration, staff resistance, and managerial follow-up. This gap explains why BSC effectiveness varies across hospitals. A technically well-designed scorecard may produce limited benefits if indicators are not linked to decision-making, accountability, budget planning, and quality-improvement actions (Amer et al., 2022; Betto et al., 2022; Sjahrial & Junadi, 2025).

The practical implication is that hospitals should integrate the BSC with Hospital Management Information Systems, electronic medical records, and digital performance dashboards. Such integration can reduce manual reporting, improve data timeliness, and support real-time monitoring of key performance indicators. Digital integration also helps transform the BSC from a retrospective reporting tool into a prospective governance system that supports evidence-based decision-making (Abu Jaber & Nashwan, 2022; Lin et al., 2023; Betto et al., 2022).

This review has several limitations. First, the included studies were heterogeneous in design, setting, and indicators, preventing meta-analysis. Second, several studies were conceptual or single-institution reports,

which limits generalizability. Third, some included studies did not report complete methodological details or standardized

outcome measures. Nevertheless, the review provides a structured synthesis of BSC implementation in hospitals and identifies areas requiring future research. These limitations are consistent with methodological challenges commonly found in narrative synthesis and systematic reviews of heterogeneous management studies (Snyder, 2019; Thomas & Harden, 2008; Page et al., 2021).

Future studies should evaluate the effectiveness of digital BSC dashboards, determine causal relationships among BSC perspectives using longitudinal data, and examine how the BSC can be integrated with hospital accreditation standards, patient safety indicators, and performance-based budgeting. More empirical research is needed in developing-country hospitals to assess implementation readiness, data quality, and organizational culture as determinants of BSC success (Betto et al., 2022; Amer et al., 2022; Abu Jaber & Nashwan, 2022).

Conclusion

BSC is an effective and adaptable framework for evaluating and improving hospital performance. Across the included studies, BSC implementation contributed to improvements in financial management, patient satisfaction, service quality, internal processes, staff competency, and organizational learning. The strongest contributions were observed when BSC was used as a strategic management system rather than merely as a reporting tool.

Hospitals in developing-country contexts continue to face challenges, including weak data quality, limited information-system integration, insufficient staff training, and resistance to change. Successful BSC implementation requires leadership commitment, reliable data infrastructure, clear indicator ownership, and integration with hospital digital systems.

Overall, BSC should be positioned as a strategic governance framework that supports hospital transformation toward efficient, high-quality, accountable, and patient-centered healthcare delivery.

Recommendations

1. Hospitals should integrate BSC with Hospital Management Information Systems and digital dashboards to support real-time performance monitoring.
2. Hospital managers should provide structured training on BSC concepts, indicator interpretation, and data-driven decision-making.
3. BSC indicators should be aligned with hospital strategic plans, accreditation standards, patient-safety goals, and departmental performance targets.
4. Future research should test digital BSC models, evaluate causal relationships among BSC perspectives, and develop validated BSC indicator sets for different hospital types.

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