



Quality Management Practices in Pakistan's Healthcare System: A Systematic Literature Review

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ABSTRACT

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Quality management (QM) has become a central strategy for improving performance, patient safety, and service quality in health care worldwide, yet the evidence for Pakistan remains fragmented across individual studies, institutions, and provinces. The present study identifies the set of QM practices associated with successful implementation and quality improvement in Pakistan's health-care system through a systematic review of the literature. A structured search strategy was applied to peer-reviewed studies published between 2000 and 2025 across five databases (Scopus, Web of Science, PubMed/MEDLINE, ProQuest, and ScienceDirect). Following a multi-stage screening process modelled on Talib, Rahman, and Azam (2011), 15 empirical and review studies conducted in Pakistani health-care settings were selected and analysed. Eight recurring QM practices top-management commitment (leadership), infrastructure and resource management, human-resource management and training, patient safety culture, service quality and patient focus, process management and standardization, continuous quality improvement, and health information and documentation systems were identified as the practices most consistently reported, ranked by frequency of occurrence. The article concludes with managerial implications for Pakistani health managers and recommendations for future research.

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1.0 Introduction

Health care delivery in developing nations is continually faced with the challenge of offering quality and effective care while operating under tight budgets. Pakistan's health care system consists of a three-tier private-public system, offering primary, secondary and tertiary care, a legacy of the colonial period. Chronic under-funding, shortage of personnel, poor governance and lack of infrastructure are some of the problems facing Pakistan's health care service delivery systems, more especially the public health care service delivery system (Khalid et al., 2018).

Historically, public health spending in Pakistan has been low, averaging around 0.5 to 0.8 percent of GDP, well below the WHO's recommendation. Quality Management (QM) and the extended form of Total Quality Management (TQM) has gained wide acceptance throughout the world in health care delivery as an effective strategy (Talib et al., 2011; Alzoubi et al., 2019). Although the concept originated in manufacturing, it has become central to health-care quality management, and empirical work across developing countries has repeatedly linked its adoption to improved outcomes (Mosadegh Rad, 2005; Alzoubi et al., 2019).

In Pakistan, interest in QM has grown along three lines. First, service-quality measurement using the SERVQUAL model documented substantial expectation–perception gaps and a private-sector advantage (Irfan & Ijaz, 2011; Siddiq et al., 2019). Second, a stream of TQM–performance studies linked QM practices to operational and non-financial performance (Irfan et al., 2012; Maqsood et al., 2019; Shah et al., 2022). Third, hospital accreditation and patient-safety-culture measurement expanded rapidly, with tertiary institutions such as the Aga Khan University Hospital, Karachi, formally surveying safety culture across twelve dimensions (Ahmed et al., 2023). Despite this growth, no systematic synthesis has consolidated the QM practices that underpin quality improvement specifically in the Pakistani context.

2.0 Literature Review

Quality in health care is commonly defined as the degree to which health services increase the likelihood of desired outcomes and remain consistent with current professional knowledge, spanning safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity. TQM is perceived as a philosophy of continuous improvement, good customer relations, and complete employee participation (Talib et al., 2011; Alzoubi et al., 2019).

Early and most common Pakistani studies have studied quality in terms of service-quality measurement. According to Irfan and Ijaz (2011), who surveyed 320 patients from public and private hospitals in Lahore using a modified SERVQUAL scale, private hospitals provide better service quality perceptions, particularly regarding tangibles and responsiveness. Similarly, according to Siddiq et al. (2019), examining six dimensions of quality of services among 1,200 patients in tertiary hospitals of Peshawar, there were consistent gaps between expectations and perception in both sectors, calling for feedback-driven continuous improvement.

Another stream has focused on the link between TQM practices and performance. Irfan et al. (2012) identified a positive link between TQM approach and operational performance in a public hospital, with leadership and process control as the main facilitators. According to Maqsood et al. (2019), who surveyed 150 managers from five JCI- or ISO-certified hospitals, 63% of the

variability of non-financial performance was accounted for by TQM practices ($\beta = 0.793$, $R^2 = 0.629$), with JCI-certified hospitals having higher scores than ISO-based ones. Extending this to collaborative settings, Shah et al. (2022) used PLS-SEM on 296 respondents from public and NGO health-care organizations and found that QM practices significantly improved inter-organizational project performance, moderated by communication and process conflict.

A third, rapidly growing stream concerns patient safety culture, propelled by hospital accreditation. Ahmed et al. (2023) administered the Hospital Survey on Patient Safety Culture to 2,959 staff at the Aga Khan University Hospital, Karachi, finding a generally favourable culture but a low reporting rate only 33.1% of respondents had filed at least one event report in the previous year alongside weaknesses in staffing and communication. Complementary quality-improvement projects using plan-do-study-act cycles have demonstrated measurable gains in documentation and transfer safety (Lakhani et al., 2025). Finally, health-systems reviews have documented the structural barriers to quality, including under-funding, fragmented governance, and weak human-resource management (Khalid et al., 2018; Faisal, 2023). Taken together, these studies imply a recurring set of QM practices, though none has consolidated them systematically the gap this review addresses.

3.0 Methodology

The methodology was a systematic review of published research, following the screening logic of Talib et al. (2011).

A search strategy using the following expressions was applied: “total quality management Pakistan hospitals,” “quality management healthcare Pakistan,” “hospital accreditation Pakistan,” “service quality Pakistan hospitals,” “quality of care Pakistan,” “TQM Pakistan health,” “healthcare quality improvement Pakistan,” and “patient safety Pakistan hospitals.” A comprehensive search was performed across five databases Scopus, Web of Science, PubMed/MEDLINE, ProQuest, and Science Direct for papers published from 2000 to 2025, narrowed with the keywords “Pakistan,” “hospital,” “healthcare,” “quality management,” “TQM,” and “quality of care.”

Based on this, the research kept empirical or review articles which highlighted QM practices, success factors, or barriers in Pakistan’s health care environment. Those papers which were concerned only with a single tool, not mentioning QM practices, along with editorials, commentaries, and papers that were non-Pakistan based, were discarded. After screening for titles and abstracts, full articles were selected based on methodology, approach, and findings. Fifteen articles were selected finally. The systematic methodology is illustrated in Figure 1, the data extracted is shown in Table 1, while QM practices mentioned in the literature are described and ranked in Table 2.

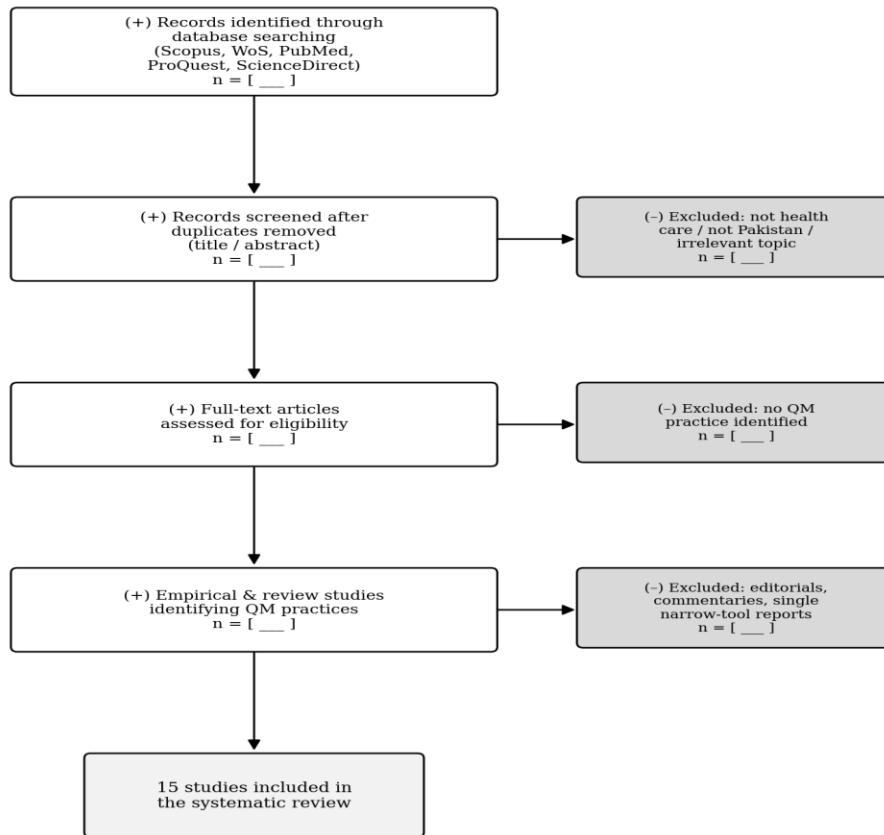


Figure 1 Systematic literature review process (PRISMA-style). Replace bracketed counts with actual database figures.

4.0 Findings and Results

As can be seen in Table 1 below, the selected 15 articles differ from each other regarding their approaches, objectives, methodology, sampling techniques, settings, and respondents. In general, it was possible to identify eight best practices in the implementation of QM from the literature review conducted, which include: top management commitment/leadership (TMC); infrastructure and resource management (IRM); human resource management/training (HRM); patient safety culture (PSC); service quality and patient orientation (SQP); process management and standardization (PMS); continuous quality improvement (CQI); and health information and documentation systems (HIS). The criteria for identifying these best practices include their frequency of occurrence, as depicted in Table 2 below.

Table 4.1 Objectives, Methodology, and Main Findings of the Selected Studies

Author(s)	Objective	Methodology and approach	No. of QM practices	Main findings
Irfan & Ijaz (2011)	Compare service quality of public vs. private	Cross-sectional; modified	5	Private hospitals scored significantly higher on

	hospitals	SERVQUAL; 320 patients; Lahore		perceived service quality; largest gaps in tangibles and responsiveness in the public sector
Irfan, Ijaz, Kee & Awan (2012)	Improve operational performance of a public hospital via TQM	Cross-sectional; survey; public hospital	6	TQM adoption associated with improved operational performance; leadership and process control identified as central enablers
Maqsood, Saeed, Ramzan, Maroof, Hussain & Al Arab (2019)	Test the effect of TQM practices on non-financial performance	Cross-sectional; multiple regression; 150 managers; JCI/ISO hospitals	7	TQM practices explained 63% of variance in non-financial performance ($\beta = 0.793$, $R^2 = 0.629$); JCI-accredited hospitals scored higher than ISO-based
Shah, Asif, Shoukat, Polatci & Rehman (2022)	Examine QM practices and inter-organizational project performance	Cross-sectional; PLS-SEM; 296 respondents; public & NGO healthcare	5	QM practices significantly improved project performance; communication and process conflict moderated the link; relationship conflict did not
Siddiq, Baloch & Takrim (2019)	Assess healthcare service quality from patients' perspective	Cross-sectional; modified SERVQUAL; n = 1,200; tertiary hospitals, Peshawar	6	Six quality dimensions identified; expectation–perception gaps in both sectors; calls for feedback-driven continuous improvement
Ahmed, Asif, Munir, Halim, Ali, Belgaumi, Zafar & Latif (2023)	Measure patient safety culture at a tertiary hospital	Cross-sectional; HSOPSC; n = 2,959; AKUH, Karachi	4	Safety culture measured across 12 dimensions (50% response); teamwork favourable, but only 33.1% filed ≥ 1 event report; reporting and staffing weak
Khalid et al (2024)	Investigate practices improving safety culture & event reporting	Cross-sectional descriptive; survey; tertiary hospital, AJK	4	Absent SOPs and low reporting culture; leadership and training identified as keys to safety culture
Faisal (2023)	Explore HRM practices and barriers in public hospitals	Qualitative; thematic analysis; 3 teaching hospitals, Lahore	5	Absence of specialist HR departments, low autonomy, and staff attitudes constrain quality; HR capacity is a core enabler
Kumar, Somrongthong & Ahmed (2016)	Assess effect of waste-management training on staff KAP	Quasi-experimental; pre/post training; teaching hospital	3	Training significantly improved knowledge, attitude and practice; education drives quality and safety compliance
Siddiq et al	Improve	Quality improvement;	4	Structured audit and training

(2024)	completeness/quality of discharge summaries	PDSA cycles; tertiary hospital, Rawalpindi	improved documentation completeness; standardisation and CQI effective
Lakhani, Fatima, Khawaja, Virani, Hashmi et al. (2025)	Improve safety of outpatient-to-ED patient transfers	Quality improvement; 4 Delphi + standardized handoff; AKUH	Standardized protocols and staff training improved transfer safety and handoff communication
Khalid et al. (2018)	Review challenges facing the Pakistani healthcare system	Literature review; 6 descriptive (clinician's perspective)	Governance, under-funding, infrastructure and workforce shortages identified as systemic quality barriers

Table 4.2 Major QM Practices in Pakistan's Health-Care Setting Identified from the Literature Review

Author(s)	TMC	IRM	HRM	PSC	SQP	PMS	CQI	HIS
Irfan & Ijaz (2011)		√			√	√		
Irfan et al. (2012)	√	√				√	√	
Maqsood et al. (2019)	√		√		√	√	√	
Shah et al. (2022)	√		√			√	√	√
Siddiq et al. (2019)		√		√	√	√		
Ahmed et al. (2023)	√		√	√				√
NTS study (2023)	√		√	√			√	
AJK study (2024)	√		√	√		√		
Faisal (2023)	√	√	√		√			
Kumar et al. (2016)			√	√		√	√	
Newborn study (2021)	√	√	√	√			√	
Discharge QIP (2024)			√			√	√	√
Lakhani et al. (2025)	√		√	√	√	√		
Khalid et al. (2018)	√	√	√		√			√
Review (2023)	√	√	√				√	√
Total	11	7	12	7	6	9	8	5

TMC = top-management commitment; IRM = infrastructure and resource management; HRM = human-resource management and training; PSC = patient safety culture; SQP = service quality and patient focus; PMS = process management and standardization; CQI = continuous quality improvement; HIS = health information and documentation systems.

4.1 Top-Management Commitment (Leadership)

Top-management commitment and leadership was the most often quoted enabling practice, having been mentioned in 11 out of 15 articles reviewed. As shown by Irfan et al. (2012), leadership played an important role in the performance improvements obtained through TQM. Leadership and organizational culture were also highlighted by Maqsood et al. (2019) as important factors in the significant link between TQM and performance ($R^2 = 0.629$). In the public healthcare setting, on the other hand, Faisal (2023) noted that centralized decision making and low autonomy

in hospitals hindered effective leadership for quality management in three teaching hospitals of Lahore.

4.2 Infrastructure and Resource Management

Management of Infrastructure and Resources pertains to availability of facilities, equipment, supplies, and funding. Health systems analysis has continually shown that one of the main obstacles to good quality care is poor infrastructure and underfunding, which amounts to 0.5 to 0.8 percent of GDP (Khalid et al., 2018). Service quality analysis supports the same; for instance, Irfan and Ijaz (2011) showed the biggest gap between public and private organizations in tangibles.

4.3 Human-Resource Management and Training

Management of human resources and employee training became significant aspects. Faisal (2023) listed the lack of specialized HR departments, manpower shortage, and poor freedom as factors restricting the quality of the service, whereas Kumar et al. (2016) proved that waste management training was an effective strategy to enhance employee knowledge, attitudes, and behaviors in a teaching hospital. Hence, training and education become key factors in achieving quality in Pakistan.

4.4 Patient Safety Culture

Patient safety culture was a distinct and rapidly growing theme, assessed largely through the HSOPSC instrument. Ahmed et al. (2023) found teamwork within units to be a relative strength at a large tertiary hospital, but only 33.1% of the 2,959 respondents had filed at least one event report, exposing weak non-punitive reporting and communication openness. The absence of standard operating procedures and low adverse-event reporting were recurring concerns across safety-culture studies, underscoring safety culture as a critical QM practice.

4.5 Service Quality and Patient Focus

Service quality and patient focus, operationalized through the SERVQUAL dimensions, was central to the earliest Pakistani evidence. Irfan and Ijaz (2011) and Siddiq et al. (2019) both documented expectation–perception gaps and a private-sector advantage, with responsiveness and empathy repeatedly identified as weak points in the public sector. Anticipating and responding to patient needs, and converting satisfaction into trust, were identified as core to quality delivery.

4.6 Process Management and Standardization

Process management and standardization emphasize conformance to patient requirements through standardized, error-free processes. Quality-improvement projects provide the clearest evidence: Lakhani et al. (2025) used a Delphi-derived, standardized handoff protocol to improve the safety of outpatient-to-emergency transfers, and comparable PDSA-based audits improved discharge-documentation completeness. Such work highlights the value of clear standards and protocols in settings where heterogeneity of clinical practice is common.

4.7 Continuous Quality Improvement

Continuous quality improvement (CQI) reflects the institutionalization of ongoing measurement, audit, and refinement. Studies employing repeated audit cycles reported sustained gains (Lakhani et al., 2025), and Siddiq et al. (2019) explicitly recommended feedback-driven

improvement as a response to the service-quality gaps they observed. CQI depends on training, measurement, and the routine use of quality tools throughout the institution.

4.8 Health Information and Documentation Systems

Health information and documentation systems support quality through accurate records, measurement, and information use. Weak documentation completeness and health-management information systems were reported as barriers, and Shah et al. (2022) found that inter-organizational communication closely tied to information flow significantly moderated the impact of QM practices on performance. Reliable information systems therefore underpin measurement-driven quality management.

5.0 Discussion and Conclusion

From the present review, eight QM practices were identified as critical to quality management and improvement in Pakistan's health-care system: top-management commitment (leadership), infrastructure and resource management, human-resource management and training, patient safety culture, service quality and patient focus, process management and standardization, continuous quality improvement, and health information and documentation systems. These are termed the best QM practices for the Pakistani context.

The findings both echo and extend prior international reviews. Consistent with Talib et al. (2011) and Alzoubi et al. (2019), top-management commitment emerged as the foremost requirement for successful implementation. However, the Pakistani evidence gives comparatively greater weight to infrastructure, resource, and human-resource constraints (Khalid et al., 2018; Faisal, 2023), reflecting the structural conditions of a resource-limited system. Differences from previous studies may be attributed to variation in research methodology, sampling, institutional setting, and the accreditation frameworks (JCI versus ISO) used to benchmark quality (Maqsood et al., 2019).

5.1 Managerial Implications

- Quality management can be used by hospital managers as an approach to realize patient satisfaction, higher quality, and higher efficiency with limited resources (Irfan et al., 2012; Maqsood et al., 2019).
- Leadership, human resource capabilities, and training of employees should be prioritized by policymakers when launching and maintaining quality interventions. (Faisal, 2023; Kumar et al., 2016).
- Managers should strengthen patient safety culture particularly non-punitive event reporting and standard operating procedures as a foundation for quality (Ahmed et al., 2023).
- Investing in health information systems and standardized documentation supports measurement-driven, continuous improvement (Shah et al., 2022; Lakhani et al., 2025).

5.2 Recommendation for Future Research

- Empirical studies could test the relative impact of the eight identified practices on quality outcomes across Pakistani provinces and care levels.
- Comparative studies with other South Asian or developing countries could distinguish context-specific from transferable practices.
- Further research could examine barriers to QM implementation and the role of hospital

accreditation (JCI, ISO) in the Pakistani context.

- Future work could extend this review to the integration of artificial intelligence and machine learning in health-care quality management in Pakistan.

Finally, the results can help managers and practitioners adopt QM programs more successfully in Pakistani health-care institutions and open new directions for researchers contributing to quality improvement in this context.

Contribution

Muhammad Adnan Khan: Problem Identification and Theoretical Framework

Muhammad Hasnain Ali: Data Analysis, Supervision and Drafting

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest in this article's research, authorship, and publication.

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