INTERNATIONAL JOURNAL OF LATEST TECHNOLOGY IN ENGINEERING, MANAGEMENT & APPLIED SCIENCE (IJLTEMAS)

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIV, Issue XII, December 2025

Fixing the Gaps in Care: A Data-Driven Study on Hospital Services and Patient Safety Standards

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DOI : https://doi.org/10.51583/IJLTEMAS.2025.1412000061

Received: 22 December 2025; Accepted: 27 December 2025; Published: 03 January 2026

ABSTRACT

Background: Modern medical administration has pivoted toward the Patient Experience (PX) as the definitive metric for institutional success. This shift moves beyond traditional clinical outcomes to evaluate holistic service quality, recognising that administrative efficiency and environmental safety are now critical pillars of healthcare delivery.

Objective: This study analyses operational bottlenecks and infrastructure deficits in Gujarat's healthcare facilities to bridge the gap between perceived service quality and National Building Code safety standards while evaluating their impact on patient loyalty and accreditation.

Methodology: This research analysed a dataset of 340 respondents across Gujarat using a cross-sectional survey, the SERVQUAL framework, and regression analysis to determine the impact of environmental factors on OPD and IPD patient satisfaction.

Findings: The data identifies a significant "Service-Safety Divergence." While clinical nursing satisfaction reached a high of 88%, critical deficits were identified in emergency wayfinding (55%) and waittime management (46%). Regression results indicate that environmental factors—specifically signage clarity and potable water access—carry a disproportionate weight in patient loyalty scores, revealing a systemic reliance on human capital to mask infrastructural weaknesses.

Conclusion: To resolve these gaps, the study advocates for digital queue management and trilingual safety wayfinding. Actionable strategies are provided to align Gujarat's healthcare infrastructure with international quality benchmarks, ensuring long-term operational excellence.

Keywords: Patient Experience (PX), Service-Safety Divergence, Healthcare Quality Audit.

INTRODUCTION

In the contemporary healthcare landscape, the physical and administrative environment of a hospital is no longer secondary to clinical treatment. Patients perceive quality through a lens of accessibility, safety, and comfort (Donabedian, 2005). Within the specific context of Gujarat's burgeoning healthcare sector, there is a pressing need to move beyond "clinical-centric" models toward "holistic-operational" excellence (Kewate et al., 2025).

This study utilises the SERVQUAL framework to measure the gap between expected service and perceived reality (Parasuraman et al., 1988). By categorising findings into "Benefits" and "Deficits," this paper highlights where the system succeeds—predominantly in human-to-human interaction—and where it falters—predominantly in technical infrastructure and communication (WHO, 2022).

RESEARCH METHODOLOGY

A rigorous, non-experimental quantitative approach was adopted for this study.

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1. Sampling Frame: Data was gathered from 340 unique participants across various hospital tiers in Gujarat using a random selection process to eliminate demographic clustering (Kothari, 2004).

2. Instrument Design: A 43-point binary instrument was developed. The "Yes/No" architecture was specifically chosen to prevent "central tendency bias," ensuring respondents provided a definitive verdict on service quality (Arah et al., 2006).

3. Data Synthesis: Responses were processed to calculate the Total Quality Index (TQI), a ratio derived from positive service indicators against operational failures.

RESULTS AND STATISTICAL FINDINGS

The empirical data reflects a system that is clinically robust but operationally strained.

OPD Operational Efficiency

The Outpatient Department represents the highest volume of patient-hospital interaction.

Operational Indicator	Benefit (Positive)	Deficit (Negative)	Trend Analysis
Registration Workflow	82%	18%	High digitization success
Waiting Area Capacity	68%	32%	Congestion during peak hours
Consultation Delay	54%	46%	Significant bottleneck

The 46% deficit in waiting time indicates that while the entry process is efficient (82%), the transition from waiting to consultation remains the primary source of patient dissatisfaction (Bowers et al., 1994).

Inpatient (IPD) and Bedside Care

The IPD analysis highlights the quality of the "healing environment" (Ulrich, 1991).

1. Interpersonal Care: Nursing staff responsiveness achieved the highest positive score of 88%, indicating strong vocational training (Laschinger et al., 2005).

2. Facility Maintenance: Ventilation and lighting were rated favorably by 81% of the sample.

3. Safety Hardware: A concerning 38% of respondents reported issues with emergency call-bells (either non-functional or slow response), which poses a direct risk to patient safety in non-critical wards (WHO, 2022).

Infrastructure and Safety Communication

Evaluation against the National Building Code (BIS, 2016) revealed a critical communication gap.

1. Wayfinding & Signage: Despite the presence of fire extinguishers (noted by 85%), 55% of the sample could not locate emergency exits. This "Signage Deficit" suggests that safety hardware is present but remains inaccessible to the layperson (Vilar et al., 2014).

2. Public Amenities: Clean drinking water access showed a 41% deficit, primarily linked to maintenance cycles of filtration units (Patil et al., 2002).

ANALYTICAL DISCUSSION

The "Gujarat Case Study" illustrates a clear disparity between Process Quality and Structural Quality. While the "Process" (nursing and registration) is streamlined, the "Structure" (amenities and safety signage) fails to meet patient expectations (Zaim et al., 2010).

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The 55% deficit in safety communication is particularly alarming. In high-stress environments like hospitals, cognitive load increases, making intuitive wayfinding essential (Vilar et al., 2014). Furthermore, the 46% waittime deficit suggests that Gujarat's hospitals may benefit from Lean Management principles to optimize patient flow and reduce the "idling" time that leads to negative perceptions of care (Bowers et al., 1994).

PROPOSED RECOMMENDATIONS

1. Workflow Optimisation: Adopt digital "Real-Time Location Systems" (RTLS) to track and reduce the 46% consultation delay.

2. Universal Safety Design: Implement trilingual, high-contrast photoluminescent signage to close the 55% wayfinding gap.

3. Infrastructure Audit: Establish a bi-weekly "Bedside-Link" audit to ensure 100% functionality of callbells, addressing the 38% safety deficit.

4. Amenity Management: Standardise the maintenance of potable water stations to improve public health confidence (Patil et al., 2002).

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