Aethel Research Digest Juncture: An International Journal
E-ISSN: 3139-1672
Vol. 2, Issue 3, May- June 2026

Internal Quality Inspection and Continuous Quality Improvement in a Tertiary Care Hospital: A Cross Sectional Analytical Study

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DOI: https://doi.org/10.5281/zenodo.20595808

Dates
Summation:22/05/2026
Revised: 05/06/2026
Accepted: 15/06/2026
Published:30/06/2026

Abstract

This paper explores the perceptions of Department Quality Managers (DQMs) regarding internal inspection processes in hospitals and their role in enhancing healthcare quality. A survey method was applied to evaluate the contribution of internal audits to hospital operations and performance. Findings indicate that internal inspection plays a crucial role in identifying operational gaps, addressing safety concerns, strengthening clinical and administrative documentation, and improving interdepartmental coordination. The study further shows that internal audits enhance compliance with established standards, support continuous quality improvement, and strengthen accountability within healthcare organizations. Moreover, internal inspection improves staff awareness, process efficiency, and overall organizational effectiveness. The study highlights the importance of independent and empowered audit mechanisms to ensure systematic monitoring and evaluation of hospital practices. Strengthening internal audit systems can significantly improve hospital performance, optimize resource utilization, and enhance patient care outcomes, supporting the long-term sustainability and quality of healthcare services in tertiary care settings.

Keywords*: quality audit, internal quality inspection, continuous quality improvement, hospital sector.*

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Citation: Jatoveda Haldar (2026), Internal Quality Inspection and Continuous Quality Improvement in a Tertiary Care Hospital: A Cross Sectional Analytical Study, *Aethel Research Digest Juncture: An International Journal*, *2*(3), 69–82.

1. INTRODUCTION

Quality and safety have emerged as central concerns in hospital care over the past several decades, driven by growing recognition that suboptimal care directly undermines clinical outcomes, patient satisfaction, and institutional credibility [1, 2]. Despite significant advances in medical science, a persistent and well-documented gap exists between the ideal care — defined as care consistent with the best available medical evidence — and the care that patients actually receive in hospital settings. Bridging this gap requires systematic, data-driven approaches, and quality improvement (QI) methods have consequently been elevated as a strategic priority by health authorities and organizations worldwide [2, 3].

Among the various mechanisms employed to drive quality improvement, internal audits have gained widespread recognition as a foundational tool within hospital quality management systems. Unlike external inspections, which are conducted by regulatory or accreditation bodies at periodic intervals, internal audits are carried out by the hospital's own personnel — including quality department representatives or clinicians drawn from departments other than those under review — thereby ensuring a degree of operational familiarity alongside evaluative objectivity [4]. These audits serve multiple interconnected purposes: benchmarking actual care delivery against established standards, identifying non-conformities, and providing actionable insights that enable healthcare institutions to raise the standard of treatment on a continuous basis [5].

A key advantage of internal audits lies in their responsiveness. Quality threats and process deviations can be identified and addressed more rapidly through internal mechanisms than through external review cycles, enabling organizations to implement targeted corrective actions at the local level before deficiencies escalate into systemic failures [6, 7]. Furthermore, internal audits serve a complementary function within broader quality assurance frameworks — sustaining compliance and performance standards during the intervals between external accreditation audits, thereby ensuring continuity of improvement rather than episodic compliance [8, 9].

Beyond compliance monitoring, internal audits play a formative role in shaping the organizational culture of quality. They evaluate the effectiveness of quality management systems, assess staff awareness and accountability, and examine the conditions under which care is delivered — recognizing that organizational factors are as influential as individual professional behavior in determining patient outcomes [10, 11]. In tertiary care hospitals, where complexity, patient acuity, and interdepartmental interdependence are particularly high, a

robust internal inspection mechanism is not merely a regulatory formality but a strategic imperative for sustained quality and patient safety.

2. PROBLEM STATEMENT, RESEARCH QUESTIONS AND HYPOTHESES

2.1.Problem Statement

The world has shifted its quality control model of healthcare systems to proactive internal audit systems and Continuous Quality Improvement (CQI) models, although the quality of care provided remains below the evidencedriven standards [1, 2]. Continuous lapses in patient safety, documentation, staff responsibility, and interdepartmental coordination are still major issues in tertiary care units [8, 12].

The internal inspection systems are based on the fact that systematic compliance with the evidence-based standards will result in measurably improved quality of care [4, 6]. Although research supports the idea that internal audits can enhance compliance, safety culture, and documentation practices in different healthcare settings, there is a paucity of empirical studies investigating the perspectives of Department Quality Managers (DQMs) regarding the operationalization of these audits [5, 7]. Importantly, the statistically proven correlation between internal inspections and CQI outcomes in Indian tertiary care hospitals, in particular, is mostly lacking in the literature [3, 11].

This gap also leads to the need to conduct particular research on how DQMs view the efficacy of internal inspections as sources of measurable quality change to guide policy and practice in the field of hospital quality management [10].

2.2.Research Questions

- RQ1: Do internal quality inspections contribute to improvements in patient outcomes, professional behavior, and organizational performance in a tertiary care hospital?
- RQ2: What are the perceptions of Department Quality Managers (DQMs) regarding the utility and effectiveness of internal inspection exercises in achieving Continuous Quality Improvement (CQI)?

- RQ3: Is there a statistically significant association between DQMs' professional background and experience and their perception of the overall usefulness of internal inspections and quality of care improvement?

2.3.Hypotheses

- H1 (Alternative Hypothesis): Internal inspection exercises are significantly associated ($p < 0.05$) with improved quality of care and organizational performance as perceived by DQMs.
- H2 (Null Hypothesis): No significant association ($p > 0.05$) exists between DQMs' profession/experience and their perception of the usefulness of internal inspections on quality of care.

3. LITERATURE REVIEW

3.1.Evolution of Quality Systems

Healthcare quality management has undergone a significant transformation over the past few decades, shifting from traditional inspection-based models towards structured internal audit systems and Continuous Quality Improvement (CQI) frameworks. This evolution reflects a broader recognition that sustainable quality in hospital settings cannot be achieved through periodic external evaluation alone, but requires embedded, institution-driven mechanisms for ongoing monitoring and improvement [1, 8]. The transition has been further accelerated by growing accreditation demands, regulatory expectations, and increasing patient awareness, compelling healthcare organizations to institutionalize quality as a core operational function rather than a compliance obligation [9, 12].

3.2.CQI Framework

The conceptual foundation of CQI in healthcare is most comprehensively articulated in the Crossing the Quality Chasm framework, which identifies six essential quality aims — safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity [2]. These aims continue to serve as benchmarks against which hospital performance is measured globally. Achieving them requires sustained leadership commitment, active staff involvement, and systematic process evaluation [13]. Alrashidi et al. [14] further affirm that Total Quality Management practices, when embedded within hospital structures, create a culture of accountability and continuous learning that directly supports these aims. Patient safety culture — a prerequisite

for effective CQI — has similarly been identified as a critical determinant of quality outcomes across healthcare settings [15].

3.3.Evidence from Studies

Empirical evidence consistently demonstrates that internal audits and structured quality management systems yield measurable improvements across multiple dimensions of hospital functioning. Akpan et al. [4] established that adherence to laboratory quality management systems significantly differs between public and private health facilities, underscoring the role of audit rigor in maintaining standards. Mishra et al. [5] similarly found that knowledge of internal quality control among laboratory personnel in tertiary care settings directly influences the accuracy and reliability of clinical outputs. Lahai et al. [6, 7] demonstrated through retrospective analysis that implementation of ISO 9001:2015-certified quality management systems produced measurable improvements in medicines regulation, compliance documentation, and institutional accountability — findings that carry direct implications for hospitalbased quality audit systems.

3.4.Outcomes of CQI

CQI initiatives have been consistently linked to improved patient outcomes, enhanced service efficiency, and reduced hospital-associated infections. Hill et al. [3], in a systematic review, confirmed that CQI interventions effectively develop professional practice and improve health outcomes when implemented with fidelity and institutional support. Nilakantam et al. [11] demonstrated significant quality gains in outpatient services following structured improvement interventions, while Hajiyeva et al. [16] established that quality management tools are effective in reducing hospital-associated infections — a critical patient safety indicator in tertiary care environments. Khan et al. [9] further identified leadership engagement, staff empowerment, and data-driven decision-making as the primary drivers of sustained patient safety improvement through CQI.

3.5.Research Gap

Despite the growing body of evidence supporting internal audits and CQI globally, empirical studies specifically examining the perceptions of Department Quality Managers (DQMs) and establishing a statistically validated link between internal inspections and CQI outcomes in

Indian tertiary care hospitals remain notably limited [17, 18]. This study directly addresses that gap.

4. METHODOLOGY

4.1. Study Design

This study employed a cross-sectional analytical design to examine the perceptions of Department Quality Managers (DQMs) regarding internal quality inspection and its contribution to Continuous Quality Improvement (CQI) in a tertiary care hospital. Cross-sectional surveys are widely recognised as effective for capturing institutional perceptions at a defined point in time in healthcare quality research [11, 14]. The study was conducted between 18th March and 30th March, 2019.

4.2.Study Population and Sampling

The target population comprised DQMs directly involved in conducting or overseeing internal inspection exercises within the tertiary care hospital setting — recognized as the most complex and quality-sensitive healthcare environment [10, 12]. A total of 180 DQMs were approached, of whom 121 returned valid, complete responses, yielding a response rate of approximately 67% — consistent with comparable hospital quality management studies [15, 17].

4.3.Data Collection Instrument

Data were collected through a self-administered structured questionnaire comprising 20 items on a five-point Likert scale (Strongly Agree to Strongly Disagree). The Likert scale is a well-validated tool for measuring perceptions and attitudes in healthcare quality research [4, 5]. Items covered documentation, staff awareness, safety compliance, equipment management, accountability, and overall quality of care, aligned with established CQI frameworks [13].

4.4.Data Analysis

Data were analyzed using SPSS through descriptive statistics and Pearson Chi-Square testing to determine statistically significant associations between DQMs' professional background and their perceptions of inspection utility and quality outcomes [2, 7]. A p-value of less than 0.05 was set as the threshold for significance.

5. RESULTS

Table 1 presents the overall response distribution across all 20 Likert-scale items (N=122). Results are discussed thematically across five domains: organizational learning, documentation and awareness, safety compliance, facility management, and overall quality outcomes.

TABLE 1. ***Overall (Strongly Agree & Agree) %, Overall Neutral% & Overall (Strongly Disagree & Disagree) % For All 20 Questions.***

OVERALL PERCENTAGE (N=122)

QUESTIONS	Neutral	SA & A	SD & D
This exercise has helped me to understand the lacunae in my area	6%	93%	1%
It has helped me to understand the support departments	2%	98%	0%
It has helped me to learn about the areas in the hospital	4%	96%	0%
It is a good opportunity to work with a multidisciplinary team	2%	97%	1%
It has helped me to understand the functioning of the hospital	8%	92%	0%
There is an improvement in documentation by clinicians	40%	60%	1%
There is an improvement in nursing documentation	26%	73%	1%
There is an improvement in the awareness of doctors	35%	61%	4%
There is an improvement in awareness among nurses	20%	79%	2%
There is an improvement in awareness of support staff	15%	80%	5%
Staff awareness on reporting incidents & safety issues has improved	12%	85%	2%
Staff demonstration of their response to emergencies like fire, CPR, etc. has improved	17%	83%	1%
Safety issues have largely been addressed	13%	87%	0%
The involvement of staff in the areas inspected is good and has improved	11%	87%	2%
Management of equipment has improved	21%	76%	2%
The general maintenance of the facility has improved	14%	83%	2%
Process owners and their accountability have improved	17%	80%	2%
Cleanliness has improved	16%	83%	1%
Overall quality of care has improved	9%	91%	0%
Overall, this is a very useful exercise	5%	95%	0%

Source: Compiled by Authors

5.1.Questions 1–5: Organizational Learning and Hospital Understanding

An overwhelming majority of DQMs affirmed that internal inspection exercises enhanced their understanding of hospital operations. Q1 recorded 93% agreement that the exercise helped identify lacunae in their areas, while Q2 yielded the highest agreement across all items at 98% — confirming that internal inspections meaningfully strengthened understanding of support departments. Q3 (96%) and Q4 (97%) further demonstrated that inspections facilitated learning across hospital areas and promoted multidisciplinary teamwork, respectively. Q5 recorded 92% agreement regarding improved understanding of overall hospital functioning as shown in Fig. 1. These findings align with evidence that structured internal audits create cross-functional learning opportunities and systemic visibility within healthcare organizations.

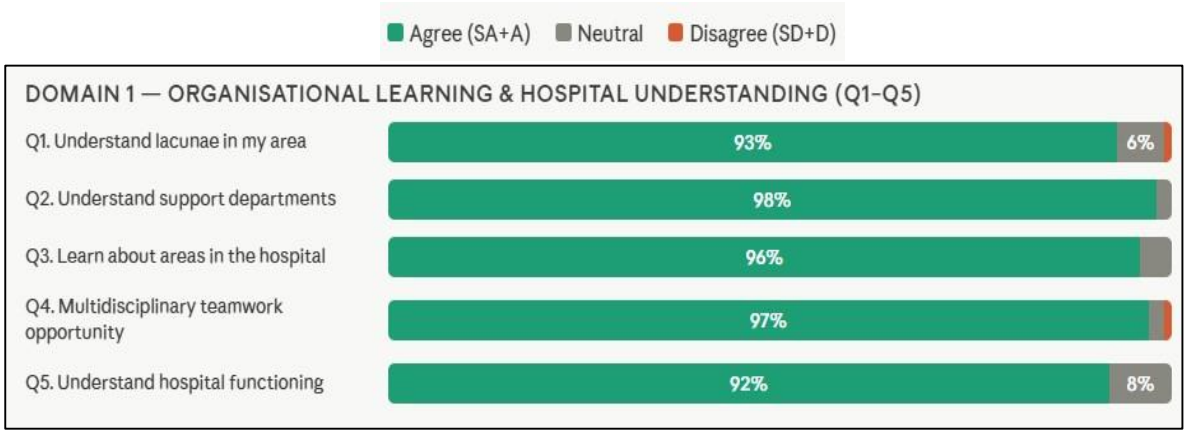

FIGURE 1. *Distribution of DQM Responses for Domain 1 (Q1–Q5), With Agreement Rates Ranging From 92% To 98% Across Organizational Learning and Hospital Understanding Items. Note SA = Strongly Agree; A = Agree; SD = Strongly Disagree; D = Disagree.*

Source: Created by Authors

5.2.Questions 6–10: Documentation and Staff Awareness

Results in this domain reflected moderate to strong agreement. Q6 showed 60% agreement for improvement in clinician documentation — the lowest agreement score across all items — with a notably high neutral response of 40%, suggesting variability in documentation improvement across departments [5]. Q7 recorded 73% agreement for nursing documentation improvement. Staff awareness showed stronger results: Q8 (doctors, 61%), Q9 (nurses, 79%), and Q10 (support staff, 80%) demonstrated progressive improvement in awareness across professional categories as shown in Fig. 2. These findings are consistent with studies demonstrating that

quality audit systems enhance professional awareness and documentation compliance in tertiary care settings.

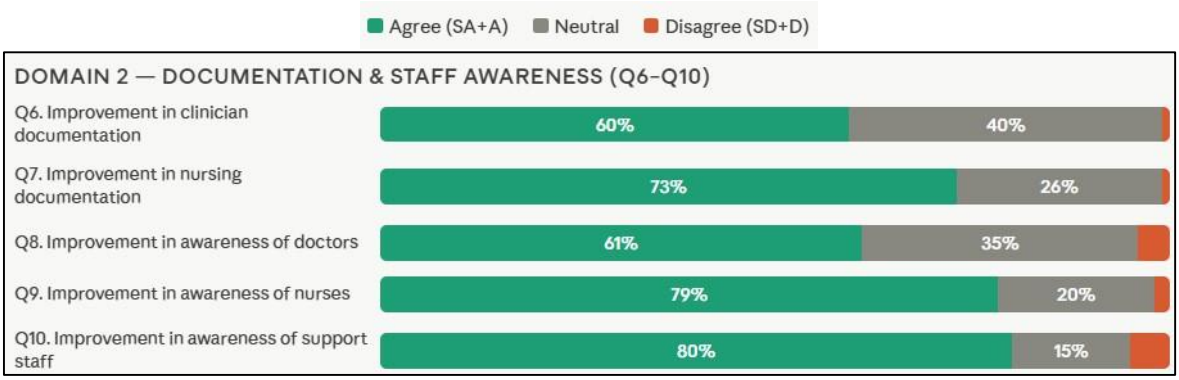

FIGURE 2. *Distribution of DQM Responses for Domain 2 (Q6–Q10), With Agreement Rates Ranging From 60%*

To 80% Across Documentation and Staff Awareness Items. Note SA = Strongly Agree; A = Agree; SD = Strongly Disagree; D = Disagree.

Source: Created by Authors

5.3.Questions 11–14: Safety Compliance and Staff Involvement

DQMs reported strong improvements in safety-related domains. Q11 showed 85% agreement that staff awareness of incident reporting and safety issues had improved. Q12 recorded 83% agreement that emergency response demonstrations — including fire and CPR — had improved. Q13 yielded 87% agreement that safety issues had largely been addressed, with zero disagreement — a particularly significant finding. Q14 similarly achieved 87% agreement regarding improved staff involvement in inspected areas as can be seen in Fig. 3. These results corroborate evidence that internal quality systems significantly strengthen safety culture and compliance within hospital settings.

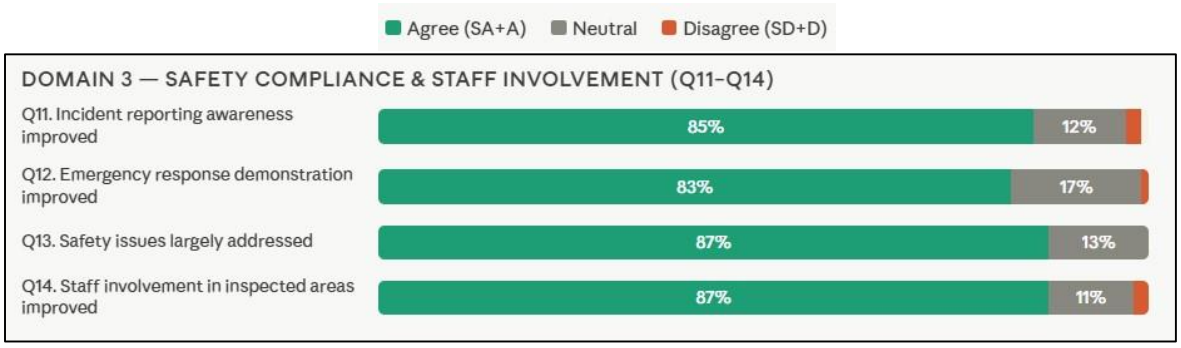

FIGURE 3. *Distribution of DQM Responses for Domain 3 (Q11–Q14), With Agreement Rates Ranging From 83%*

To 87% Across Safety Compliance and Staff Involvement Items. Note. SA = Strongly Agree; A = Agree; SD = Strongly Disagree; D = Disagree.

Source: Created by Authors

5.4.Questions 15–18: Facility and Process Management

Q15 recorded 76% agreement for equipment management improvement, with 21% neutral — suggesting this domain requires sustained attention. Q16 (83%) and Q17 (83%) confirmed improvement in general facility maintenance and cleanliness, respectively. Q18 recorded 80% agreement that process owner accountability had improved, reinforcing the role of internal inspections in institutionalizing ownership and responsibility within quality management systems as shown in Fig. 4 [12, 14].

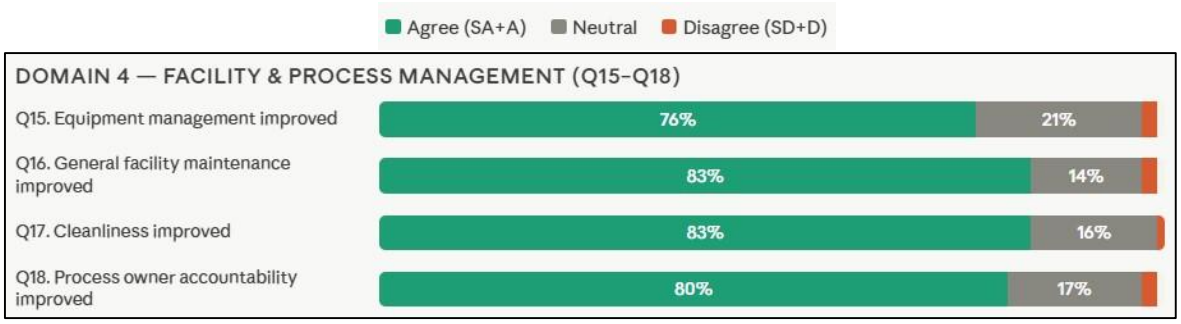

FIGURE 4. *Distribution of DQM Responses for Domain 4 (Q15–Q18), With Agreement Rates Ranging From 76%*

To 83% Across Facility and Process Management Items. Note. SA = Strongly Agree; A = Agree; SD = Strongly Disagree; D = Disagree.

Source: Created by Authors

5.5.Questions 19–20: Overall Quality Outcomes

Q19 recorded 91% agreement that overall quality of care had improved — with zero disagreement — reflecting a near-unanimous positive assessment of inspection impact on care quality [3, 11]. Q20 achieved 95% agreement that the exercise was overall very useful, with only 5% neutral and zero disagreement, confirming the high perceived value of internal inspection programs among DQMs, as can be seen in Fig. 5.

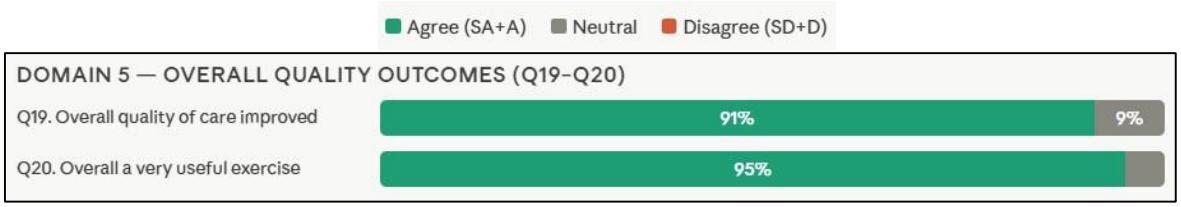

FIGURE 5. *Distribution of DQM Responses for Domain 5 (Q19–Q20), With Agreement Rates Of 91% And 95%*

Respectively Across Overall Quality Outcomes Items. Note. SA = Strongly Agree; A = Agree; SD = Strongly Disagree; D = Disagree.

Source: Created by Authors

TABLE 2. ***Chi-Square Calculation for Finding P-Value for the Question 'Overall Quality of Care Has Improved'***

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2sided**
Pearson Chi-square	11984[a]	4	.017
Likelihood Ratio	7.148	4	.128
N of Valid Cases	121		
6 cells (60%) have expected count less than 5. The minimum expected count is .09.			

Source: Compiled by Authors

TABLE 3. ***Chi-Square Calculation for Finding P-Value for the Question 'Overall This is a Very Useful Exercise'***

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2sided**
Pearson Chi-square	21.367[b]	4	.000
Likelihood Ratio	9.725	4	.045
N of Valid Cases	121		
b. 7 cells (70.0%) have expected count less than 5. The minimum expected count is .05.			

Source: Compiled by Authors

Table 2 shows that Pearson Chi-Square testing reveals a statistically significant association between the DQM profession and both key outcome statements. For Q19 ("Overall quality

of care has improved"), χ^2= 11.984, df = 4, p = .017. For Q20 ("Overall this is a very useful exercise"), χ^2= 21.367, df = 4, p = .000 as shown in Table 3. Both values fall below the 0.05 significance threshold, leading to acceptance of H1 and rejection of H2 — confirming that DQMs' professional background significantly influences their perception of internal inspection utility and quality outcomes.

6. DISCUSSION

6.1.Domain-wise Analysis

The findings across all five domains collectively affirm the multi-dimensional impact of internal quality inspections on CQI in tertiary care settings. Organizational learning recorded the highest agreement (92–98%), confirming that inspections meaningfully enhance cross-functional understanding and multidisciplinary collaboration among DQMs [1, 10]. Documentation and staff awareness yielded the widest variation (60–80%), with clinician documentation recording the lowest agreement (60%) and a 40% neutral response, reflecting resistance among senior clinical staff Mishra et al., [5], while awareness improved progressively across nursing (79%) and support staff (80%) categories [4, 17]. Safety compliance produced strong and consistent results (83–87%), with Q13 recording zero disagreement — corroborated by Lahai et al. [7], Hajiyeva et al. [16], and Szalados [19] — affirming that systematic internal monitoring drives measurable safety gains. Facility and process management showed solid improvement (76– 83%), though equipment management (76%, 21% neutral) emerged as requiring more sustained audit attention [12, 14]. Overall quality outcomes produced the most decisive findings, with Q19 (91%) and Q20 (95%) both recording zero disagreement, consistent with Hill et al. [3], Nilakantam et al. [11], and [2]. Chi-Square analysis further confirmed statistically significant associations between DQM profession and perceived inspection utility (Q19: χ^2 = 11.984, p = .017; Q20: χ^2 = 21.367, p = .000), leading to acceptance of H1 and rejection of H2 Hussein et al., [8], addressing the empirical gap identified by Patel et al. [17] and Eissa et al. [18] in Indian tertiary care research.

6.2.Suggestions by DQMs

DQMs recommended periodic training on hospital vision, safety, and quality standards; engagement of quality interns in high-risk areas; timely closure of non-conformities with intranet-published action reports; empowerment of the Quality Management Cell to implement corrective measures; and appointment of dedicated audit coordinators with streamlined

checklists and basic NABH training for administrative staff. These recommendations align with CQI principles advocated by Kosseff [13] and Deepika & Ghewade [9].

7. CONCLUSION

This study confirms that internal quality inspections are perceived by DQMs as a highly effective driver of CQI across all domains of tertiary care hospital functioning. Near-unanimous endorsement of the overall programme (95%), zero disagreement on quality-of-care improvement, and statistically significant associations between professional background and inspection utility ($p < 0.05$) collectively validate the strategic importance of robust internal audit systems. Clinician documentation and equipment management require the most sustained corrective attention. When supported by an empowered Quality Management Cell, internal inspections serve as transformative instruments for patient-centered, continuous quality improvement — extending the evidence base to Indian tertiary care settings where such empirical validation has remained limited.

ACKNOWLEDGEMENT

I sincerely thank my colleagues, Prof. Asokan Vasudevan and Prof. Sujan Debnath, for their contribution and support throughout the entire journey.

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