

Critical excellence factors impacting service excellence in healthcare: A study of Udaipur zone

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Abstract

This study explores the relationship between Critical Excellence Factors (CEFs) and Service Excellence (SE) in healthcare services, focusing on the comparison between NABH (National Accreditation Board for Hospitals and Healthcare Providers) and non-NABH hospitals. The research aims to identify key factors such as operational efficiency, patient-centric care, staff competency, infrastructure, and availability of advanced medical technology that impact SE. A sample of 400 respondents, equally divided between NABH and non-NABH hospitals, was surveyed to gauge perceptions of these factors. The study uses chi-square tests to examine the association between hospital type and operational efficiency. The findings indicate that NABH hospitals generally received higher ratings for operational efficiency, patient care, and staff competency, compared to non-NABH hospitals. The chi-square analysis confirmed a significant relationship between hospital type and operational efficiency, leading to the rejection of the null hypothesis. The results highlight the importance of hospital accreditation in enhancing service quality and patient satisfaction, emphasizing the need for continuous improvements in non-NABH hospitals to meet higher operational standards.

Keywords: Critical excellence factors, healthcare, operational standards

Introduction

The healthcare sector is an essential pillar of societal development, directly influencing the quality of life and economic stability of a population. Achieving service excellence in healthcare is critical for ensuring patient satisfaction, safety, and well-being. However, the multifaceted nature of healthcare services, encompassing diverse stakeholders and complex operational processes, poses unique challenges to service quality. The concept of service excellence extends beyond meeting expectations to consistently delivering exceptional care that aligns with global quality standards and patient-centered approaches. Critical Excellence Factors (CEFs) play a pivotal role in determining the success of service delivery in healthcare organizations. These factors encompass a range of organizational, technical, and human elements that collectively impact the quality and effectiveness of healthcare services. Identifying and addressing these factors is particularly significant in regions like the Udaipur Zone, where demographic diversity, resource limitations, and institutional variations add layers of complexity to healthcare service delivery.

This study aims to explore the Critical Excellence Factors that influence Service Excellence in healthcare, with a specific focus on the Udaipur Zone. By identifying these factors, the research seeks to provide actionable insights for healthcare organizations striving to enhance their service quality. Furthermore, the study contributes to the ongoing discourse on healthcare excellence by bridging theoretical models with practical challenges observed in real-world settings.

The findings of this study hold the potential to inform policymakers, hospital administrators, and healthcare practitioners in designing and implementing strategies that foster excellence in healthcare services. In doing so, this research aligns with the broader objective of creating patient-centric healthcare systems that are efficient, equitable, and sustainable.

This study is structured as follows: the subsequent sections provide an overview of existing service excellence models, outline the methodology for identifying Critical Excellence Factors, and discuss the findings in the context of the Udaipur Zone. The study concludes with recommendations for healthcare organizations and future research directions in this critical area.

Literature Review

Sony, M., & Naik, S. (2019) ^[1] the authors explore the integration of Six Sigma methodologies with Concept-Knowledge (C-K) theory to drive innovation in operational excellence. The study emphasizes the need for organizations to go beyond traditional Six Sigma frameworks to achieve continuous improvement and innovation. Using a case study approach, the authors demonstrate how the fusion of these methodologies can enhance problem-solving capabilities, foster innovation, and improve overall operational performance. The research provides practical insights into leveraging Six Sigma for strategic innovation, making it a valuable reference for organizations aiming to adopt innovative quality management practices.

Staempfli *et al.* (2020) ^[2] focused on the job satisfaction of emergency nurses and identifies the ten most significant factors influencing their satisfaction. These include organizational support, professional recognition, and work-life balance, among others. Using qualitative and quantitative approaches, the study highlights the critical role of organizational culture and leadership in enhancing job satisfaction. The findings are particularly relevant for healthcare administrators seeking to improve employee retention and performance by addressing these dominant factors.

Toke *et al.* (2020) ^[3] examines the adoption and implementation of Total Quality Management (TQM) practices in small and medium enterprises (SMEs) in India. The authors provide a detailed overview of the challenges

faced by SMEs, such as limited resources and lack of expertise, while implementing TQM. The study also discusses strategies for overcoming these challenges, emphasizing the importance of employee involvement, leadership commitment, and continuous training. This research offers valuable insights into improving quality management in the Indian SME sector, which is crucial for enhancing competitiveness and sustainability.

Vainieri *et al.* investigated the factors that contribute to performance variations in healthcare organizations. Using data from multiple healthcare settings, the study identifies key performance indicators and explores the impact of organizational structure, resource allocation, and leadership on healthcare outcomes. The authors propose a comprehensive framework for understanding and improving healthcare performance, providing practical implications for policymakers and healthcare managers. This research highlights the complexity of healthcare performance management and the need for evidence-based strategies to enhance efficiency and effectiveness.

Vaishnavi *et al.* focused on the critical readiness factors required for the successful adoption of Lean Six Sigma (LSS) in healthcare. Through a structured modelling approach, the authors identify factors such as leadership commitment, employee involvement, and resource availability as essential for LSS implementation. The study also emphasizes the importance of a supportive organizational culture and continuous training in driving LSS success. The findings offer a practical roadmap for healthcare organizations aiming to improve service quality and operational efficiency through Lean Six Sigma methodologies.

Vuong *et al.* (2021) ^[6] investigates the relationship between job satisfaction and organizational loyalty across different industries. The authors identify factors such as workplace environment, compensation, and career growth opportunities as critical determinants of job satisfaction. Additionally, the study highlights the role of organizational culture and employee engagement in fostering loyalty. By providing empirical evidence, the research offers valuable insights for organizations looking to enhance employee satisfaction and retention, making it a relevant reference for human resource management.

Zaid *et al.* (2020) ^[7] examines how Total Quality Management (TQM) practices and perceived service quality influence patient satisfaction and behavioural intentions. Using a mixed-methods approach, the authors demonstrate that TQM practices significantly enhance service quality and patient satisfaction, leading to positive behavioural intentions such as loyalty and recommendations. The findings underscore the importance of integrating TQM into healthcare management to achieve sustainable improvements in service delivery and patient outcomes.

Research Methodology

The study adopted a descriptive research design to examine the relationship between Critical Excellence Factors (CEFs) and Service Excellence (SE) in healthcare services, with a focus on comparing NABH and non-NABH hospitals. A total of 400 respondents participated in the study, consisting of 200 patients from NABH-certified hospitals and 200 patients from non-NABH hospitals. The respondents were selected using a convenience sampling technique, which allowed for the inclusion of participants who were easily

accessible and willing to participate. The study utilized a structured questionnaire to collect data on various CEFs, including operational efficiency, patient-centric care, staff competency, infrastructure, and availability of advanced medical technology.

Objective

1. To identify and categorize the key components of Services Excellence (SE) in healthcare services, emphasizing patient satisfaction, service quality, and operational efficiency.
2. To evaluate the relationship between Critical Excellence Factors (CEFs) and their collective impact on achieving Services Excellence in healthcare services.

Hypothesis

H₀1: There is no significant association between the type of hospital and operational efficiency.

H_a1: There is a significant association between the type of hospital and operational efficiency.

Data Analysis & Interpretation

The study's sample size consists of 400 respondents, evenly divided between two groups. It includes 200 patients from NABH-certified hospitals and 200 patients from non-NABH hospitals of Udaipur region. This distribution ensures balanced representation across both sectors. The sample is designed to analyse variations in Critical Excellence Factors (CEFs) and their influence on Services Excellence (SE).

Critical Excellence Factors (CEFs) are key attributes or components that play a vital role in determining the overall quality and success of healthcare services. These factors are essential for achieving Services Excellence (SE) and ensuring that healthcare organizations deliver high-quality, patient-centered care. CEFs encompass various elements such as patient-centered care, which focuses on meeting the needs, preferences, and values of patients, and service quality, ensuring consistency, reliability, and superior standards of healthcare. Additionally, staff competency, which includes the skills, knowledge, and professionalism of healthcare providers, is a critical factor. The integration of advanced technology also plays a significant role in enhancing healthcare outcomes, while leadership and governance are key to effective management and ensuring a culture of quality and continuous improvement. Finally, the infrastructure and facilities of healthcare organizations, including the availability of state-of-the-art medical equipment and comfortable patient environments, are crucial in delivering excellent services. Together, these factors are fundamental in ensuring that healthcare services meet the highest standards of excellence.

Patient-Centric Care

The survey results indicate that a significant portion of patients (73.5%) rated patient-centric care as High or Very High, reflecting a generally positive perception of the care they received. This suggests that, for most respondents, healthcare providers are meeting or exceeding expectations in delivering personalized care that prioritizes patient needs, preferences, and values. These patients likely experienced effective communication, empathetic service, and an overall sense of being cared for, which aligns with the principles of patient-centered care.

Table 1

Patient-Centric Care				
Rating	No. of Respondents	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Very Low	29	7.2	7.2	7.2
Low	121	30.3	30.3	37.5
Medium	56	14.0	14.0	51.5
High	88	22.0	22.0	73.5
Very High	106	26.5	26.5	100.0
Total	400	100.0	100.0	—

However, 37.5% of respondents rated their experience as Low or Very Low, highlighting areas that require attention. These respondents may have encountered issues such as insufficient communication, a lack of personalized attention, or other factors that detract from a positive patient experience. Additionally, 14% of respondents rated the care as Medium, suggesting a neutral or average perception. This indicates that while many patients are satisfied, there are still gaps in care that need to be addressed to improve the overall patient-centric experience for all individuals. Healthcare providers should focus on these areas of improvement to ensure that all patients receive high-quality, individualized care.

Operational efficiency

The survey results on operational efficiency show a diverse range of responses. A combined 31% of respondents rated it as Very Low (14.2%) or Low (16.8%), indicating that a notable portion of patients perceive operational inefficiencies within the healthcare services they received. This suggests issues such as delays, poor management, or logistical challenges that impact the overall experience. On the other hand, 28% of respondents rated it as Medium, indicating a neutral or average level of satisfaction with the operational efficiency of the healthcare service.

Table 2

Operational Efficiency				
Valid	No. of Respondents	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Very Low	57	14.2	14.2	14.2
Low	67	16.8	16.8	31.0
Medium	112	28.0	28.0	59.0
High	96	24.0	24.0	83.0
Very High	68	17.0	17.0	100.0
Total	400	100.0	100.0	—

The remaining 41% of respondents rated operational efficiency as High (24%) or Very High (17%), reflecting a generally positive perception of the healthcare service's ability to deliver effective and timely care. These patients likely experienced smooth processes, timely service delivery, and efficient management of their care. Overall, while a majority of respondents are satisfied with operational efficiency, the presence of significant ratings in the Low and Very Low categories highlights areas that require attention to ensure a more streamlined and efficient healthcare experience for all patients.

Staff Competency & Training

The survey on staff competency & training shows mixed perceptions. A total of 44.5% of respondents rated it as Low or Very Low, indicating concerns about the staff's

competency and training. On the other hand, 41.5% rated it as High or Very High, reflecting a positive view of staff skills and professionalism.

Table 3

Staff Competency & Training				
Rating	No. of Respondents	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Very Low	29	7.2	7.2	7.2
Low	149	37.3	37.3	44.5
Medium	56	14.0	14.0	58.5
High	98	24.5	24.5	83.0
Very High	68	17.0	17.0	100.0
Total	400	100.0	100.0	—

Additionally, 14% rated it as Medium, suggesting an average level of satisfaction. Overall, while many respondents appreciate staff competence, there is a notable portion expressing dissatisfaction, highlighting areas for improvement.

Infrastructure and Facilities

The survey results on infrastructure and facilities show varied responses. A combined 38% of respondents rated it as Low (30.5%) or Very Low (7.5%), indicating concerns regarding the quality and availability of healthcare infrastructure and facilities. On the other hand, 38.5% of respondents rated it as Medium (23.5%) or High (19.5%), reflecting a neutral to positive perception of the facilities.

Table 4

Infrastructure and Facilities				
Rating	No. of Respondents	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Very Low	30	7.5	7.5	7.5
Low	122	30.5	30.5	38.0
Medium	94	23.5	23.5	61.5
High	78	19.5	19.5	81.0
Very High	76	19.0	19.0	100.0
Total	400	100.0	100.0	—

The remaining 19% rated it as Very High, suggesting satisfaction with the state-of-the-art infrastructure. Overall, while some patients are satisfied with the facilities, there is room for improvement, especially in addressing the concerns of those rating it as Low or Very Low.

Availability of Advanced Medical Technology

The analysis results on availability of advanced medical technology show a mixed perception among respondents.

Table 5

Availability of Advanced Medical Technology				
Rating	No. of Respondents	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Very Low	84	21.0	21.0	21.0
Low	66	16.5	16.5	37.5
Medium	58	14.5	14.5	52.0
High	106	26.5	26.5	78.5
Very High	86	21.5	21.5	100.0
Total	400	100.0	100.0	—

A significant 37.5% of respondents rated it as Low (16.5%) or Very Low (21%), indicating concerns about the

accessibility or quality of advanced medical technology in healthcare facilities. In contrast, 48% of respondents rated it as Medium (14.5%) or High (26.5%), suggesting a moderate to positive view of the availability of such technology. The remaining 21.5% rated it as Very High, reflecting a high level of satisfaction with the advanced medical technology provided. Overall, while a portion of respondents is satisfied, there are notable concerns regarding the availability and accessibility of advanced medical technology that need to be addressed.

Timely access to healthcare services

The survey results on Timely Access to Healthcare Services indicate a varied perception. A combined 38.3% of respondents rated it as Low (26%) or Very Low (12.3%), suggesting concerns about delays or difficulties in accessing healthcare services.

Table 6

Timely Access to Healthcare Services				
Rating	No. of Respondents	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Very Low	49	12.3	12.3	12.3
Low	104	26.0	26.0	38.3
Medium	111	27.8	27.8	66.0
High	68	17.0	17.0	83.0
Very High	68	17.0	17.0	100.0
Total	400	100.0	100.0	—

Meanwhile, 44.8% of respondents rated it as Medium (27.8%) or High (17%), reflecting a moderate to positive view of the timeliness of healthcare access. The remaining 17% rated it as Very High, indicating satisfaction with the promptness of care. Overall, while a significant portion of patients are satisfied, there is still room for improvement in ensuring timely access for all patients.

Hypothesis Testing Results

H₀1: There is no significant association between the type of hospital and operational efficiency.

H_a1: There is a significant association between the type of hospital and operational efficiency.

The cross-tabulation shows that a higher percentage of respondents from NABH hospitals (27.5%) rated operational efficiency as High or Very High compared to non-NABH hospitals (13.5%). Conversely, non-NABH hospitals had a higher percentage of Low or Very Low ratings (18.5%) than NABH hospitals (12.5%). Overall, NABH hospitals were perceived to have better operational efficiency.

Table 7

Crosstabulation			
Operational Efficiency	Type of Hospital		Total
	NABH	Non-NABH	
Very Low	20	37	57
Low	30	37	67
Medium	40	72	112
High	60	36	96
Very High	50	18	68
Total	200	200	400

Table 8

Chi-Square Tests		
Test	Value	df Asymptotic Significance (2-sided)
Pearson Chi-Square	36.003 ^a	4 .000
Likelihood Ratio	36.887	4 .000
N of Valid Cases	400	—

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 28.50.

The results of the Chi-Square Test (Pearson Chi-Square value = 36.003, with a significance level of 0.000) indicate a significant relationship between the type of hospital (NABH vs. non-NABH) and the perception of operational efficiency. Since the p-value is less than 0.05, we reject the null hypothesis (H₀1) and accept the alternative hypothesis (H_a1), concluding that the type of hospital does indeed have a significant impact on how operational efficiency is perceived by patients. The findings suggest that patients in NABH hospitals tend to rate operational efficiency more positively compared to those in non-NABH hospitals, reflecting the higher standards and practices typically associated with NABH accreditation.

Conclusion

In conclusion, the study highlights the significant role of Critical Excellence Factors (CEFs) in shaping perceptions of healthcare service quality, with particular emphasis on operational efficiency, patient-centric care, staff competency, infrastructure, and technology. The findings suggest that NABH hospitals generally perform better in terms of operational efficiency and other critical factors, as evidenced by higher positive ratings in areas such as patient care, staff competency, and infrastructure compared to non-NABH hospitals.

The hypothesis testing also supports these findings. The Chi-Square Test results indicate a significant relationship between the type of hospital and operational efficiency, leading to the rejection of the null hypothesis (H₀) and acceptance of the alternative hypothesis (H₁). This means that hospital type (NABH vs. non-NABH) significantly influences the perceived operational efficiency. Overall, the study underscores the importance of accreditation, such as NABH, in enhancing operational standards and fostering higher patient satisfaction in healthcare services.

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