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Evaluating Service Quality in Missionary Hospitals: A Biological Perspective

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ABSTRACT: This study evaluates the service quality of missionary hospitals in the Ernakulum District from a biological perspective. By examining how different dimensions of service quality—such as responsiveness, empathy and reliability—affect patient health outcomes, this research integrates healthcare service management with biological health indicators. The study analyses patient feedback, health records and biological markers of health to understand the impact of hospital service quality on patient recovery and overall well-being. The findings aim to provide insights into how enhancing service quality in healthcare settings can lead to improved biological health outcomes, thereby contributing to better public health in the region. This interdisciplinary approach underscores the vital link between high-quality healthcare services and the biological health of patients.

Keywords: Service Quality, Health Outcomes, Missionary Hospitals and SERVQUAL Model.

INTRODUCTION

This article presents a focused evaluation of service quality in missionary hospitals located in the Ernakulum District of Kerala, India. These facilities, which include twelve hospitals such as Cortina Hospital in Chellanam North, Little Flower Hospital in Angamaly and Lisie Hospital in Kochi, are privately operated by religious organizations under the Roman Catholic Diocese. Each of these hospitals has a unique mission driven by their foundational religious principles, aiming not only to provide medical care but also to embody the compassion and empathy characteristic of their spiritual missions.

Understanding the diverse definitions of service quality is crucial in healthcare research as it grounds the study in a well-established theoretical framework, ensuring that all stakeholders have a unified understanding of the key concepts. The evolution of service quality definitions has shown a shift from basic expectation-performance comparisons to more nuanced interpretations incorporating customer perceptions and experiences. For instance, Grönroos (1982) emphasizes the customer's perception of the expected versus the perceived service, setting a foundational perspective on service quality. Similarly, Parasuraman *et al.* (1985) introduce a systematic way to evaluate service quality by comparing customer expectations with their perceptions of the service received, which has been widely adopted in various service sectors, including healthcare. This conceptualization is further refined by Bitner and Hubbert (1994), who view service quality as the consumer's overall impression of an organization's relative superiority or inferiority. Asubonteng *et al.* (1996) underscore the importance of pre and post-service encounter evaluations, which is particularly relevant in healthcare settings where patient expectations and experiences can significantly influence perceived quality. By integrating these perspectives, our research can adopt a more comprehensive approach to measuring service quality in missionary hospitals, ensuring that the results are robust, comparable, and aligned with both theoretical underpinnings and practical realities of healthcare service delivery (Holdford and Reinders 2001; Ford, *et al,* 2012).

The assessment of these hospitals adopts a novel perspective by linking the quality of service to biological health outcomes (Bodha, 2017). Traditionally, service quality in healthcare is measured through patient satisfaction and operational efficiency. However, this study enriches the conventional framework by integrating biological indicators, such as recovery rates and overall physical well-being, offering a comprehensive view of the impact of service quality. This biological perspective provides a more objective

measure of healthcare efficacy, reflecting how well these institutions fulfil their mission in the tangible outcomes of patient health. This approach not only underscores the importance of high-quality healthcare services but also highlights the potential for religiously affiliated hospitals to significantly influence public health in the region through superior care delivery (Edvardsson, 1998).

Despite the extensive body of research on service quality in healthcare, there remains a noticeable gap in understanding how service quality dimensions specifically influence biological health outcomes within missionary hospital settings (Narang, 2010; Veeraselvam and Amutha 2015; Afolabi *et al.,* 2021). Most existing studies focus on patient satisfaction and perceived service quality without directly linking these aspects to tangible biological outcomes, such as recovery rates and overall physical well-being. Furthermore, there is a scarcity of research that integrates the unique spiritual and mission-driven characteristics of missionary hospitals with their service delivery models to see how these factors collectively impact patient health. This gap highlights the need for a nuanced exploration of how the distinct service quality dimensions—such as empathy, assurance, responsiveness, reliability, and tangibles—interact with the specific context of missionary hospitals to influence biological health markers. Addressing this gap could provide valuable insights into optimizing healthcare delivery in similar contexts, enhancing both service quality and patient health outcomes.

Service Quality and Biological Health Indicators. The primary objective of this study is to conduct a comprehensive evaluation of how various dimensions of service quality influence patient health outcomes in missionary hospitals in the Ernakulum District. Specifically, this study will focus on all five dimensions of the SERVQUAL model: tangibles, reliability, responsiveness, assurance and empathy (Chung *et al*, 2021). Tangibles refer to the physical facilities, equipment and appearance of personnel; reliability involves the ability to perform the promised service dependably and accurately; responsiveness denotes the willingness to help customers and provide prompt service; assurance encompasses the knowledge and courtesy of employees and their ability to inspire trust and confidence; and empathy covers the provision of caring, individualized attention to patients (Jha & Kumar 2019). By examining these dimensions in depth, the study seeks to determine which aspects of service quality are most crucial in improving key health outcomes such as patient safety, recovery rates and overall satisfaction (Singh *et al.,* 2017; Singh *et al.,* 2019).

Integrating healthcare service management with biological health indicators offers a unique and potent approach to understanding and improving healthcare delivery. This methodology enables the study to go beyond subjective perceptions of service quality to incorporate objective, biological outcomes, providing a robust measure of healthcare effectiveness (Kaur & Kaur 2018; Prasana *et al.,* 2023).

Focusing on biological health indicators also elevates the importance of healthcare services in missionary hospitals, which are often deeply integrated into their communities and guided by a mission of compassionate care. This research highlights how dimensions of service quality directly correlate with physical health outcomes, showcasing the critical role of effective healthcare service in promoting patient well-being.

Moreover, by identifying which dimensions of service quality are most impactful (Yasmin and Raju 2020), the study will offer valuable insights that can guide improvements not just in missionary hospitals but across broader healthcare settings. Enhancing these dimensions can lead to significant advancements in patient care, supporting better clinical outcomes and fostering a healthier population. This research has the potential to inform policy decisions and influence operational strategies in healthcare institutions, emphasizing the crucial link between quality service delivery and optimal health outcomes (Karthikeyan & Ramkumar 2017).

METHODOLOGY

The research adopts a descriptive design, which is particularly suitable for this study as it aims to accurately and systematically describe the service quality in missionary hospitals and its impact on biological health outcomes. This design will facilitate the collection of quantitative data that provides a snapshot of service experiences as perceived by patients during their hospital stay.

The study utilizes both primary and secondary data sources to ensure a comprehensive analysis. Primary data is gathered directly from the patient experiences and perceptions using structured questionnaires, which are specifically designed to measure the dimensions of service quality according to the SERVQUAL model. Secondary data will be collected from hospital records, including patient health outcomes and recovery rates, to correlate these with the service quality data.

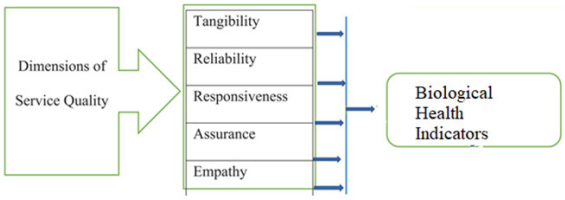
The data collection for this study is conducted over a one-month period, from November 2022 to December 2022. This timeframe was chosen to ensure that a sufficient and relevant sample of in-patient experiences could be gathered while minimizing variations that could arise from seasonal changes in hospital visitation or service provision.

The population for this study includes all in-patients who visited the twenty missionary hospitals under investigation during the data collection period. From this population, a sample size of 200 patients has been determined to be statistically significant for analysing service quality impacts while maintaining manageability for in-depth data collection and analysis.

Convenience sampling is used to select the sample from the population. This method allows for the efficient collection of data from a subset of patients who are readily available and willing to participate. While this method may introduce some bias, as it does not

randomly select participants, it is suitable given the logistical and time constraints inherent in hospital-based research.

Data is collected through a structured questionnaire, which is designed to capture detailed information on each of the five dimensions of service quality defined by SERVQUAL. This questionnaire includes both scaled items and open-ended questions to provide a rich dataset that covers patient ratings of tangible aspects of the hospitals, their interactions with hospital staff and their overall satisfaction with the healthcare services received. This tool is vital for translating subjective patient experiences into quantifiable data that can be analysed to determine correlations with biological health outcomes. The conceptual model of the study is presented in the following diagram.



The conceptual model depicts the relationship between service quality dimensions and biological health indicators in a healthcare setting. It begins with a primary focus on the dimensions of service quality, which include tangibility, reliability, responsiveness, assurance and empathy. Tangibility reflects the physical aspects of the healthcare environment, such as facilities and equipment. Reliability highlights the consistency and accuracy of healthcare services. Responsiveness points to the speed and effectiveness with which healthcare needs are addressed. Assurance refers to the knowledge and courtesy of the staff and their ability to inspire trust, while empathy emphasizes the provision of caring and personalized attention to patients (Karthikeyan & Ramkumar 2015).

From these service quality dimensions, arrows lead directly to a box labelled "Biological Health Indicators," indicating that the study aims to measure the impact of these service dimensions on biological outcomes. This setup underscores the hypothesis that higher quality service in these dimensions correlates positively with better health outcomes, such as improved patient recovery rates and enhanced overall well-being. The diagram serves as a clear framework for the research, guiding the collection and analysis of data to explore how effectively improvements in service quality can translate into tangible health benefits for patients (Prasanna *et al.,* 2023).

Findings. In an effort to better understand the demographic characteristics of inpatients and assess the utilization of healthcare services within missionary hospitals in Ernakulam District, a detailed survey was conducted. The data collected from the survey, as represented in Table 1, provides an in-depth analysis of various demographic factors such as age, gender, occupation, marital status, and monthly family income. This demographic profiling is essential for identifying the primary users of hospital services and understanding the specific needs of these groups. The insights gained from this analysis are crucial for hospital administrators and health service planners aiming to optimize healthcare delivery and address the diverse needs of the community effectively.

Table 1: Profile of Inpatients of Missionary Hospitals in Ernakulam District.

Category	Sub-category	Frequency	Percent
Age	Below 25 Years	14	7.00
	25–35 Years	27	13.50
	36–45 Years	45	22.50
	46–55 Years	53	26.50
	Above 55 Years	61	30.50
Gender	Male	106	53.00
	Female	94	47.00
Occupation	Students	16	8.00
	Homemaker	22	11.00
	Government Employee	28	14.00
	Private Sector Employee	61	30.50
	Pensioner	55	27.50
	Others	18	9.00
Marital Status	Married	153	76.50
	Unmarried	41	20.50
	Others	6	3.00
Monthly Family Income	Less than Rs. 50,000	47	23.50
	Rs. 50,000–100,000	134	67.00
	Rs. 100,001–150,000	19	9.50
	Above Rs. 150,000	0	0.00

The profile of inpatients at missionary hospitals in Ernakulam district, as detailed in Table 1, provides a comprehensive demographic breakdown across several categories including age, gender, occupation, marital status, and monthly family income. Notably, the age distribution of the inpatients shows a higher concentration in the older age groups, with 57% of the patients being over 45 years old. This could indicate a greater prevalence of chronic diseases or conditions that necessitate hospital care in these age groups.

Gender distribution is fairly balanced with a slight majority of males (53%) compared to females (47%). This parity could reflect the general population distribution or specific health-seeking behaviors among the genders in the region. Occupationally, the largest groups of inpatients are private sector employees and pensioners, constituting 30.5% and 27.5% of the total, respectively. This suggests that the employed and retired segments of the population might either have better access to hospital services or a greater need for them due to occupational hazards or age-related health issues.

Marital status shows a significant majority of inpatients are married (76.5%), which could be indicative of the demographic composition of the adult population in the district, or possibly that married individuals have a better support system or familial push to seek hospital care. Regarding income, a striking 67% of the patients come from families earning between Rs. 50,000 and Rs. 100,000 per month, suggesting that middle-income families are the most frequent users of hospital services. This could reflect the financial capability to afford such services or the lack of adequate health insurance coverage to mitigate healthcare costs.

The data indicates that there is substantial use of hospital services across different segments of society, with certain demographic factors such as age and occupation playing a critical role in the patterns observed. This demographic profiling not only helps in understanding the healthcare needs of the population but also aids in planning and improving hospital services to better cater to the community's needs. Further research could explore the specific health conditions prevalent among these demographic segments to tailor healthcare services more effectively.

To evaluate the service quality in missionary hospitals in Ernakulam District, a study was conducted focusing on the perceived gaps between patient expectations and their actual experiences across five key dimensions of service quality. These dimensions, derived from the SERVQUAL model, include Tangibility, Reliability, Responsiveness, Assurance, and Empathy. The purpose of this analysis is to pinpoint specific areas where the perceived service does not meet the expected standards, providing actionable insights for healthcare providers to enhance patient satisfaction and overall service delivery.

Table 2 illustrates the computed gaps between the expected and perceived service quality across the five SERVQUAL dimensions. Notably, the dimensions of Reliability, Assurance, and Empathy show negative gaps, indicating that perceptions exceed expectations. This suggests areas of strength where the hospitals are performing well. Conversely, Tangibility and Responsiveness exhibit positive gaps, signalling potential areas for improvement where expectations are not fully met. These findings highlight the importance of continuous assessment and adaptation of service strategies to better align with patient expectations, ultimately aiming to reduce these gaps and improve the quality of healthcare services. In this study conducted at missionary hospitals in Ernakulam District, service quality gaps are examined in relation to their impact on biological well-being and patient recovery rates. The service quality gaps are categorized into three distinct levels based on their scores: High Gap (Gap score < -1.33), Moderate Gap ($-1.33 \leq$ Gap score ≤ -0.63), and Low Gap (Gap score > -0.63). These classifications help in identifying how significant deviations between expected and actual service quality affect patient health outcomes. The intent of the analysis is to assess the correlation between different levels of perceived service quality and their subsequent effects on the recovery rates and overall well-being of patients, shedding light on potential areas for improvement in healthcare service delivery.

Table 2: Service Quality Gap for Five Servqual Dimensions of the Patients of Missionary Hospitals in Ernakulam District.

Sr. No.	SERVQUAL Dimension	Expectation	Perception	Gap
1.	Tangibility	5.622371	5.540771	0.0816
2.	Reliability	5.505493	5.556372	-0.050879
3.	Responsiveness	5.71768	5.655628	0.062052
4.	Assurance	5.67071	5.676785	-0.006075
5.	Empathy	5.739673	5.803447	-0.063774

Table 3 presents a detailed breakdown of the relationships between service quality gap levels and patient outcomes, specifically focusing on recovery rates and well-being across five service quality dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. The data suggests that higher service quality perceptions, particularly in the Assurance and Empathy dimensions, are associated with significantly better recovery rates and higher levels of well-being. Conversely, lower perceived quality in these areas tends to correspond with poorer patient outcomes. This indicates that enhancing service aspects related to Assurance and Empathy can potentially lead to improved patient recovery and well-being. These findings underscore the importance of maintaining high service standards and minimizing gaps in perceived service quality to support better health outcomes in hospital settings.

Table 3: Service Quality Gap Level and Biological Well Being of the Patients of Missionary Hospitals in Ernakulam District.

Service Quality Dimension	High Recovery Rate	Moderate Recovery Rate	Low Recovery Rate	High Well-Being	Moderate Well-Being	Low Well-Being
Tangibles						
High	34	39	33	41	23	21
Moderate	11	19	9	22	29	16
Low	18	19	18	37	9	2
Reliability						
High	24	31	8	33	16	15
Moderate	22	19	7	36	15	14
Low	29	52	8	28	21	22
Responsiveness						
High	31	13	15	28	25	5
Moderate	43	18	11	39	29	6
Low	26	22	21	33	31	4
Assurance						
High	72	32	19	98	27	4
Moderate	18	13	4	23	16	3
Low	34	6	2	19	8	2
Empathy						
High	78	26	12	67	32	9
Moderate	22	19	8	31	14	10
Low	21	8	6	19	12	6

DISCUSSION

This research, conducted within the missionary hospitals of Ernakulam District, unveils critical managerial implications by dissecting the nexus between service quality discrepancies and patient health results. The categorization of these discrepancies into clearly defined tiers—high, moderate, and low—provides hospital administrators with a structured approach to identify and prioritize areas needing enhancement. Notably, the dimensions of Assurance and Empathy emerge as critical, where narrower gaps are directly associated with improved recovery rates and enhanced overall well-being. This observation underscores the necessity for bespoke training programs dedicated to elevating staff capabilities in these key areas, ensuring that patient care is delivered with both technical expertise and a deep sense of compassion.

The observed correlation between diminished service quality gaps and enhanced patient health outcomes underlines the imperative of upholding elevated service standards. Hospital management should focus on initiatives aimed at enriching the patient experience by bridging these gaps, through methods such as honing operational processes and fortifying interactions between patients and staff. An ongoing cycle of review and adjustment in service delivery, grounded in patient feedback and systematic evaluations, is essential. Such efforts ensure that healthcare services not only fulfil but surpass patient expectations, thereby amplifying clinical results and augmenting patient satisfaction.

Also, the results of this study highlight the universal relevance and utility of structured service quality frameworks like SERVQUAL within healthcare environments. It is advisable for healthcare leaders and policymakers to embed these metrics within performance evaluation benchmarks throughout the healthcare sector. This integration promotes sustained enhancement and accountability in service delivery, culminating in superior patient outcomes and more judicious allocation of healthcare resources. By concentrating on aspects pivotal to patient perceptions and recovery processes, healthcare administrators can profoundly influence public health and boost the efficacy of healthcare institutions.

CONCLUSIONS

This study presents a pioneering approach to evaluating service quality in missionary hospitals in Ernakulam District by correlating service quality dimensions with biological health indicators. The results highlight the significant impact of Assurance and Empathy on patient health outcomes, underscoring the importance of these dimensions in healthcare service delivery. By bridging the gap between perceived and expected service quality, missionary hospitals can not only enhance patient satisfaction but also improve clinical outcomes. The integration of SERVQUAL with biological health outcomes offers a comprehensive, objective measure of healthcare efficacy that could serve as a model for other healthcare institutions aiming to improve their service quality and patient care effectiveness. Thus, this study contributes valuable insights that can drive strategic improvements in healthcare services, ultimately fostering a healthier population and more effective healthcare systems.

FUTURE SCOPE

The study conducted on the service quality of missionary hospitals in Ernakulum District, with its integration of the SERVQUAL model and biological health indicators, provides a framework for evaluating

and enhancing healthcare service delivery. The findings indicate significant correlations between service quality dimensions—such as empathy and assurance—and patient health outcomes, suggesting areas for targeted improvements. Future research could build on this foundation by exploring the causal relationships between specific service dimensions and patient recovery courses using longitudinal data. Also, expanding the scope to include comparative analyses between missionary and non-missionary hospitals could illuminate the unique contributions of religious affiliations to healthcare efficacy. Further investigations into the scalability of service quality improvements across different healthcare settings and their impact on public health policy could provide valuable insights for broader healthcare system enhancements.

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Conflict of Interest. None.

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