An Analytical Study of Customer Perception of TQM Practices and its Impact on Customer Satisfaction in Healthcare Sector

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KEYWORDS

Total Quality Management (TQM), healthcare, patient satisfaction, continuous improvement, leadership, customer-centric care.

ABSTRACT

This research measures the impact of TQM practice on patient satisfaction in Indian hospitals. Due to an increase in demand for quality health services, hospitals incorporate more comprehensive concepts of TQM such as continuous improvement and commitment of leadership for the enhancement of service delivery. Although TQM is highly adopted in the health sector, fewer empirical works have been done about the direct effects of this approach on patient satisfaction, primarily in India. To that extent, this study aimed to investigate linkage between TQM practices and patients' perceptual satisfaction within hospitals. The total number of patients for the study was 118, who were given a structured questionnaire from which the quantitative data was obtained. With these, Spearman correlation, Mann-Whitney U test and Kruskal-Walli's test were applied in the use of SPSS for the data analysis to find the various ways TQM principles were relating patient satisfaction. There is evidence that quality care, staff services, communication, hospital infrastructure, leadership commitment, and staff involvement, are the most essential components driving patient satisfaction. In order to improve patient experiences, integrating technology and improvement programs. The hospitals with priority setting on these TQM principles have higher patient satisfaction and thus improve the effectiveness in operations and the delivery of healthcare.

Policymakers, hospital administrators, and healthcare providers who are working to enhance service quality would benefit from this study. Besides, it adds knowledge in the health sector concerning quality management through research-based recommendations that may optimize the practice of hospital TQM to raise patient satisfaction levels.

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1. Introduction

Global healthcare systems are always evolving to meet the growing needs for improved services, more effective operations, and better patient care. To improve customer satisfaction and service quality, healthcare management has found that "Total Quality Management (TQM)" is an essential tool. Since TQM was initially designed for the manufacturing industry and initially placed an emphasis on continuous improvement, management involvement,

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process management, and customer-oriented service, it is highly flexible to the complexities and dynamism of the healthcare sector. However, the study of the actual benefits of TQM towards patient satisfaction in the healthcare sector is still meagre.

Customer satisfaction in healthcare is a basic indicator of service quality but also an important determinant of hospital success. The level of knowledge and expectation from service providers among today's patients has put more pressure on hospitals to provide quality services. Probably more than any other facility, hospitals provide the most difficult environment in health care in terms of the complexities of services offered and the diversities of patients. The implementation of efficient TQM practices, therefore, yields good service delivery, few errors, and good experiences for the patient. However, the question is an academic and practical one on how far these practices affect patient satisfaction directly within such institutions. The health care sector has multiplied manifolds in the last decade, and the hospital continues to be the chief organization that dispenses quality, high-end medical care in India.

It will be a good region in which to conduct such research because India has an always-growing population that is rapidly becoming more urbanized; the demand for health care services grows correspondingly, therefore. Several hospitals in this region have embraced different TQM practices, but there remains limited empirical evidence regarding exactly how these practices will affect patient satisfaction. This study shall fill in this gap by assessing the perceptions of customers of TQM practices in hospitals scattered all over India and ascertaining its effect on overall patient satisfaction.

Beyond just enhancing the patient experiences, the utility of such a research stream goes toward impacting directly within the lines of improving aspects related to the patient. The health of the patient, on the one hand, is directly linked to the outcomes because it helps bring organizational and procedural efficiency for survival and organization. Hence, the relationship between TQM and patient satisfaction may give information useful to hospital administrators and policymakers in the pursuit of improving the quality of health care in the region.

This study is important for the following reasons: First, it offers empirical evidence about the effectiveness of TQM practices in the context of Indian healthcare, where the adoption of such practices is relatively recent. Second, it identifies key areas where hospitals can improve their services by focusing on patient-centric care, leadership commitment, and continuous improvement—core principles of TQM. The results of this study will be practically useful for healthcare organizations in terms of improving the quality of service and patient satisfaction, which will eventually contribute to better health outcomes.

In addition to practical implications, this study contributes to the academic discourse on quality management in healthcare. It examines how TQM, a well-established management philosophy in other sectors, can be effectively applied in healthcare. It thus contributes to the current body of knowledge and opens up possibilities for further research in the field of healthcare quality management.

In a nutshell, the purpose of this study is to examine the impact of TQM practices on the perceived satisfaction of patients in the healthcare industry in India. It elaborates on the perceptions of the patients and evaluates different TQM principles in use to provide practical insights towards improving quality in healthcare and enhancing patient outcomes in the region.

2. Literature Review

Over the last 10 years, it has been noted that there is an emphasis placed on the implementation of Total Quality Management (TQM) standards in the healthcare industry. Time and again, research has demonstrated that TQM is needed to raise the level of patient satisfaction apart from enhancing operational effectiveness.

2.1 Quality care and Patients' satisfaction

TQM appreciably improves perceived service quality and, consequently, patient satisfaction. Nguyen and Nagase (2019) have very recently established that perceived service quality directly and positively affects patient satisfaction; thus, it becomes logical for healthcare organizations to focus on these determinants to improve customer experience. Measuring service quality at Sepah Bank in Tehran, Mosahab, Mahamad, and Ramayah (2010) found that the expectations of customers were even higher than their perception, showing bad delivery. In their study, they found that satisfaction mediates the linkage between quality and loyalty, which means that service enhancement is required to achieve improved client retention. Another scale development study by Marimon, Gil Doménech, and Bastida in (2019) assessed the perceptions of treatments in a hospital by Catalan patients. They found the heavy influence of service quality perceived upon satisfaction, whereby the mediation takes place through the meeting of patient expectation fulfillment. Customer satisfaction in healthcare is a basic indicator of service quality but also an important determinant of hospital success. The level of knowledge and expectation from service providers among today's patients has put more pressure on hospitals to provide quality services. Perhaps more than any other facility, hospitals face unique challenges in healthcare due to the complexity of services offered and the diversity of patients. Effective TQM practices implemented in such an environment led to better service delivery and fewer errors and improved the patient experience. However, in an academic and practical scenario, whether TQM practice directly affects patient satisfaction remains a contentious issue. Be that as it may, the health care sector within India has increased manifold times in the last decade, while hospitals remain a vital site for quality medical services within this region. This directly suggests a hidden variable aspect of aspiration for perceived quality that boosts patient satisfaction within such healthcare settings. Gheorghe, Purcărea, and Gheorghe (2018) tested the impact of competition of private ophthalmology services in Romania on customer choice, working on quality, cost, and satisfaction. They employed a structural equation model, and the results of this work support that competition highly boosts overall patient satisfaction with an explained variance of 74% and has a positive influence on prices with an explained variance of 7%. Prime factors affecting organizations to win competitive advantage are service reputation, innovation, and differentiation. Lin et al. (2009) studied kidney disease screening programs and found that patients' high expectations were not met by the quality of services provided, resulting in satisfaction gaps. Their study points to the importance of improving service quality, which in turn increases patient loyalty and satisfaction.

In the opinion of Pevec and Pisnik (2018), the greater the service quality, the higher the perceived value, and therefore, the greater the patient's satisfaction. When their expectations are met or even surpassed, the patient is likely to return and refer others to the same set of services, showing loyalty. In the second group of studies, the research by Arab, Tabatabaei, Rashidian, Forushani, and Zarei (2012) showed that 29% of the loyalty of patients was based on hospital service quality in pricing, process, interaction, and atmosphere. The study underlined that improved service quality increased patient satisfaction, therefore producing repeat visits, referrals, and a stronger brand for the hospital.

Critical linkages among service quality, customer satisfaction, and loyalty are posited in the literature. From the review, for healthcare organizations, the service quality dimensions are to

be focused on our process, interaction, and meeting patient expectations in building the patient's loyalty and competitive advantage.

2.2 Staff and service and Patients' satisfaction

Patient happiness, loyalty, and trust are directly influenced by the quality of staff and services in the healthcare system. One of the most crucial aspects is the way healthcare professionals communicate with patients, particularly through personal interactions and empathy. Ha and Longnecker (2010) note that "patient-centered communication leads to better care experiences by enhancing trust in the provider." When healthcare providers engage with patients in a compassionate manner—addressing their concerns and offering clear explanations—patients feel more comfortable and trusting, which significantly improves their satisfaction. The competence and expertise of healthcare workers are also fundamental. Patients are satisfied if they feel that the professionals providing health care to them are more competent, make proper diagnoses, and administer effective therapies. Nguyen, and Nagase, (2019) assert that "perceived service quality has substantial effects on patient satisfaction as patients perceive high professional competence." Expertise increases both the confidence of patients in the care they are seeking and clinical outcomes. Efficiency in service delivery, including reduced wait times and streamlined administrative processes, also plays a key role in patient satisfaction. Mosahab, Mahamad, and Ramayah (2010) point out that "service quality gaps, especially delays and poor responsiveness, negatively impact patient satisfaction." By reducing waiting times and ensuring timely care, healthcare systems can minimize the level of stress and frustration put on the patients and then assure them that their precious time and health are valued. The second importance is the emotional support given by the healthcare staff that explains patient satisfaction. Goodrich (2016) underlines compassionate care, which is described as "compassionate care is essential in reducing patient anxiety and enhancing the overall healthcare experience." Such emotional support made the patients feel valued and cared for during trying moments. Patient perceptions are also shaped by the overall quality of care, including the cleanliness, safety, and comfort of the medical environment. Marimon, Gil Doménech, and Bastida (2019) found that "hospital environment and atmosphere are important dimensions of perceived quality, which significantly affect patient satisfaction." When patients are treated in a clean, safe, and comfortable environment, they feel more satisfied and develop greater trust in the healthcare facility. Patient-centered care, which responds to the specific needs of every patient and gets them involved in the whole process, is also a general aspect of modern health care. According to Barry and Edgman-Levitan (2012), "involving patients in their care leads to improved satisfaction and greater adherence to treatment plans." When patients feel that their preferences and concerns are respected, they are more likely to have a positive healthcare experience and remain loyal to the facility. Finally, continuity of care and follow-up services are critical to maintaining patient satisfaction and loyalty. Lee and Yom (2007) noted that the patient's expectations and service delivery must be aligned because a discrepancy between the two perceptions would create a negative impact on the satisfaction level and would lessen the chances of returning patients to the hospital. Successful follow-up care allows the patients to feel cared for long after they have left the hospital, which increases their trust and loyalty.

2.3 Review on Communication and Patient Satisfaction

Trustful communication between healthcare professionals and patients is the bedrock of delivering quality health care and improving patient satisfaction. Studies show that communication that is patient-centered determines both the patient experience and the outcome. The first benefit of effective communication, therefore, is the establishment of trust. According to Ha and Longnecker (2010), "patient-centered communication fosters trust in the

care provider, which is ultimately beneficial for the experience." Health care professionals should provide emotional understanding through clear communication in that they will make their patients feel valued and understood while forming positive relationships. Another key point about clear communication is the management of the patient's expectations. According to Nguyen and Nagase (2019), "perceived service quality significantly influences patient satisfaction, especially when patients perceive high professional competency." The reason is that if a healthcare provider can satisfactorily explain diagnoses, treatment options, and procedures to the patient, they better understand their healthcare experience, which decreases anxiety and increases happiness. There could also be a role played by the non-verbal body language and eye contact in patients' perception. According to Haskard Zolnierek and DiMatteo, as quoted in 2009, "excellent physician-patient communication is a prerequisite for patient adherence to treatment and indirectly influences patient satisfaction." By showing consideration and compassion both verbally and nonverbally, doctors are promoting a better service experience with patients. Active listening is another essential part of communication. According to McCabe (2004), “Patients who feel listened to are more likely to report higher levels of satisfaction.” By honestly addressing patient concerns, healthcare providers foster a sense of caring for a great healthcare experience.
In conclusion, effective communication—encompassing verbal clarity, non-verbal cues, and active listening—significantly enhances patient satisfaction.

2.4 Hospital infrastructure and Patients’ satisfaction

One of the highly debated topics of today is how the infrastructure of a hospital affects a patient's stay. Regarding this, Glickman et al. (2010) have found that several aspects of the hospital environment, encompassing equipment, design, and cleanliness, were associated with scores for patient satisfaction. They further note, "A positive hospital environment increases patient comfort and satisfaction, so a patient may find a better time at a well-maintained establishment.". Ulrich et al. (2008) further elaborated this by showing how the designs of hospitals impact the outcome of patients. In the study, they were able to prove that "design improvements can lead to better health outcomes and increased patient satisfaction." Such information would state that thoughtful decisions in the architectural design process may add beauty to facilities but at the same time contribute positively to the entire well-being of patients within the care facility. Systematic reviews by Rowe and Knox in 2023 have clearly shown that for patients, especially in emergency cases, healthcare environments become a source of experience greatly influenced by the spatial layout of the unit, noise, and generally the cleanliness, affecting the perception of comfort within the environment. The study indicates that well-designed infrastructure improves communication, reduces anxiety, and increases overall satisfaction. Authors finally argue for patient-centered design as an essential part in the creation of supportive healthcare environments that are more patient-oriented. Against this backdrop of technological advancement, Badrea Al Oraini (2024) explored how the integration of AI in healthcare raises patient satisfaction through personalized care, efficient processes, and the infrastructure that enhances data analysis and decision-making. It thereby emphasizes the synergy of benefits that AI provides with a strong hospital infrastructure.
Literature, as above, brings forward the importance of inpatient hospital infrastructure towards creating patient satisfaction. It makes patient outcomes and loyalty good and healthy with thoughtful designs and quality facilities along with available amenities. The practice of evidence-based healthcare design for the creation of supportive environments is gaining prominence. Well-planned physical spaces are important to improve the safety of patients, healing, and satisfaction of employees in hospitals.

2.5 Review of Literature on Hospital Leadership Commitment and Patient Satisfaction

Ntwiga et al. (2019) seek to investigate the extent that leadership commitment affects patient satisfaction in hospitals in Nairobi. The findings show that the intensive practices of the leadership significantly strengthen patient experience through an accountability culture and a focus on patient care. As indicated by the results, committed leadership emerged in an effort to improve communication and service delivery, where a high patient satisfaction score was noted. Such studies establish the influence of good leadership in the healthcare industry and its implications on patients. He centered his work on how a leadership commitment role ensures and develops healthcare quality in a process of innovation (Latham, 2014). His work will explain how the need to put up a culture for happy patients and continuous development concerning outcomes is essential for producing beneficial health outcomes. Such research on the influence exerted by leadership will frame and be the outline. In 2009, Gill and White discussed leadership commitment and patient satisfaction in the health sector. According to the authors, the commitment of leadership is core to the development and actual practice of quality improvement and for patient-centered care. Leadership commitment is essential in bettering patient outcomes, states Aaron Haerr (2021). His research specifies what strategies include transparency enhancement, staff empowerment, and actively joining quality improvement activities. Effective leadership creates an environment where patient care is consistently prioritized and enhanced. Muhammad Asif et al. (2019) discussed how leadership positively impacts patient satisfaction when related to both administrative and clinical quality. They said, "Leadership commitment requires strategies that emphasize patient care." They further stated, "Strong leadership is considered paramount in enhancing health outcomes along with the overall experience.".
Conclusively, the literature is well placed to show that hospital leadership commitment is essential in boosting patient satisfaction. Leaders who focus on patient-centered care, teamwork building, enhancement of communication, and development of staff create atmospheres that improve both patient experiences and outcomes.

2.6 Review of Literature on employee engagement and Patient Satisfaction

Studies confirm the notion that employee engagement is at the core of the construction of patient satisfaction in the health care sector. Involved and values-aligned staff members are far better served to meet patients' requirements because they help the physician provide better patient communication, empathy, and trust through the staff. According to Ji Yun Kang et al. (2019), transformational leadership makes the staff act in ways for enhancing patient satisfaction directly, and it is "a motive for staff by itself (Lowe 2018). As highlighted by Rashmi and Dsouza (2023), good standards of care emanate from committed and content nurses, where supportive leadership is very essential in keeping the high engagement levels high, which in turn will correlate with better patient experience. Makoni also had the same conclusion that it will lead to better engagement by the employee if healthcare workers are developed through an overall supportive work culture created in terms of communication and professional development. Critical care settings display the fact that when empowered through the empowerment of training, the communication skills, as well as the stress improvement, enhance the quality of patient care directly. Together, these pieces of research portray that it is only these employee involvements that drive the way to attain better results for patients as well as satisfaction for patients. The engagement of the employee in a healthcare setup increases the quality of satisfaction of the patients to a huge extent. An empowered staff, supported by the leadership and abiding by the value system, can provide

quality care, improve communication, and show empathy in practice, which would therefore contribute to a positive experience and overall patient satisfaction.

To sum up, the integration of Total Quality Management (TQM) principles across various dimensions—service quality, staff engagement, effective communication, hospital infrastructure, leadership commitment, and employee involvement—plays a crucial role in enhancing patient satisfaction in healthcare settings. Research consistently shows that addressing these interconnected factors not only improves patient experiences but also fosters loyalty and trust. Primary elements that will contribute to advancing the quality of care and outcomes for the patient include patient-centered care, investment in staff development, and creating a supportive environment. These would collectively help achieve a healthcare system that is more effective and compassionate. Factors of Total Quality Management are quality care, services provided by staff, effective communication, hospital infrastructure, leadership commitment, and involvement of employees. All of these bring about better patient satisfaction in a healthcare setup. All of them contribute to loyalty and trust that further helps in forming an effective and humane healthcare setup. Investment in staff development and the establishment of a supportive environment leads to better care outcomes and an approach centered on patients.

3. Theoretical framework

Some of the key theories that will help in providing a comprehensive understanding of the relationship between the variables being studied include the following:

3.1 Total Quality Management Theory

TQM is a continuous improvement process with process optimization and a customer-oriented approach as defined by Deming's 4 points (plan, control, and act), Juran's quality trilogy of quality planning, quality control, and quality improvement, and Crosby's zero-defect theory. For service quality improvement and patient safety improvement, which will help in employee involvement through a systemic approach to delivering healthcare in the system for improving the general patient experience, such as providing care that has become reliable, efficient, and compassionate. This TQM theory is integral because these aspects will be used as a basis for discussing how hospitals apply their various quality management practices. Its main aim is therefore to optimize service delivery as well as enhanced outcomes as regards patients, along with compliance with necessary legal requirements, hence creating and influencing patient perceptions along with satisfaction with health services offered.

3.2 SERVQUAL Model (Parasuraman, Zeithaml, and Berry, 1988)

The SERVQUAL model widely uses five key dimensions of service quality, namely reliability, assurance, tangibility, empathy, and responsiveness. It measures customer perceptions of healthcare services and evaluates the effectiveness of TQM practices in meeting patient needs. In the context of health care, reliability means proper diagnosis and proper delivery of care, while empathy is shown in the provision of individualized care and attention to the patient's interests. The model, therefore, offers a framework for assessment of how the healthcare institution implements TQM to deliver care to meet the expectations of patients by using dimensions such as reliability and assurance, which reflect consistency in care and the competence of staff, while empathy reflects the degree to which the patient will be satisfied through compassionate interaction. All these factors together play a great role in formulating overall customer satisfaction.

3.3 ***Kano's Model of Customer Satisfaction (Kano, N., Seraku, N., Takahashi, F., & Tsuji, S. 1984)***

Kano's model classifies services into three categories—basic needs, performance needs, and excitement needs—providing a nuanced understanding of customer satisfaction. In healthcare, basic needs encompass essential medical care, performance needs relate to the quality of medical facilities and staff, and excitement needs involve unexpected, high-quality care that delights patients. TQM practices aim to address all these levels, with a focus on not only meeting but exceeding customer expectations, thereby enhancing satisfaction. By applying Kano's model, the research can assess how different TQM initiatives align with these service categories and contribute to varying degrees of patient satisfaction. For instance, diagnostics and treatment are fundamental, basic, reliable services expected from the service, but care, as individualized or with high-tech medical technology, creates the "excitement factor," leading to increased satisfaction. This way, it can provide an intensive exploration of the TQM practices and how they may potentially impact patient experience through diverse dimensions of the service.

3.4 Expectancy-Disconfirmation Theory (Oliver, Richard L. 1980)

According to the Expectancy-Disconfirmation Theory, customer satisfaction is the result of a gap between service expectations and performance. In health care, if services satisfy or exceed the expectations of patients in using effective TQM practices, then satisfaction ensues; otherwise, it results in dissatisfaction in cases of shortfalls. It helps assess whether the experience of the patients matches up with their expectations and acts as a basis for assessing success in TQM practices applied in health care. In the current study, this theory will be used to explore whether the TQM practices of the hospital bring positive or negative confirmation. Quality initiatives that are more than expectations bring satisfaction, and services that do not meet expectations bring dissatisfaction. This approach will help determine which of the approaches of TQM deteriorate or enhance patient satisfaction by focusing on the gap between actual and expected service.

3.5 Customer Loyalty and Satisfaction Theories (Heskett, Sasser, and Schlesinger, 1997)

Customer satisfaction and loyalty are interconnected concepts in healthcare, as retention and trust are lifelines for any hospital. The theories indicate that more satisfied customers lead to increased loyalty, better retention, and positive word of mouth. Customer satisfaction happens to be the most vital performance indicator since satisfied patients are often returned to the same hospital and referred to others. In this regard, this research explores whether effective TQM programs, which improve patient immediate satisfaction, also enhance long-term loyalty. Measurement of the impact of TQM on the level of loyalty patients have will therefore provide valuable insights into the broader advantages of quality management in healthcare, especially about giving ample reasons why the reputation of the hospital should be established and significant for sustainable growth.

These theories allow developing a comprehensive model by embedding TQM practice influences on health services in relation to patient experience for healthcare services and thus improving continuously while contributing toward healthier outcomes. For these reasons, the above-mentioned theories help one attain organized understanding regarding how interlock the TQM interventions operate in collaboration with patient satisfaction. Therefore, using the

theories presented allows this work to determine ways the best quality management practice works in delivering positive patient experiences. This integrated approach demonstrates how TQM influences satisfaction. It further enhances positive outcomes by ensuring that the care service meets the patients' expectations at a very high level.

4. Proposed theoretical model

The perceptions of quality care, professionalism of staff, and service delivery will largely have an impact on the patients. Clear and empathetic communication is essential to create confidence and give a patient the impression that his concerns are heard. Furthermore, ambiance surroundings and good infrastructural settings reflect safety. Leadership commitment to service quality reinforces the commitment to patient care, and employee involvement in quality efforts ensures care that is both consistent and reliable. Together, these are a formula for positive patient experience and, ultimately, satisfaction. Conversely, inadequacies in any of these above aspects—low-quality care; deficient staff services; lousy communication or poor infrastructural; low or no commitment of management to the quality of services; and absence of employee engagement—can trigger dissatisfaction, which negatively influences the retention of patients, therefore impacting the reputation of a hospital. The same thing is depicted in Figure 1.

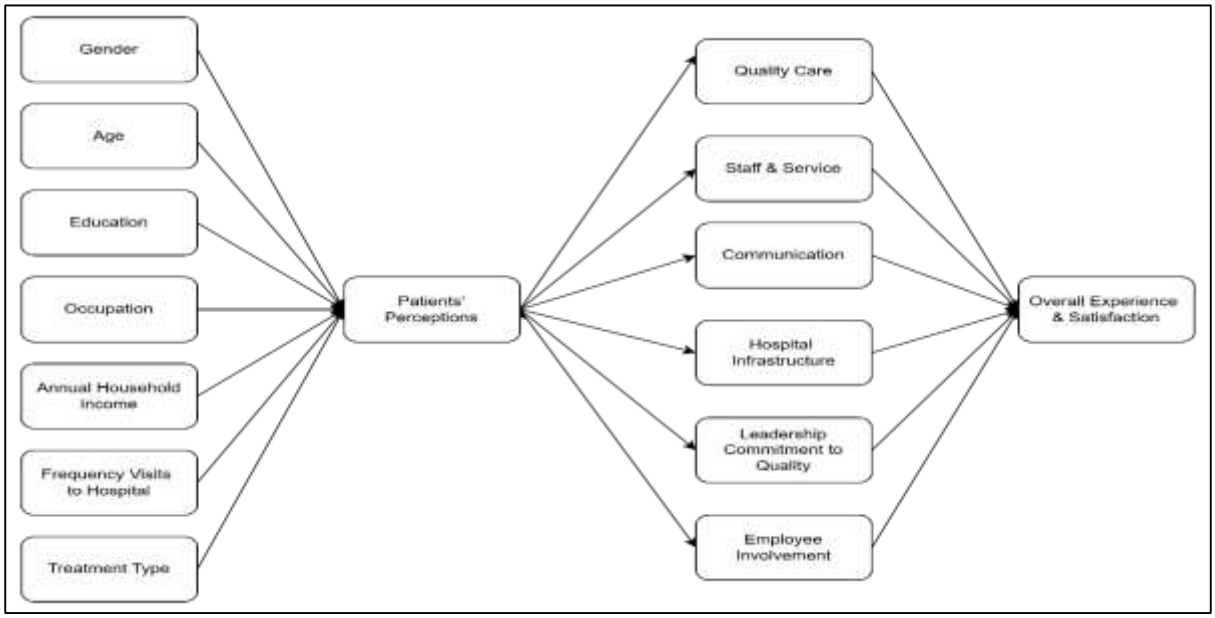

Figure 1 Patients' perceptions on healthcare services - Overall experience - satisfaction or dissatisfaction

5. Statement of the Research Problem

Extensive application of the practice of TQM has been provided across various sectors. But not much effort has been put into how such practices would help in changing the status of satisfaction from points that are customer-patient-oriented in the health sector. Service in the health sector would differ because different features in services, restrictions as required by regulatory issues, and the expectations of the health customers may occur. This study seeks to address the gap by analyzing how TQM practices influence customer perception and satisfaction in healthcare institutions. The problem lies in determining the effectiveness of TQM practices in enhancing patient satisfaction and how these practices can be optimized in the healthcare setting.

6. Significance of the Study

The value of this study is significant because it addresses the concept of patient satisfaction, which is rapidly becoming a benchmark performance measure for hospitals. This research would highly contribute to hospital management, legislators, and other professionals in the healthcare field when examining the effects of TQM techniques on patient satisfaction in the healthcare industry. This research will be useful in the identification of the techniques in TQM that would bring about the best outcomes for patient outcomes and satisfaction and improvements in healthcare services, as well as possibly policy formulation. In addition, concerning evidence-based suggestions to enhance service quality by principles of TQM, this research will contribute to the knowledge base on quality management within the healthcare sector.

7. Objectives of the Study

This study aims to find out how Total Quality Management (TQM) methods influence perceived customer satisfaction in healthcare. The specific objectives of the study are as follows:

a) To assess the perceptions of patients on TQM practices in hospitals.
b) To determine the essential TQM elements such as quality care, staff services, communication, hospital infrastructure, management commitment for higher levels of quality, and employee engagement that have a major impact on hospital patients' happiness.
c) To evaluate the effectiveness of TQM practices in addressing patient expectations and improving service delivery in hospitals.
d) To provide recommendations for hospital management on how to optimize TQM practices to improve customer satisfaction.

Using the findings from the study, it will provide practical recommendations to the hospital administrators to improve the TQM practice with a view to increasing patient satisfaction and service quality. For this purpose, the results of the study will show how hospitals can successfully leverage TQM practices to drive customer satisfaction and improve outcomes in healthcare.

8. Methodology

8.1 Research Design:

A descriptive and analytical research design will be taken in the study. For gaining a complete understanding, a quantitative approach is undertaken to know how TQM practices affect the perceptions of customers.

8.2 Population and Sample:

The population will include patients in different hospitals across the country that is infinite.

8.3 Sample size:

The sample size is determined as follows:

Confidence Level is assumed: 95% (thus Z=1.96)
Margin of Error (E): 10% (0.10)
Estimated Proportion (p): 0.5 (for maximum variability)

Sample size (n) = $\frac{(1.96)^2 * 0.5 * (1-0.5)}{(0.10)^2} = 96.4 \approx 97$

The sample size for this study is 118 which is more than the required number (97).

8.4 Data Collection:

8.4.1 Primary Data:

A structured questionnaire is used to gather data from patients. The questionnaire is prepared to cover demographic variables such as gender, age in years, education, occupation, annual household income, frequency of visits to hospitals, and type of treatment like outpatient, inpatient, surgery, and emergency care. Further, a 5-point scale is used to measure their perceptions of healthcare services. The parameters used to measure the quality of the healthcare services are: quality care (providing high-quality medical services, having knowledgeable and competent staff, and patients' confidence in taking treatment), staff services (politeness and respectfulness of hospital staff, responsiveness of doctors and nurses and reasonable waiting time), communication (clearly explanation of medical conditions and treatments, provision of adequate information regarding procedures and medication, and whether patients are fully informed about their treatment and procedure), hospital infrastructure (well-maintained hospital facilities like rooms, equipment, and modern facilities, clean and hygienic environment, and comfortable atmosphere to the patients), leadership commitment to higher quality (management's committed to maintaining high-quality standards, management prioritizes patient care and safety, and continuous improvements are evident in hospital services), employees' involvement (staff's commitment to providing excellent care, hospital employees work well as a team to provide patient care, and hospital staff are empowered to address patient concerns effectively), patients' overall experience and satisfaction (patients' satisfaction with the overall quality of care, meeting patients' expectations in terms of service quality, and patients' willingness to recommend the hospital to others).

For each of the parameters, three statements are prepared with a 5-point scale; 1 indicates strongly disagree, 2, disagree, 3, neutral, 4, agree, and 5, strongly agree.

Similarly, the demographic variables are classified and listed as follows:

Gender: male and female.

Age in years: below 25 years, 25-35 years, 36-45 years, 46-55 years, and above 55 years.

Education: no formal education, graduates, postgraduates, and PhDs (Doctor of Philosophy).

Occupation: student, employed, self-employed, unemployed, retired, others – homemakers.

Annual household income: below ₹ 2 lacs, ₹ 2-5 lacs, ₹ 5-10 lacs, and above ₹ 10 lacs.

Frequency of visits to the hospital: first time, occasionally, and frequently.

Treatment type: outpatient, inpatient, surgery, and emergency care.

After the questionnaire was administered, 118 people responded properly. The sample size for the study is 118.

8.4.2 *Secondary Data:*

Previous studies and academic literature on TQM practices in healthcare will be reviewed to support the findings.

8.5 Test of Normality:

A test of normality is performed for all the independent and dependent variables' data and presented in Table 1.

Table 1. Tests of Normality (N=118)

Dependent/ Independent	Variables	Shapiro-Wilk test		
		Statistic	df	Sig.
Independent Variables	Age	0.813	118	0
	Gender	0.598	118	0
	Education	0.587	118	0

	Annual Income	0.892	118	0
	Frequency of visits	0.66	118	0
	Treatment type	0.768	118	0
	Occupation	0.793	118	0
Dependent Variables	The hospital provides high-quality medical services.	0.844	118	0
	Medical staff are knowledgeable and competent.	0.819	118	0
	I am confident in the treatment I receive here.	0.822	118	0
	The hospital staff are polite and respectful.	0.856	118	0
	Nurses and doctors are responsive to my needs and concerns.	0.836	118	0
	Waiting times are reasonable and acceptable.	0.907	118	0
	Doctors and staff clearly explain medical conditions and treatments.	0.824	118	0
	The hospital provides adequate information regarding procedures and medication.	0.837	118	0
	I feel well-informed about my treatment and care.	0.826	118	0
	The hospital facilities (rooms, equipment, etc.) are modern and well-maintained.	0.842	118	0
	The hospital environment is clean and hygienic.	0.839	118	0
	The hospital provides a comfortable atmosphere for patients	0.871	118	0
	The hospital management is committed to maintaining high-quality standards.	0.845	118	0
	I believe the hospital management prioritizes patient care and safety.	0.834	118	0
	Continuous improvements are evident in hospital services.	0.844	118	0
	The staff seem motivated and committed to providing Excellent Care.	0.887	118	0
	The hospital employees work well as a team to provide patient care.	0.878	118	0
	Hospital staff are empowered to address patient concerns effectively.	0.875	118	0
	I am satisfied with the overall quality of care I received at this hospital.	0.865	118	0
	The hospital has met my expectations in terms of service quality.	0.866	118	0
	I would recommend this hospital to others.	0.857	118	0

Source: the author

As the sample size is less than 2000, the Shapiro-Wilk test is performed. Both the independent and dependent variables show a ***non-normal distribution*** of the data.

8.6 Data Analysis:

The data is tested in terms of reliability by computing Cronbach's alpha using SPSS software for all the parameters, such as quality care, staff services, communication, hospital

infrastructure, management commitment for higher levels of quality, and employee engagement. SPSS (statistical package for social sciences) is used for the analysis of the data. Statistical tools used to analyze the data are listed as follows:

8.6.1 For all the statements scaled in 5-points, descriptive statistics, including mean scores, standard deviation, and coefficient of variation (CV), are computed to understand the central point of the perceptions in the 5-point scale with an average variation in percentage.

8.6.2 For two-grouped data, like for males and females, the Mann-Whitney U test is used, and for more than two groups, the Kruskal-Wallis test is used to find the difference in the perceptions.

8.6.3 To find the determinant factors of respondents' perceptual overall experience and satisfaction, the Spearman correlation coefficient is computed to find whether there is a significant correlation and the percentage of variation that can be explained by each of the independent variables on the respondents' perceptual overall experience and satisfaction. The aggregate scores for each independent and dependent variable are arrived at by summing up the corresponding scores under each variable.

8.7 Test of Reliability:

The overall reliability test is performed for all the parameters (21 statements) and presented in Table 2.

Table 2. Reliability Statistics

Cronbach's Alpha	Number of Items
0.972	21

Source: the author

It is found that the overall reliability in terms of Cronbach's alpha is 0.972, which is more than 0.7; hence, the data (the perceptions of the patients) is reliable.
Further, the test is performed if an item is deleted and presented in Table 3.

Table 3. Item-Total Statistics - Cronbach's Alpha if Item Deleted

Parameters	Statements	Cronbach's Alpha
Quality Care	The hospital provides high-quality medical services.	0.971
	Medical staff are knowledgeable and competent.	0.971
	I am confident in the treatment I receive here.	0.971
Staff & Service	The hospital staff are polite and respectful.	0.971
	Nurses and doctors are responsive to my needs and concerns.	0.970
	Waiting times are reasonable and acceptable.	0.972
Communication	Doctors and staff clearly explain medical conditions and treatments.	0.970
	The hospital provides adequate information regarding procedures and medication.	0.970

	I feel well-informed about my treatment and care.	0.970
Infrastructure	The hospital facilities (rooms, equipment, etc.) are modern and well-maintained.	0.971
	The hospital environment is clean and hygienic.	0.970
	The hospital provides a comfortable atmosphere for patients	0.970
Management Commitment	The hospital management is committed to maintaining high-quality standards.	0.969
	I believe the hospital management prioritizes patient care and safety.	0.970
	Continuous improvements are evident in hospital services.	0.970
Employee Involvement	The staff seem motivated and committed to providing Excellent Care.	0.970
	The hospital employees work well as a team to provide patient care.	0.970
	Hospital staff are empowered to address patient concerns effectively.	0.970
Patients' satisfaction	I am satisfied with the overall quality of care I received at this hospital.	0.969
	The hospital has met my expectations in terms of service quality.	0.970
	I would recommend this hospital to others.	0.970

Source: the author

It is disclosed that for all the cases the Cronbach's alpha is more than 0.7, hence the perceptions are reliable.

To analyze the data, appropriate non-parametric statistical tools such as Spearman correlation, Mann-Whitney U test, and Kruskal-Walli's test are used to comprehend the perceptions of the patients.

8.8 Research Hypotheses:

The following are the research hypotheses developed to investigate the impact of different parameters on individual perceptions of their overall experience and satisfaction with healthcare services:

8.8.1 The responses for each parameter (QC, SS, C, HI, LCQ, and EI) are distributed equally between males and females.

8.8.2 The responses for each parameter (QC, SS, C, HI, LCQ, and EI) are evenly distributed among respondents of various age groups.

8.8.3 The responses provided to each parameter (QC, SS, C, HI, LCQ, and EI) are evenly distributed among respondents with varying educational backgrounds.
8.8.4 The responses to each parameter (QC, SS, C, HI, LCQ, and EI) are evenly distributed among respondents from different professions.
8.8.5 The responses to each parameter (QC, SS, C, HI, LCQ, and EI) are evenly distributed among respondents with varying household incomes.
8.8.6 Responses to each parameter (QC, SS, C, HI, LCQ, and EI) are evenly distributed among respondents across treatment types.
8.8.7 The responses to each parameter (QC, SS, C, HI, LCQ, and EI) are evenly distributed across respondents, regardless of the number of visits to the hospitals.
8.8.8 There is no significant relationship between the mean score for quality treatment and the overall experience and satisfaction of patients with healthcare services.
8.8.9 The total experience and happiness of patients with healthcare services do not significantly correlate with the mean score of staff and services.
8.8.10 There is no significant association between the average communication score in hospitals and patients' overall experience and satisfaction with healthcare services.
8.8.11 There is no significant relationship between the average score for hospital infrastructure and patients' overall experience and satisfaction with healthcare services.
8.8.12 There is no significant association between the average score of leadership commitment to high quality and patients' overall experience and satisfaction with healthcare services.
8.8.13 There is no significant relationship between the average level of staff participation and patients' overall experience and satisfaction with healthcare.

8.9 Assumptions:

The following are the assumptions made to proceed with the proposed research:

8.9.1 The respondents who have mentioned “outpatient and taken surgery” or “impatient and taken surgery” are considered under surgery. Similarly, those mentioned as “outpatients and approached for emergency care” are considered under emergency care.
8.9.2 Margin of Error (E) is assumed to be 10% in the determination of the sample size.
8.9.3 A significance level of 5% (that is, 95% of the confidence level) is assumed to perform a test of hypothesis.

8.10 Limitations:

The findings will be specific to hospitals in general and may not be applicable to specific regions or types of healthcare institutions. The study relies on self-reported data, which may be subject to bias or inaccuracies in patient recall.

8.11 Ethical Considerations:

All participants will give consent. The study will respect confidentiality and uphold the rest of the rules relating to ethical conduct in the medical research setting.

The research methodology employed in this work will provide an insightful understanding of how customer perception toward TQM in hospitals has been realized. Customer-perceived satisfaction regarding the outcome in hospital settings after applying TQM will be discussed based on a detailed analysis of how it impacts satisfaction in this aspect.

9. Research Results

The research results are presented as follows:

9.1 Demographic profile of the respondents:

The demographic profile of the respondents is presented in table 4.

Table 4. Demographic Profile of the respondents

Demographic Data		Respondents	Percent
1 Age in Years	Below 25	44	37.3
	26-35	43	36.4
	36-45	16	13.6
	46-55	8	6.8
	Above 55	7	5.9
	Total	118	100.0
2 Gender	Male	40	33.9
	Female	78	66.1
	Total	118	100.0
3 Education	No formal education	1	0.8
	Undergraduate	23	19.5
	Postgraduate	91	77.1
	Ph.D.	3	2.5
	Total	118	100.0
4 Occupation	Student	37	31.4
	Employed	50	42.4
	Self-employed	15	12.7
	Unemployed	8	6.8
	Retired	3	2.5
	Others – Homemaker	5	4.2
	Total	118	100.0
5 Annual Household Income	Below 2,00,000	27	22.9
	2,00,000 - 5,00,000	30	25.4
	5,00,000 - 10,00,000	32	27.1
	Above 10,00,000	26	22.0
	No Response	3	2.5
	Total	118	100.0
6 Frequency of visits to Hospitals	First visit	11	9.3
	Occasionally	90	76.3
	Frequently	17	14.4
	Total	118	100.0
7 Treatment type	Outpatient	63	53.4
	Inpatient	16	13.6
	Surgery	23	19.5
	Emergency care	10	8.5
	No Response	6	5.1
	Total	118	100.0

Source: the author

Age: It is revealed that the largest proportion of respondents (37.3%) are under 25, followed by those aged 26–35 (36.4%), 36.4% (13.6%), 36–45 (6.8%), and above 55 (5.9%). This indicates that more than 73% of the surveyed individuals are extremely young, with an average age under 36.
Gender: The majority of respondents (66.1%) are female, while 33.9% are males.
Education: It is found that the majority of respondents (77.1%) are postgraduates, followed by graduates (19.5%), PhDs (2.5%), and those with no formal education (0.8%). This means that more than 77% of those surveyed are highly educated.
Occupation: The majority of respondents (42.4%) are employed, followed by students (31.4%), self-employed (12.7%), jobless (6.8%), others-homemakers (4.2%), and retirees (2.5%). This suggests that more than 42% of the respondents are employed.
Annual Household income: The majority of respondents (27.1%) reported an annual family income of between 5 and 10 lacs, followed by the range of 2-5 lac (25.4%). Under 2 lac (22.9%), above 10 lac (22%), and no response (2.5%). This suggests that the majority of respondents (27.1%) report an annual family income of between 5 and 10 lacs.
Frequency of visits to hospital: Seventy-three percent of respondents said they visit hospitals occasionally, followed by 14.4% who visit regularly and 9.3% who come for the first time. According to this, more than 76 percent of the respondents said they occasionally visit hospitals.
Type of treatment: The majority of respondents (53.4%) stated that they visit hospitals as outpatients, followed by 19.5% who visit hospitals for surgery, 13.6% as impatient, 8.5% for emergency treatment, and 5.1% who didn't respond.
The survey reveals a diverse demographic, with a majority of young, educated individuals (66.1%) female, 73.7% under 36 years of age, and 77.1% having postgraduate degrees. Employment status varies, with 42.4% employed, followed by students (31.4%) and smaller percentages of homemakers, retirees, self-employed, and jobless individuals. The largest income group (27.1%) earns between 5 and 10 lacs annually. These findings point to a youthful, well-educated population with various healthcare interaction styles influencing significant viewpoints on healthcare services.

9.2 Descriptive statistics – Perceptions of the patients on healthcare services

9.2.1 Quality Care

Professional competence, sufficient personnel, excellent service, and patient confidence in treatment are all ingredients of quality healthcare. The above ingredients increase dependability, respect, and trust leading to a fulfilling experience for healthcare. The perception of the respondents about mean scores of quality care and the corresponding statements is shown in Table 5.

Table 5. Descriptive statistics – Perceptions of the patients on quality care

Parameters	Statements	N	Mean Score	Std. Dev.	Coefficient of Variation (%)

Quality Care	The hospital provides high-quality medical services.	118	3.86	0.90	23.21
	Medical staff are knowledgeable and competent.	118	3.89	0.84	21.47
	I am confident in the treatment I receive here.	118	3.89	0.97	24.88
	Aggregate mean score		3.88	0.774	19.95

Source: the author

Respondents regarded quality care as positive for service quality, competency, expertise, and confidence regarding treatment. The mean score of these attributes ranges between 3.86 to 3.89; the CVs range from 21.47% to 24.88%. The aggregate mean score of 3.88 with a CV of 19.95%, indicates that the degree of positive scores is the same for all the considered quality aspects.

9.2.2 Staff & Service

Respect, attention, courtesy, and appropriate waiting time all work together to make the patient experience pleasant. In addition to making patients feel valued, these characteristics increase the confidence, care, and effectiveness of health service providers. Patients will become more at ease and even more empowered when they are dealt with in a dignifying manner by experts who, seemingly, listen to them too. This makes healthcare more comforting and beneficial. The perceptions of the respondents in terms of mean scores of staff and service and the respective statements are shown in Table 6.

Table 6. Descriptive statistics – Perceptions of the patients on staff and service

Parameters	Statements	N	Mean Score	Std. Dev.	CV (%)
Staff & Service	The hospital staff are polite and respectful.	118	3.87	0.92	23.77
	Nurses and doctors are responsive to my needs and concerns.	118	3.90	1.00	25.62
	Waiting times are reasonable and acceptable.	118	3.31	1.15	34.77
	Aggregate mean score		3.69	0.86	23.31

Source: the author

In turn, respondents perceived the services and staff to be on the positive side since they are friendly, respectful, and responsive, besides having minimal waiting times. Mean scores in these features lie between 3.31 and 3.9, with CVs in the range of 23.77% and 34.77%. The mean score for personnel and services is 3.69 with a coefficient of variation of 23.31%, which indicates that in general, the opinion is good and consistent with regard to service quality.

9.2.3 Communication

The relationship between the hospital and the patient can be very essential for establishing trust, understanding treatment, and better outcomes for patients. All such means like clear explanation, open talks, empathetic listening, regular updates, and easy access to the feedback

of patients are equally important. The perceptions of the respondents in terms of mean scores of communications and the respective statements are presented in Table 7.

Table 7. Descriptive statistics – Perceptions of the patients on communication

Parameters	Statements	N	Mean Score	Std. Dev.	CV (%)
Communication	Doctors and staff clearly explain medical conditions and treatments.	118	3.89	1.11	28.48
	The hospital provides adequate information regarding procedures and medication.	118	3.92	0.98	24.87
	I feel well-informed about my treatment and care.	118	3.91	1.04	26.55
	Aggregate mean score		3.90	0.99	25.38

Source: the author

Respondents favorably perceive the communication aspect of hospitals, especially easy-to-understand medical diagnoses, treatment plans, procedures, and drug information. The mean scores for the characteristics range from 3.89 to 3.92, and the CVs range from 24.87% to 28.48%. A total mean score of 3.90, with a CV of 25.38%, reflects a generally positive attitude toward the hospital communication system.

9.2.4 Hospital Infrastructure

Clean buildings, well-maintained buildings, modern equipment in medicine, and an effective arrangement for quality patient care such as waiting areas, signages, and amenities- are found in the infrastructures of the hospital. The perceptions of the respondents in terms of mean scores of hospital infrastructure and the respective statements are presented in Table 8.

Table 8. Descriptive statistics – Perceptions of the patients on hospital infrastructure

Parameters	Statements	N	Mean Score	Std. Dev.	CV (%)
Infrastructure	The hospital facilities (rooms, equipment, etc.) are modern and well-maintained.	118	3.90	1.07	27.31
	The hospital environment is clean and hygienic.	118	3.83	1.15	30.03
	The hospital provides a comfortable atmosphere for patients	118	3.74	1.00	26.71
	Aggregate mean score		3.82	0.97	26.08

Source: the author

The overall assessment of hospital infrastructure has received a good opinion in most of the areas; there is a positive impression mainly about rooms, equipment, cleanliness and hygiene, and a comfortable environment. Scores for the mentioned characteristics have averages ranging from 3.74 to 3.90, and their respective CVs are within the range of 26.71% to 30.03%. Hence, the total mean score, which is 3.82 with a CV of 26.08%, indicates a generally positive attitude toward hospital infrastructure.

9.2.5 Management Commitment

The sense of a culture of high performance and responsibility for one's actions with a thrust to constant improvement creates excellence as a norm of conducting businesses; therefore, trusting these standards to deliver enhanced performance with good patient care creates efficiency and safety coupled with innovation. Table 9 reports the opinions or responses from the respondents for items that concern management commitment towards the quality standards reflected on mean scores and individual statements, respectively.

Table 9. Descriptive statistics – Perceptions of the patients on Management Commitment

Parameters	Statements	N	Mean Score	Std. Dev.	CV (%)
Management Commitment	The hospital management is committed to maintaining high-quality standards.	118	3.72	1.06	28.52
	I believe the hospital management prioritizes patient care and safety.	118	3.86	0.99	25.62
	Continuous improvements are evident in hospital services.	118	3.79	1.09	28.84
	Aggregate mean score		3.79	0.97	25.59

Source: the author

Respondents are upbeat about the commitment of the management of the hospital towards standards of quality in health concerning patient care, safety, and quality improvement. The mean score of the above attributes is between 3.72 and 3.86 with a CV that lies between 25.62% and 28.84%. In general, with a mean score of 3.79 for all with a CV of 25.59%, it could be concluded that the overall attitude of the management toward the health service is highly positive and on high standard maintenance.

9.2.6 Employee Involvement

The participation of employees in the provision of healthcare is the primary essential factor for giving high-quality, patient-centric care as well as ensuring that healthcare has the value or culture of innovativeness or consistency and more than improved patient satisfaction. According to the perceptions, this group of respondents obtained the higher mean scores when concerning questions about employee participation in delivering or providing patient care as well as safety concerning those corresponding statements, which are displayed below in Table 10.

Table 10. Descriptive statistics – Perceptions of the patients on Employee Involvement

Parameters	Statements	N	Mean Score	Std. Dev.	CV (%)
Employee Involvement	The staff seem motivated and committed to providing Excellent Care.	118	3.56	1.02	28.57
	The hospital employees work well as a team to provide patient care.	118	3.69	0.92	24.93
	Hospital staff are empowered to address patient concerns effectively.	118	3.75	0.94	24.93

	Aggregate mean score		3.67	0.89	24.25

Source: the author

Respondents liked the fact that the hospital staff is more involved inpatient care and safety and their readiness to cooperate in solving problems facing the patients. The average scores for attributes that feature here range between 3.56 and 3.75, while the CV varies between 24.93% and 28.57%. Having a CV equal to 24.25%, an overall mean score of 3.67 suggests good assessment as far as concern for patients' care and safety among personnel is taken into consideration.

9.2.7 Overall Experience & Satisfaction

Patient satisfaction will significantly promote the effectiveness of the desired quality of any kind of health care provided. It includes good health outcomes such as loyalty and trust besides courteous experiences with friendly encounters during the whole medical procedure due to effective treatments, high-efficiency procedures, and trustworthy encounters. The perceptions of the respondents in terms of mean scores of patients' satisfaction with the overall quality of care, meeting expectations in terms of service quality, and readiness of patients to recommend the hospital services to their network and the respective statements are presented in Table 11.

Table 11. Descriptive statistics – Perceptions of the patients on satisfaction

Parameters	Statements	N	Mean Score	Std. Dev.	CV (%)
Overall Experience & Satisfaction	I am satisfied with the overall quality of care I received at this hospital.	118	3.83	0.89	23.24
	The hospital has met my expectations in terms of service quality.	118	3.73	0.90	24.21
	I would recommend this hospital to others.	118	3.73	1.10	29.46
	Aggregate mean score		3.76	0.90	23.94

Source: the author

The critical factors that determine patient satisfaction with healthcare services are the quality of care, meeting expectations, and patients' willingness to refer to the hospital services. The average scores lie between 3.73 and 3.83, and CVs of the average score range from 23.24 percent to 29.46 percent. The overall mean rating is 3.76 with a CV of 23.94% indicating that patients are satisfied with the care received and appreciate the care given.

In a nutshell, most of the factors of healthcare are perceived in a positive manner, like well-maintained infrastructure, competent staff, quality care, and reliable communication. High mean scores reflect overall satisfaction with hospital services when the commitment of the leadership to high standards of quality and the participation of staff in patient care are concerned. The friendliness and responsiveness of staff welcome participants while providing clear information regarding diagnosis and treatments. Happy patients will refer individuals to the hospital. Such is given by high ratings and comments that have been consistent in various categories.

9.3 Test of hypotheses: demographic variables & Health care services

Test of hypotheses are performed to know whether demographic variables have significant impact on the factors of healthcare services and presented in Table 12.

9.3.1 Quality care:

Quality care includes three statements: providing high-quality medical services, having knowledgeable and competent staff, and patients' confidence in taking treatment. These are tested with respect to the demographic variables and presented in Table 12.

Gender is in two groups, namely male and female, hence Mann-Whitney U test is applied, and for the rest, as there are more than two groups, the Kruskal-Wallis test is used to find whether there is a significant difference in the perception of the respondents about quality care in the hospitals at the 5 percent level of significance. It is revealed that there is no difference in the perceptions between the genders and among the different groups with respect to age, education, occupation, annual household income, frequency of visits made to hospitals, and type of treatment sought.

This shows that respondents' evaluations of quality care in hospitals are consistent across demographics.

9.3.2 Staff & services

Staff and service include three statements: politeness and respectfulness of the staff, quick responsiveness of the medical staff (doctors and nurses), and reasonable (less) waiting time.

These are tested with respect to the demographic variables and presented in Table 12.

It is found that there is no difference in the perception about staff and service in terms of politeness, respectfulness, responsiveness of medical staff and reasonable waiting time between male and female respondents. Similarly, it was found that there is no difference in the perception about staff and service among different groups with respect to occupation, annual family income, frequency of visits to the hospitals and type of treatment sought.

Perceptions about politeness and respectfulness and responsiveness of the medical staff are uniform among the age groups of the respondents. However, in relation to "reasonable waiting time," the perceptions are very variable depending on the age group of respondents. Tables 13 and 14 present the adjusted test statistic and pairwise comparisons for age (reasonable waiting time). Applying the Bonferroni correction for multiple tests, results show that perceptions about reasonable waiting times are uniform across age groups.

Perceptions about the responsiveness of the medical staff and reasonable waiting time are uniform among the respondents concerning different educational backgrounds. However, perceptions about politeness and respectfulness of the medical staff differ among the respondents for different educational backgrounds. Tables 15 and 16 present the adjusted test statistic and pairwise comparisons for education (politeness and respectfulness of the medical staff). Applying the Bonferroni correction for multiple tests, results show that perceptions about politeness and respectfulness of the medical staff are uniform across the groups with different educational backgrounds.

9.3.3 Communication

Three claims are included in communication: patients feel informed about their care and treatment; hospitals give sufficient information about procedures and medications; and physicians and staff clearly explain medical issues and treatments. Table 12 displays the results of these tests in relation to the demographic factors.

Gender is in two groups, namely male and female, hence Mann-Whitney U test is applied, and for the rest, as there are more than two groups, the Kruskal-Wallis test is used to find whether there is a significant difference in the perception of the respondents about communication in the hospitals at the 5 percent level of significance. It is revealed that there is no difference in the perceptions about communication in the hospitals between the genders

and among the different groups concerning age, education, occupation, annual household income, frequency of visits made to hospitals, and type of treatment sought.

9.3.4 Hospital infrastructure

Hospital infrastructure is assessed in three aspects: well-kept facilities (rooms, buildings, equipment), cleanliness and hygiene of the surroundings, and comfort in general for patients. Table 12 reports the test results for these aspects based on demographic variables.

It is revealed that there is no difference in the perceptions about hospital infrastructure (from the three determinants) in the hospitals between the genders and among the different groups concerning age, education, occupation, annual household income, frequency of visits made to hospitals, and type of treatment sought.

Table 12. Hypothesis Test Summary – Independent-Samples 2-tailed Test

Parameters	Null Hypothesis -The distribution of the responses for each of the following is equal for each of the categories	Gender (Mann-Whitney U Test)	Age (Kruskal-Wallis Test)	Education (Kruskal-Wallis' Test)	Occupation (Kruskal-Wallis Test)	Annual Household Income (Kruskal-Walli's test)	Frequency of visits (Kruskal-Wallis Test)	Treatment type (Kruskal-Wallis Test)
		Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
Quality Care	The hospital provides high-quality medical services.	0.722	0.88	0.195	0.672	0.595	0.972	0.691
	Medical staff are knowledgeable and competent.	0.104	0.509	0.289	0.741	0.578	0.948	0.757
	I am confident in the treatment I receive here.	0.141	0.201	0.395	0.852	0.517	0.301	0.175
Staff & Service	The hospital staff are polite and respectful.	0.326	0.307	0.014*	0.998	0.983	0.878	0.646
	Nurses and doctors are responsive to my needs and concerns.	0.227	0.231	0.247	0.951	0.946	0.415	0.433
	Waiting times are reasonable and acceptable.	0.39	0.048*	0.916	0.955	0.865	0.386	0.262
Communication	Doctors and staff clearly explain medical conditions and treatments.	0.58	0.245	0.149	0.849	0.762	0.848	0.36
	The hospital provides adequate information regarding procedures and medication.	0.407	0.496	0.266	0.821	0.345	0.934	0.427
	I feel well-informed about my treatment and care.	0.248	0.697	0.146	0.99	0.798	0.717	0.193
Infrastructure	The hospital facilities (rooms, equipment, etc.) are modern and well-maintained.	0.232	0.842	0.41	0.692	0.831	0.529	0.3
	The hospital environment is clean and hygienic.	0.367	0.229	0.774	0.66	0.764	0.448	0.136
	The hospital provides a comfortable atmosphere for patients	0.332	0.397	0.077	0.685	0.473	0.47	0.217
Management commitment	The hospital management is committed to maintaining high-quality standards.	0.652	0.235	0.030*	0.664	0.945	0.525	0.558
	I believe the hospital management prioritizes patient care and safety.	0.535	0.192	0.513	0.629	0.865	0.223	0.67

	Continuous improvements are evident in hospital services.	0.377	0.249	0.269	0.446	0.965	0.606	0.652
Employee Involvement	The staff seem motivated and committed to providing Excellent Care.	0.568	0.048*	0.128	0.723	0.928	0.241	0.308
	The hospital employees work well as a team to provide patient care.	0.928	0.228	0.639	0.927	0.754	0.236	0.312
	Hospital staff are empowered to address patient concerns effectively.	0.763	0.306	0.48	0.739	0.73	0.419	0.573
Asymptotic significances are displayed. The significance level is .050								

Source: the author

Table 13. Independent-Samples Kruskal-Wallis Test Summary
(Age & Reasonable waiting time)

Total N	118
Test Statistic	9.591[a]
Degree of Freedom	4
Asymptotic Sig. (2-sided test)	0.048
a. The test statistic is adjusted for ties.	

Source: the author

Table 14. Pairwise Comparisons of Age
(Reasonable waiting time)

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Above 55 & Below 25	15.213	13.444	1.132	0.258	1.000
Above 55 & 36-45	25.054	14.971	1.673	0.094	0.942
Above 55 & 26-35	27.161	13.465	2.017	0.044	0.437
Above 55 & 46-55	43.679	17.099	2.555	0.011	0.106
Below 25 & 36-45	-9.841	9.645	-1.020	0.308	1.000
Below 25 &26-35	-11.948	7.085	-1.687	0.092	0.917
Below 25 & 46-55	-28.466	12.698	-2.242	0.025	0.250
36-45 & 26-35	2.108	9.675	0.218	0.828	1.000
36-45 & 46-55	-18.625	14.306	-1.302	0.193	1.000
26-35 &46-55	-16.517	12.721	-1.298	0.194	1.000
Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.					
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.					

Source: the author

Table 15. Polite and respectful staff & Education: Independent-Samples Kruskal-Wallis Test Summary

Total N	118

Test Statistic	10.560[a]
Degree Of Freedom	3
Asymptotic Sig. (2-sided test)	0.014
a. The test statistic is adjusted for ties.	

Source: the author

Table 16. Polite and respectful staff & Education: Pairwise Comparisons

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
No formal education-Postgraduate	-33.863	32.230	-1.051	.293	1.000
No formal education-Undergraduate	-47.783	32.744	-1.459	.144	.867
No formal education-PhDs	-81.500	37.013	-2.202	.028	.166
Postgraduate-Undergraduate	13.920	7.481	1.861	.063	.377
Postgraduate-PhDs	-47.637	18.809	-2.533	.011	.068
Undergraduate-PhDs	-33.717	19.677	-1.714	.087	.520
Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.					
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.					

Source: the author

9.3.5 Management commitment

Management commitment is evaluated through three areas: management remains committed to quality standards; hospital management pays attention to their patients and safety; and continuous improvement of services in a hospital. The test results for these features according to demographic data are shown in Table 12.

It is revealed that there is no difference in the perceptions about management commitment (from the three determinants) in the hospitals between the genders and among the different groups concerning age, occupation, annual household income, frequency of visits made to hospitals, and type of treatment sought except education.

Perceptions about the ‘hospital management pays attention to their patients and safety’, and ‘continuous improvement of services in a hospital’ are uniform among the respondents concerning different educational backgrounds.

However, perceptions about ‘management remains committed to quality standards’ differ among the respondents for different educational backgrounds. Tables 17 and 18 present the adjusted test statistic and pairwise comparisons for education (management remains committed to quality standards). Applying the Bonferroni correction for multiple tests, results show that perceptions about ‘management remains committed to quality standards’ are uniform across the groups with different educational backgrounds.

Table 17. Management commitment for quality & Education: Independent-Samples Kruskal-Wallis Test Summary

Total N	118
Test Statistic	8.935[a]
Degree Of Freedom	3
Asymptotic Sig. (2-sided test)	.030
a. The test statistic is adjusted for ties.	

Source: the author

Table 18. Management commitment for quality & Education: Pairwise Comparisons of Education

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
No formal education & Postgraduates	-29.126	32.352	-.900	.368	1.000
No formal education & Undergraduates	-45.500	32.867	-1.384	.166	0.997
No formal education & Ph.Ds.	-65.667	37.153	-1.767	.077	0.463
Postgraduates & Undergraduates	16.374	7.509	2.180	.029	0.175
Postgraduates & Ph.Ds.	-36.540	18.880	-1.935	.053	0.318
Undergraduates & Ph.Ds.	-20.167	19.751	-1.021	.307	1.000
Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.					
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.					

Source: the author

9.3.6 Employees involvement

Employees involvement is evaluated through three areas: the staff seem motivated and committed to providing excellent care; the hospital employees work well as a team to provide patient care; and hospital staff are empowered to address patient concerns effectively. The test results for these features according to demographic data are shown in Table 12.

Perceptions about the ‘the hospital employees work well as a team to provide patient care; and hospital staff are empowered to address patient concerns effectively.’ are uniform among the respondents irrespective of gender, education, occupation, annual household income, frequency of visits to the hospitals, and type of treatment sought.

However, perceptions about ‘the staff seem motivated and committed to providing excellent care’ differ among the respondents for different age groups. Tables 19 and 20 present the adjusted test statistic and pairwise comparisons for education (management remains committed to quality standards). Applying the Bonferroni correction for multiple tests, results show that perceptions about ‘the staff seem motivated and committed to providing excellent care’ are uniform across the groups with different educational backgrounds with a minor

variation in the age group of below 25 years and 46-55 years as its Sig value is 0.034 which is less than 0.05.

Table 19. Independent-Samples Kruskal-Wallis Test Summary
(Age & the staff committed to providing excellent care)

Total N	118
Test Statistic	9.568[a]
Degree of Freedom	4
Asymptotic Sig. (2-sided test)	.048
a. The test statistic is adjusted for ties.	

Source: the author

Table 20. staff committed to providing excellent care & Age
Pairwise Comparisons of Age

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Below 25-Above 55	-5.403	13.242	-.408	.683	1.000
Below 25-36-45	-10.139	9.500	-1.067	.286	1.000
Below 25-26-35	-11.987	6.978	-1.718	.086	.858
Below 25-46-55	-36.608	12.508	-2.927	.003	.034
Above 55-36-45	4.737	14.747	.321	.748	1.000
Above 55-26-35	6.585	13.263	.496	.620	1.000
Above 55-46-55	31.205	16.842	1.853	.064	.639
36-45-26-35	1.848	9.530	.194	.846	1.000
36-45-46-55	-26.469	14.091	-1.878	.060	.603
26-35-46-55	-24.621	12.530	-1.965	.049	.494
Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.					
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.					

Source: the author

Statistical analysis indicated that respondents' perceptions of quality care, staff services, hospital communication, infrastructure, management commitment, and employee involvement showed no significant differences across demographic categories at the 5% significance level. Key demographic factors such as gender, age, education, occupation, and income did not appear to affect these perceptions. Additionally, neither the frequency of hospital visits nor the type of treatment received—whether outpatient, inpatient, surgery, or emergency care—significantly influenced how respondents viewed these aspects of hospital service quality. This suggests a consistent perception of hospital care standards across diverse respondent backgrounds and service experiences.

9.4 Test of hypothesis: Determinants of overall experience and satisfaction

The average score of overall experience and satisfaction (ASOES) of respondents depends on the average score of quality care (ASQC), average score of staff services (ASSS), average score of communication (ASC), average score of hospital infrastructure (ASHI), and average score of employee involvement (ASEI). Spearman correlation coefficient is determined by taking each independent variable and the dependent variable and presented in Table 21.

Table 21. Test of hypothesis: Determinants of overall experience and satisfaction

Parameters	Spearman's rho	Average Score of Overall Experience & Satisfaction (ASOES)	Variation explained in ASOES in percentage
Average Score Quality Care (ASQC)	Correlation Coefficient	0.765**	58.52
	Sig. (2-tailed)	0	
	N	118	
Average Score Staff Services (ASSS)	Correlation Coefficient	0.789**	62.25
	Sig. (2-tailed)	0	
	N	118	
Average Score of Communication (ASC)	Correlation Coefficient	0.763**	58.22
	Sig. (2-tailed)	0	
	N	118	
Average Score of Hospital Infrastructure (ASHI)	Correlation Coefficient	0.788**	62.09
	Sig. (2-tailed)	0	
	N	118	
Average Score of Management Commitment (ASLC)	Correlation Coefficient	0.835**	69.72
	Sig. (2-tailed)	0	
	N	118	
Average Score of Employee Involvement (ASEI)	Correlation Coefficient	0.842**	70.90
	Sig. (2-tailed)	0	
	N	118	
** *Correlation is significant at the 0.01 level (2-tailed)*			

Source: the author

The independent variables all have high, positive correlations with the result, ranging from 0.763 to 0.842. All are statistically significant at the 1% level, meaning that every variable explains at least 58% of the variation in the outcome. Thus, the amount of correlation is such that the independent variables have a significant influence on the result and thus are important components of a robust prediction model. These data underscore that these are factors with highly significant implications for the findings.

10. Implications of the study

The survey shows that patients view the quality of care, communication, staff interaction, and infrastructure of the hospital positively. Findings were that patients had a great deal of confidence in the competency and expertise of care (mean score: 3.88), respect and responsiveness from staff (mean: 3.69), and satisfaction in getting clear communication about their medical information (mean: 3.90). Infrastructure, especially cleanliness and comfort, is also very good (mean: 3.82), as is the management's care for quality and safety (mean: 3.79).

Patients also attach a great deal of value to staff participation in safety and problem-solving (mean: 3.67). Overall satisfaction with services and perceived quality, together with an expectation that this is the sort of facility from which one would feel safe to refer friends or family members, indicates a very high probability of patient referral (mean: 3.76). The study concludes that a patient-centered environment with consistent quality treatment and effective communication is critical for patient satisfaction and trust. The favorable feedback indicates that a hospital's emphasis on great treatment, open communication, and patient-centered services fosters confidence among patients, boosting their chances of advocating for the services.

This study shows that healthcare services should adapt to a young, educated, and mostly female population. Since over 73% of respondents are under 36, targeted outreach should address the unique health needs of younger individuals, especially women, including maternal health, mental wellness, and preventive care for chronic conditions. The high educational level (77.1% postgraduates) makes them demand high-quality, transparent care with easily accessible, evidence-based information, and probably be receptive to innovative treatments. Many respondents are either working or in college, so flexible services such as telemedicine and extended hours of clinics fit well into busy schedules. A tiered pricing scale would allow for accessibility according to income levels of persons and thus ensure availability in every stratum of a given population. Considering most of the respondents usually pay hospital visits occasionally, again mainly as outpatients, health providers should adopt approaches like preventive programs, facilitating easy appointment booking, and equally easy access to pharmacy and other diagnostic services. These steps would create a flexible, affordable, patient-centered healthcare experience that meets this community's needs.

The investigation shows that healthcare institutions may concentrate on developing uniform, high-quality service frameworks since there are no substantial demographic disparities in views of quality care, personnel service, communication, infrastructure, and management commitment. This common perspective points to a successful baseline that fits a wide spectrum of patient demands. Positive communication impressions and patient confidence highlight the need of providing clear and understandable medical explanations. Hospitals should focus patient education on treatment methods and drugs in order to build trust and confidence in their services.

High management commitment: Hospitals should retain their investment in safety and quality improvement. Age-specific services are important because wait-time satisfaction and staff motivation differ between age groups. For the younger patients, the strategies of wait-time management and staffing should be changed by the hospitals.

In addition to providing greater tools for professional development and patient contact skills, hospitals should emphasize the importance of employee involvement and cooperation. Hospitals should use service quality components as the cornerstones of their service model, as they are important sources of patient loyalty. These components include infrastructure, communication, and high-quality treatment.

With data-driven innovations, service quality can be improved upon, changing patient demands and pinpointing areas where improvement is needed. These results point towards a basis for patient-centered care from a holistic, demographic-inclusive approach to communication, service quality, and employee engagement.

11. Conclusion

The study emphasizes the importance of a patient-centered approach in healthcare delivery, highlighting the confidence patients have in care quality, communication, and responsiveness among staff. With an overrepresentation of educated, younger individuals, providers must

tailor services to meet specific needs, such as maternal health and mental wellness, while offering telemedicine and extended hours. Effective communication and management commitment to quality strengthen trust and satisfaction, leading to patient referrals. A collaborative culture and continuous improvement through customer feedback will solidify service designs. Data-based strategies are crucial to adapt to changing patient care needs, ensuring health remains accessible and effective for diverse populations. The results advocate for a more integrated, inclusive model that addresses patient experience issues, leading to better healthcare results and community health involvement.

12. Scope for future research

Future research is in the understanding of how specific demographics have unique health needs. This includes younger people, women, and those communities who are underrepresented. There is a study that is needed on maternal health, mental wellness, and preventive care. A quality service can be obtained from studying telemedicine services, communication strategies, training programs for staff, infrastructures in hospitals, and the perception of patients. Further research into the root causes of health disparities, factors that influence patient referrals, and recent healthcare policies and reforms can further contribute to an all-inclusive understanding of the healthcare landscape. These areas of research may help advance healthcare services and accommodate diverse population needs.

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