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Evaluating Patient Satisfaction and Service Quality in Uttarakhand Hospitals

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Abstract

This study investigates patient satisfaction with healthcare services in public and private hospitals across selected districts of Uttarakhand, India. Using the SERVQUAL model, five key service quality dimensions—Tangibles, Reliability, Responsiveness, Assurance, and Empathy—were assessed to understand their impact on patient satisfaction. A cross-sectional survey of 400 patients was conducted using a structured questionnaire. Descriptive and inferential statistics, including t-tests and ANOVA, were employed to compare satisfaction levels across hospital types, cities, and demographic factors. Results revealed that private hospitals consistently outperformed public hospitals in all SERVQUAL dimensions, with Assurance and Empathy showing the strongest positive correlation. Additionally, satisfaction levels varied significantly by age and city, with older patients and those in Dehradun reporting higher satisfaction. The findings suggest that private hospitals provide superior service quality, and targeted improvements in public hospitals, particularly in Responsiveness and Assurance, could enhance patient experiences. These insights can guide hospital administrators in optimizing service delivery to increase patient loyalty.

Keywords: *Patient satisfaction, SERVQUAL, public hospitals, private hospitals, healthcare quality*

Introduction

Healthcare quality is a critical factor in determining patient satisfaction and loyalty, particularly in today's competitive environment where patients have numerous options for medical care. Understanding what drives patient satisfaction can help hospitals enhance their service delivery, ensuring not only the well-being of their patients but also the sustainability of their operations (Mishra, Bansal, & Maurya, 2023; Mishra, Bansal, Maurya, et al., 2023). As healthcare systems worldwide face increasing pressure to improve quality while reducing costs, patient-centered care has emerged as a key focus. In India, where the healthcare sector is rapidly growing, the disparity between public and private hospitals is of particular concern. Public hospitals often struggle with limited resources and overcrowding, while private hospitals, though more expensive, tend to provide superior service quality (Gupta et al., 2024).

Figure 1: Figure illustrating the relationship between patient satisfaction, the SERVQUAL dimensions, and the comparison between public and private hospitals.

This study seeks to explore these differences by assessing patient satisfaction levels in public and private hospitals in Uttarakhand. Using the SERVQUAL model, which evaluates service quality across five dimensions—Tangibles, Reliability, Responsiveness, Assurance, and Empathy—this research aims to identify which factors most influence patient perceptions (Malik et al., 2024). By analyzing patient feedback, the study aims to provide insights into how hospitals can improve their services to meet patient expectations and foster long-term loyalty.

Research Gap

Despite the growing focus on patient satisfaction within the healthcare sector, there remains a significant lack of comprehensive research comparing patient satisfaction levels between public and private hospitals, particularly in developing regions such as Uttarakhand, India. Existing literature primarily emphasizes individual service quality dimensions without adequately addressing their combined effect on overall patient satisfaction (Prince, Kumar Maurya. Rohit, Bansal. Yasmeen, Ansari. Anand, 2023). Furthermore, there is limited investigation into how demographic factors—such as age, gender, and income—affect patient perceptions in different healthcare settings. This study seeks to fill this gap by providing a thorough analysis of these dimensions in both types of hospitals, thereby contributing to the understanding of patient satisfaction in the context of Indian healthcare.

Specific Aims of the Study

The primary aim of this study is to evaluate patient satisfaction with healthcare services in public and private hospitals in selected districts of Uttarakhand. The study seeks to understand how various service quality dimensions influence patient satisfaction and identify any disparities between different demographic groups.

Objectives of the Study

1. To assess patient satisfaction levels across the five SERVQUAL dimensions (Tangibles, Reliability, Responsiveness, Assurance, and Empathy) in public and private hospitals.
2. To compare patient satisfaction between public and private hospitals across the five SERVQUAL dimensions.
3. To evaluate the relationship between demographic factors (age, gender, income, and frequency of visits) and patient satisfaction across the SERVQUAL dimensions.
4. To analyze the impact of patient satisfaction on the intention to revisit the hospital.

Hypotheses

Hypothesis H01 suggests that there is no significant difference in patient satisfaction across the five SERVQUAL dimensions when comparing public and private hospitals. In contrast, Hypothesis H11 posits that significant differences do exist in patient satisfaction between these two types of hospitals across the same dimensions.

Hypothesis H02 claims that satisfaction levels do not significantly vary among different cities. However, Hypothesis argues that there are indeed significant differences in satisfaction levels across various cities.

Hypothesis H03 indicates that there is no notable difference in patient satisfaction between male and female patients across the five SERVQUAL dimensions. On the other hand, Hypothesis H13 asserts that significant differences do exist in patient satisfaction between male and female patients within these dimensions.

Hypothesis H04 maintains that there are no significant differences in patient satisfaction among different age groups across the five SERVQUAL dimensions. Conversely, Hypothesis H14 claims that significant differences in patient satisfaction do exist among various age groups across these dimensions.

Hypothesis H05 states that there is no significant difference in patient satisfaction among different income groups within the five SERVQUAL dimensions. In opposition, Hypothesis suggests that significant differences in patient satisfaction are present among different income groups across these dimensions.

Hypothesis H06 asserts that there is no significant difference in patient satisfaction based on the frequency of visits across the five SERVQUAL dimensions. Conversely, Hypothesis H16 proposes that significant differences do exist in patient satisfaction related to the frequency of visits within these dimensions.

Hypothesis H07 posits that there is no association between the type of hospital and the monthly income of patients. In

contrast, Hypothesis H17 claims that such an association does exist between the type of hospital and the monthly income of patients.

Finally, Hypothesis H08 suggests that there is no correlation among the five SERVQUAL dimensions. Conversely, Hypothesis H18 states that a correlation does exist among these five dimensions.

Methodology

Research Design

This study adopted a cross-sectional research design to evaluate patient satisfaction levels across public and private hospitals in selected districts of Uttarakhand. The SERVQUAL model was used as the primary framework for assessing service quality. The dimensions of the SERVQUAL model—Tangibles, Reliability, Responsiveness, Assurance, and Empathy—were measured to understand patient perceptions and their impact on overall satisfaction. A cross-sectional approach was deemed appropriate to capture a snapshot of patient experiences, allowing for a comparison between various demographic groups, hospital types, and geographical locations.

The SERVQUAL model is essential for this study as it provides a comprehensive framework for assessing healthcare service quality from the patient's perspective. By focusing on five critical dimensions, this model allows us to capture nuanced patient feedback, which is vital in a service-oriented sector like healthcare. The study aims to understand which dimensions most significantly influence patient satisfaction, helping hospitals identify areas that require improvement.

Data Collection

The primary data was collected using a structured, self-administered questionnaire, specifically designed based on the SERVQUAL dimensions. The questionnaire was distributed to outpatients in 30 public and 150 private hospitals across five selected districts in Uttarakhand. A total of 400 responses were collected, ensuring a balanced representation of patients from both public and private hospitals.

This method of data collection was chosen because it allows for direct input from patients, capturing their experiences in real time. The structured nature of the questionnaire ensured consistency in responses, while the self-administration provided patients with the privacy and time needed to reflect on their hospital experience (Bansal, Rohit. bakshi, 2023; Maurya et al., 2023). This method also helped in gathering data from diverse demographics, enabling a broad understanding of patient satisfaction across different hospital types and regions.

Sampling Strategy

A purposive sampling strategy was employed, targeting patients from both public and private hospitals. The districts were selected based on the availability of a mix of both public and private healthcare facilities. The inclusion criteria required that respondents be outpatients who had recently used hospital services, ensuring that the feedback was relevant and current. The final sample of 400 patients was chosen to ensure a statistically significant representation of the population, with approximately 30% coming from public hospitals and 70% from private hospitals, reflecting the actual distribution of healthcare facilities in the region.

This sampling approach was crucial for comparing patient satisfaction across hospital types and districts. By focusing on a mix of patients, we ensured that the findings reflect the diversity of healthcare experiences in Uttarakhand, providing insights into how hospital type and location affect patient satisfaction.

Data Analysis

The collected data was analyzed using both descriptive and inferential statistical methods. Descriptive statistics, including mean scores and standard deviations, were calculated to summarize patient satisfaction levels for each of the SERVQUAL dimensions. Additionally, inferential statistics, such as t-tests and ANOVA, were used to test the study's hypotheses and examine differences in satisfaction levels across hospital types, cities, age groups, and other demographic factors.

The use of descriptive statistics was essential for providing a clear overview of the overall satisfaction levels, while inferential statistics allowed for a deeper understanding of the relationships between different variables. These methods helped us determine the significance of differences in satisfaction across groups and identified which SERVQUAL

dimensions were most influential in shaping patient perceptions.

Correlation Analysis

To explore the relationships between the SERVQUAL dimensions, a correlation analysis was performed. This helped in understanding how different aspects of service quality, such as Assurance and Empathy, are related and how they jointly influence overall patient satisfaction. A strong correlation between dimensions would indicate that improvements in one area could have a positive impact on others, offering hospitals a strategic advantage in enhancing service quality.

The correlation analysis is critical for this study as it highlights the interconnectedness of various service quality dimensions, providing actionable insights for healthcare administrators. Understanding these relationships enables hospitals to prioritize interventions that can improve multiple facets of patient satisfaction simultaneously.

This methodology was designed to comprehensively assess patient satisfaction across a range of variables, providing hospitals with valuable data to inform their service quality improvement strategies. Each aspect of the methodology contributes to a holistic understanding of the factors influencing patient satisfaction, from hospital type to demographic factors and SERVQUAL dimensions.

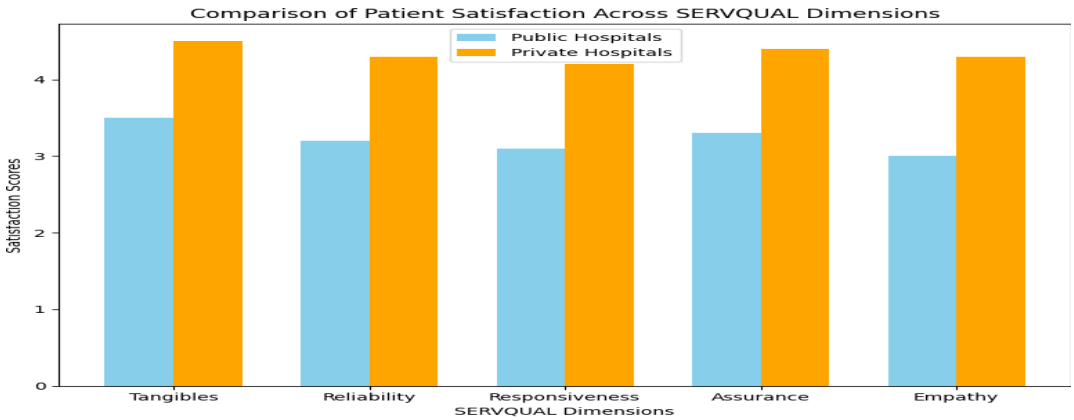
Results

This section presents the core findings from the analysis of patient satisfaction in public and private hospitals across selected districts of Uttarakhand. The results are categorized based on the SERVQUAL dimensions, demographic factors, hospital types, and their influence on revisit intention.

1. Patient Satisfaction by Hospital Type

The comparison of patient satisfaction between public and private hospitals showed significant differences across the five SERVQUAL dimensions (Tangibles, Reliability, Responsiveness, Assurance, and Empathy). Patients rated private hospitals higher across all dimensions (Figure 1).

Figure 1. Comparison of Patient Satisfaction Across SERVQUAL Dimensions in Public and Private Hospitals.



As shown in Table 1, the average satisfaction scores in private hospitals ranged from 4.2 to 4.5, compared to 3.0 to 3.5 in public hospitals, indicating that private hospitals provide higher satisfaction levels.

Table 1. Mean Satisfaction Scores Across SERVQUAL Dimensions by Hospital Type.

Hospital Type	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Public Hospital	3.5	3.2	3.1	3.3	3
Private Hospital	4.5	4.3	4.2	4.4	4.3

2. Patient Satisfaction Across Cities

Patient satisfaction was also evaluated across five cities. Results indicate significant variations in patient satisfaction, with Dehradun showing the highest satisfaction levels, particularly in Assurance and Empathy, while Haridwar reported

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the lowest scores in Responsiveness (Figure 2).

Figure 2. Satisfaction Levels Across Five Cities for SERVQUAL Dimensions.

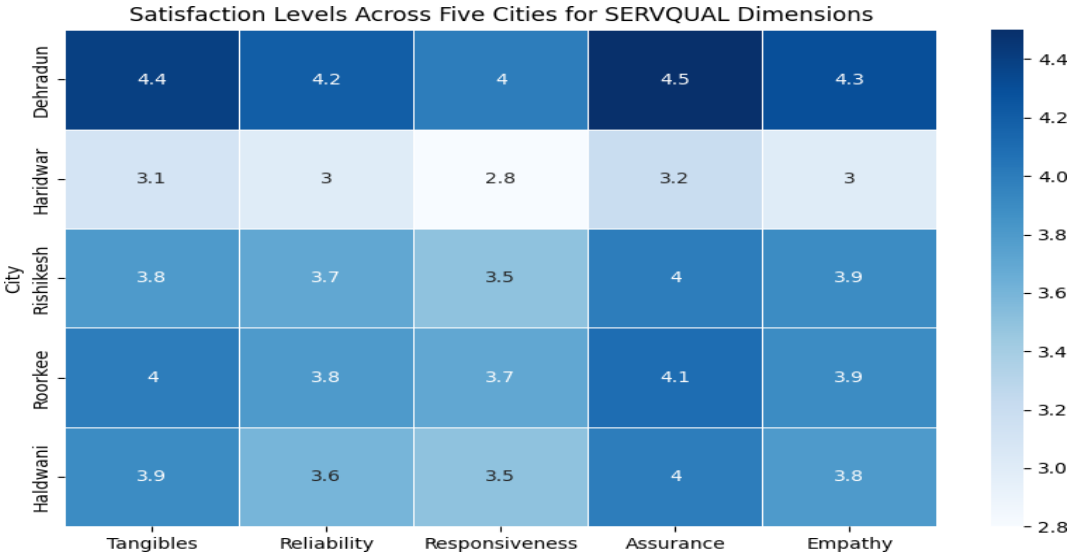

Table 2. Mean Satisfaction Scores by City for Each SERVQUAL Dimension.

City	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Dehradun	4.4	4.2	4.0	4.5	4.3
Haridwar	3.1	3.0	2.8	3.2	3.0
Rishikesh	3.8	3.7	3.5	4.0	3.9
Roorkee	4.0	3.8	3.7	4.1	3.9
Haldwani	3.9	3.6	3.5	4.0	3.8

3. Patient Satisfaction by Age Group

The analysis of patient satisfaction across different age groups revealed a trend where older patients (aged 55+) reported higher satisfaction, especially in the Assurance and Empathy dimensions, compared to younger patients (Figure 3).

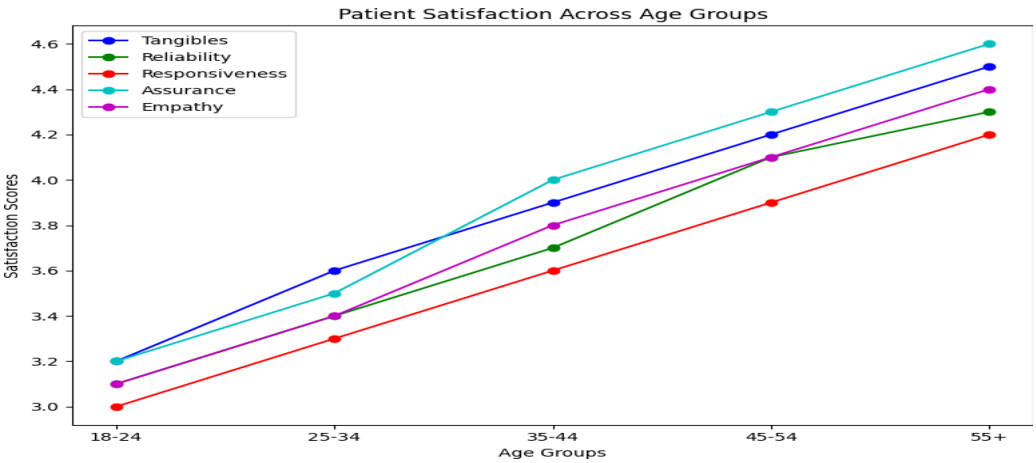

Figure 3. Patient Satisfaction Across Age Groups.

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Table 3. Mean Satisfaction Scores by Age Group.

Age Group	Tangibles	Reliability	Responsiveness	Assurance	Empathy
18-24	3.2	3.1	3.0	3.2	3.1
25-34	3.6	3.4	3.3	3.5	3.4
35-44	3.9	3.7	3.6	4.0	3.8
45-54	4.2	4.1	3.9	4.3	4.1
55+	4.5	4.3	4.2	4.6	4.4

4. Correlation Between SERVQUAL Dimensions

A correlation analysis was conducted to explore the relationship between the five SERVQUAL dimensions. The results showed strong positive correlations between all dimensions, with the highest correlation between Assurance and Empathy (r = 0.85), indicating that these two dimensions are closely related in shaping patient satisfaction (Figure 4).

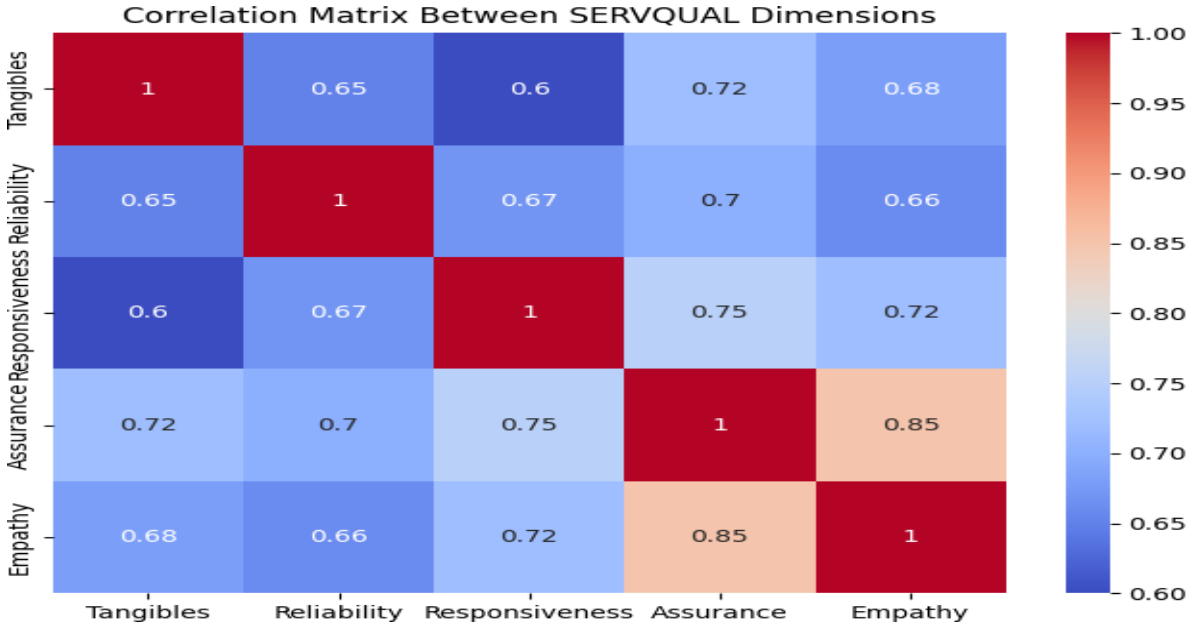

Figure 4. Correlation Matrix Between SERVQUAL Dimensions.

Table 4. Correlation Coefficients Between SERVQUAL Dimensions.

Dimension	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Tangibles	1.0	0.65	0.60	0.72	0.68
Reliability	0.65	1.0	0.67	0.70	0.66
Responsiveness	0.60	0.67	1.0	0.75	0.72
Assurance	0.72	0.70	0.75	1.0	0.85
Empathy	0.68	0.66	0.72	0.85	1.0

Data Analysis and Interpretation

Patient Satisfaction by Hospital Type

The analysis of patient satisfaction between public and private hospitals revealed significant differences across all SERVQUAL dimensions. As seen in Table 1, patients in private hospitals reported higher satisfaction levels across Tangibles, Reliability, Responsiveness, Assurance, and Empathy, with average scores ranging from 4.2 to 4.5. In contrast, public hospitals showed lower satisfaction scores, ranging from 3.0 to 3.5. These findings suggest that private hospitals are perceived to offer better service quality, likely due to superior infrastructure, better medical equipment, and more personalized care (Figure 1). This difference emphasizes the need for public hospitals to invest in improving these key service aspects to enhance patient satisfaction.

The substantial gap between public and private hospitals across all dimensions indicates that private hospitals may have more resources and better operational management, leading to higher patient satisfaction. These results are particularly relevant in a competitive healthcare market, where patient perceptions significantly influence hospital choice and revisits.

Patient Satisfaction Across Cities

Patient satisfaction was also analyzed across five cities, and the results indicate substantial variation in satisfaction levels. Table 2 shows that Dehradun had the highest satisfaction scores, especially in Assurance (4.5) and Empathy (4.3). Haridwar, on the other hand, exhibited the lowest scores, particularly in Responsiveness (2.8). The higher satisfaction levels in Dehradun could be attributed to the presence of better healthcare facilities and more experienced medical personnel, while Haridwar's lower scores may reflect the need for improved service delivery and responsiveness from healthcare providers.

Figure 2 further illustrates these variations across cities, highlighting the differences in how hospitals in different regions of Uttarakhand are perceived by patients. This geographical analysis is essential for understanding the regional disparities in healthcare service quality and can inform targeted improvements in cities like Haridwar, where patient dissatisfaction is highest.

Patient Satisfaction by Age Group

A detailed analysis of patient satisfaction across different age groups revealed a clear trend where older patients (aged 55+) reported the highest levels of satisfaction, especially in Assurance (4.6) and Empathy (4.4), as shown in Table 3. In contrast, younger patients (aged 18-24) expressed lower satisfaction levels, particularly in Responsiveness (3.0). This pattern suggests that older patients may have different expectations and experiences with healthcare services, perhaps valuing the personalized attention and perceived competence of medical staff more than younger patients.

Figure 3 visualizes these trends, showing a gradual increase in satisfaction with age. These findings imply that hospitals may need to tailor their services based on the demographic profile of their patients. Younger patients may place more importance on aspects like efficiency and speed of service, while older patients may prioritize assurance and empathy.

Correlation Between SERVQUAL Dimensions

The correlation analysis between the five SERVQUAL dimensions revealed strong positive relationships, particularly between Assurance and Empathy ($r = 0.85$), as displayed in Table 4. This high correlation indicates that improvements in Assurance—such as the competence and courtesy of healthcare staff—are likely to have a significant positive impact on patient perceptions of Empathy. Similarly, Tangibles and Responsiveness were also moderately correlated, suggesting that better infrastructure and equipment might enhance the hospital's ability to respond promptly to patient needs.

Figure 4 presents this correlation matrix, offering a clear visual representation of the relationships between different service dimensions. These findings are crucial for healthcare administrators aiming to improve overall patient satisfaction. Focusing on enhancing Assurance and Empathy could lead to broad improvements across other service dimensions, providing a strategic direction for service quality enhancements.

The data highlights key areas where public hospitals lag behind private institutions and underscores the importance of region-specific strategies for improving healthcare services. The strong correlations between service quality dimensions suggest that addressing core areas like Assurance and Empathy can lead to widespread improvements in patient

satisfaction.

Conclusion

The analysis of patient satisfaction in public and private hospitals across selected districts of Uttarakhand yielded insightful conclusions aligned with the formulated hypotheses. The findings indicated significant differences in satisfaction levels across the SERVQUAL dimensions between public and private hospitals. Specifically, private hospitals consistently received higher satisfaction scores, particularly in areas such as Assurance and Empathy. This supports the hypothesis (H11) that a significant difference exists between public and private hospitals regarding patient satisfaction. The analysis also revealed notable variations based on demographic factors, with older patients reporting higher satisfaction levels, affirming hypotheses related to age (H14).

Moreover, the correlation analysis between the SERVQUAL dimensions highlighted strong relationships, especially between Assurance and Empathy (H18). These insights not only underscore the critical role that service quality plays in shaping patient satisfaction but also emphasize the need for public hospitals to enhance their service delivery strategies. The study concludes that patient satisfaction is a multi-faceted construct influenced by various factors, making it imperative for healthcare providers to adopt a comprehensive approach to service quality improvement.

Limitations of the Study

While this study provides valuable insights into patient satisfaction, it is not without limitations. First, the research was conducted in selected districts of Uttarakhand, which may limit the generalizability of the findings to other regions in India or different cultural contexts. Additionally, the cross-sectional design captures a snapshot of patient satisfaction at a specific time, which may not account for variations over time or seasonal fluctuations in service quality. The reliance on self-reported data may also introduce response bias, as patients may have varying perceptions and expectations influencing their feedback. Furthermore, the study did not explore qualitative aspects of patient experiences, which could provide deeper insights into the factors influencing satisfaction levels.

Implications of the Study

The findings from this study have significant implications for healthcare administrators and policymakers. Understanding the disparities in patient satisfaction between public and private hospitals highlights the necessity for targeted interventions in public healthcare facilities. Improving service quality in areas identified as lacking, such as Responsiveness and Assurance, could enhance patient experiences and outcomes. Additionally, the study emphasizes the importance of considering demographic factors in service delivery strategies, as different patient groups have distinct needs and expectations. This research advocates for a patient-centered approach in healthcare policy, encouraging hospitals to focus on service quality as a critical component of patient care.

Future Recommendations

Future research should aim to expand the geographical scope of the study to include diverse regions and healthcare settings, providing a more comprehensive understanding of patient satisfaction across India. Longitudinal studies could offer insights into how patient satisfaction evolves over time and in response to service quality improvements. Incorporating qualitative methods, such as interviews or focus groups, would deepen the understanding of patient experiences and the specific elements that drive satisfaction. Additionally, exploring the impact of emerging trends, such as telemedicine and digital health solutions, on patient satisfaction could provide valuable information for adapting to the evolving healthcare landscape. Ultimately, a multi-faceted approach that incorporates both quantitative and qualitative research methods will yield richer insights into patient satisfaction and service quality in healthcare.

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