

## Understanding Age-Sensitive Hospital Service Quality Perceptions: Insights from Faridabad and Gurgaon

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### Abstract

Service quality perception plays a pivotal role in shaping patient satisfaction, trust, and long-term engagement with healthcare institutions. As patient expectations evolve, demographic factors particularly age have gained importance in understanding variations in service quality evaluation. This study examines the relationship between patient age groups and perceived hospital service quality across two regional healthcare settings, Faridabad and Gurgaon. Using data from 507 patients, service quality perceptions were classified into three clusters: Quality Seekers, Acceptable Patients, and Quality-Oriented Patients. Cross-tabulation analysis and Chi-Square tests were applied to assess age-wise and region-wise variations. The findings reveal that patients aged 21–34 years dominate the Quality-Oriented cluster in both regions, indicating heightened sensitivity and expectations regarding service delivery. While the Pearson Chi-Square test shows no statistically significant categorical association between age and service quality perception, the Linear-by-Linear Association test identifies a significant directional trend, suggesting that service quality perception changes progressively with age. Gurgaon hospitals demonstrate a relatively more balanced age-wise distribution across service quality clusters, indicating more inclusive service delivery models. The study concludes that age influences service quality perception in a nuanced and gradual manner, necessitating differentiated and age-sensitive hospital service strategies.

**Keywords:** *Service quality, age groups, patient perception, hospital management, healthcare services*

## 1. Introduction

In contemporary healthcare systems, service quality has become a critical determinant of patient satisfaction, institutional reputation, and competitive advantage. Beyond clinical outcomes, patients increasingly evaluate hospitals based on functional service elements such as responsiveness, communication clarity, accessibility, empathy, and administrative efficiency. These evaluations are subjective and are strongly influenced by demographic and contextual factors. Age is one of the most significant demographic variables shaping healthcare expectations and service evaluations. Younger patients tend to approach healthcare as informed consumers, comparing services across providers and expecting efficiency, transparency, and digital accessibility. Older patients, in contrast, often prioritize continuity of care, trust in medical professionals, and interpersonal support. These generational differences create complexity for hospital administrators seeking to deliver uniformly high service quality.

The Indian healthcare sector provides a compelling context for examining age-based service quality perceptions due to its rapid urbanization, expanding private healthcare sector, and growing patient awareness. Faridabad and Gurgaon, two prominent cities in the National Capital Region, present contrasting yet complementary healthcare ecosystems. Gurgaon is characterized by technologically advanced, corporate-style hospitals, while Faridabad represents a mix of traditional and modern healthcare facilities. Understanding how patients of different age groups perceive service quality across these regions offers valuable insights for designing inclusive and responsive healthcare services. This study aims to analyze the relationship between patient age groups and hospital service quality perception by examining service quality clusters across Faridabad and Gurgaon. By employing cross-tabulation and Chi-Square statistical analysis, the study seeks to identify both categorical and directional patterns in age-based service quality perception.

Service quality measurement in healthcare has been widely studied using frameworks such as SERVQUAL, which conceptualizes service quality across dimensions including reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman et al., 1988). Subsequent research has emphasized that patient satisfaction is not homogeneous and varies across demographic segments. Age-related differences in service quality perception have been consistently documented. Younger patients are more critical evaluators due to higher exposure to standardized service environments and digital platforms, resulting in elevated expectations regarding speed, communication, and transparency (Andaleeb, 2001). Older patients, on the other hand, often assess service quality through relational and emotional dimensions, such as staff empathy and trust in physicians (Mosadeghrad, 2014).

Technological adaptation further differentiates age groups. Younger cohorts tend to respond positively to digital appointment systems, electronic medical records, and mobile communication, while older patients may experience barriers that negatively affect their service perception unless adequate support is provided (Lee & Lin, 2009). Regional and infrastructural contexts also shape service quality perception. Urban hospitals with advanced infrastructure and standardized processes often deliver more consistent service experiences across age groups (Choi et al., 2004). However, limited empirical research has examined age-based service quality perception within Indian regional healthcare settings, particularly using cluster-based classification. This study addresses this gap.

## 2. Research Methodology

### 2.1 Research Design

The study adopts a descriptive and analytical research design to examine the relationship between patient age and perceived hospital service quality. The descriptive component enables systematic documentation of patients' service quality perceptions across different age groups and regions, while the analytical component facilitates the examination of relationships and patterns among variables using statistical techniques. This research design is appropriate when the objective is to describe characteristics of a population and simultaneously analyze associations without manipulating the study environment (Kothari, 2004; Kumar, 2019). Descriptive–analytical designs are widely used in healthcare service quality research to understand patient perceptions, demographic influences, and service evaluation trends (Andaleeb, 2001; Mosadeghrad, 2014).

### 2.2 Sample and Data Collection

The study is based on primary data collected from 507 patients, comprising 251 respondents from Faridabad and 256 respondents from Gurgaon, representing both regions of the National Capital Region. Data were collected using a structured questionnaire administered to patients after they had availed hospital services, ensuring that responses reflected recent service experiences. Primary data collection through structured questionnaires is considered reliable and effective for measuring service quality perceptions in healthcare settings, particularly in developing country contexts where patient feedback plays a critical role in service evaluation (Andaleeb et al., 2007; Chahal & Kumari, 2012).

For analytical clarity, patients were classified into five age groups: up to 20 years, 21–34 years, 35–44 years, 45–54 years, and 55 years and above. This categorization allows meaningful comparison of generational differences in healthcare expectations and service evaluation, as age is known to influence patient perceptions, priorities, and satisfaction levels (Bleich et al., 2009; Lee & Lin, 2009).

Service quality perception was further classified into three distinct clusters—*Quality Seekers*, *Acceptable Patients*, and *Quality-Oriented Patients*. Cluster-based classification enables segmentation of patients based on the intensity and nature of their service quality evaluations and has been widely applied in service quality and healthcare research to capture heterogeneity in patient perceptions (Brady & Cronin, 2001; Meesala & Paul, 2018).

### 2.3 Statistical Tools

The collected data were coded, tabulated, and analyzed using standard statistical techniques appropriate for categorical data analysis. Cross-tabulation was used to examine the distribution of service quality perception clusters across different age groups and regions, providing a clear descriptive overview of patterns and variations. To test the statistical significance of associations between patient age groups and service quality perception clusters, the Pearson Chi-Square test was applied. This test is widely used in social science and healthcare research to examine relationships between categorical variables (Field, 2018; Pallant, 2020). In addition, the Likelihood Ratio test was employed as a robustness measure, particularly useful in cases where expected cell frequencies are relatively small (Agresti, 2013).

Further, the Linear-by-Linear Association test was used to identify directional or trend-based relationships between ordinal variables, allowing assessment of whether service quality perception changes progressively with age rather than across discrete categories. This approach is especially suitable for demographic variables such as age, which often exert gradual rather than abrupt effects on perception and behavior (Brady & Cronin, 2001; Lee & Lin, 2009).

All statistical tests were conducted at a 5 percent level of significance, which is commonly accepted in healthcare and social science research for hypothesis testing and inference (Kothari, 2004).

### 3. Results and Discussion

#### 3.1 Age Group and Service Quality Perception Across Hospital Regions

Table 1 presents the cross-tabulation of patient age groups and perceived service quality clusters across hospitals in Faridabad and Gurgaon. The results indicate a strong concentration of patients in younger age categories, particularly those below 35 years, across all service quality clusters. This trend is most pronounced within the Quality-Oriented Patients cluster. In Faridabad, 67 out of 127 Quality-Oriented patients belong to the 21–34 years age group, followed by 35 patients in the up to 20 years category. This distribution suggests that younger patients are more actively engaged in evaluating healthcare service quality and demonstrate higher expectations regarding hospital responsiveness, service organization, and professionalism. Previous research has similarly identified younger adults as more demanding and quality-sensitive healthcare consumers due to higher exposure to standardized service environments and digital systems (Dagger & Sweeney, 2006; Choi et al., 2004).

Table 1. Distribution of Service Quality Clusters Across Age Groups and Regions

| Service Quality Cluster          | Age Group      | Faridabad  | Gurgaon    | Total      |
|----------------------------------|----------------|------------|------------|------------|
| <b>Quality Seekers</b>           | Up to 20 years | 16         | 14         | 30         |
|                                  | 21–34 years    | 38         | 34         | 72         |
|                                  | 35–44 years    | 5          | 3          | 8          |
|                                  | 45–54 years    | 4          | 4          | 8          |
|                                  | 55+ years      | 6          | 6          | 12         |
| <b>Acceptable Patients</b>       | Up to 20 years | 22         | 21         | 43         |
|                                  | 21–34 years    | 37         | 34         | 71         |
|                                  | 35–44 years    | 4          | 4          | 8          |
|                                  | 45–54 years    | 7          | 7          | 14         |
|                                  | 55+ years      | 3          | 4          | 7          |
| <b>Quality-Oriented Patients</b> | Up to 20 years | 35         | 36         | 71         |
|                                  | 21–34 years    | 67         | 60         | 127        |
|                                  | 35–44 years    | 7          | 7          | 14         |
|                                  | 45–54 years    | 7          | 7          | 14         |
|                                  | 55+ years      | 4          | 4          | 8          |
| <b>Total</b>                     |                | <b>251</b> | <b>256</b> | <b>507</b> |

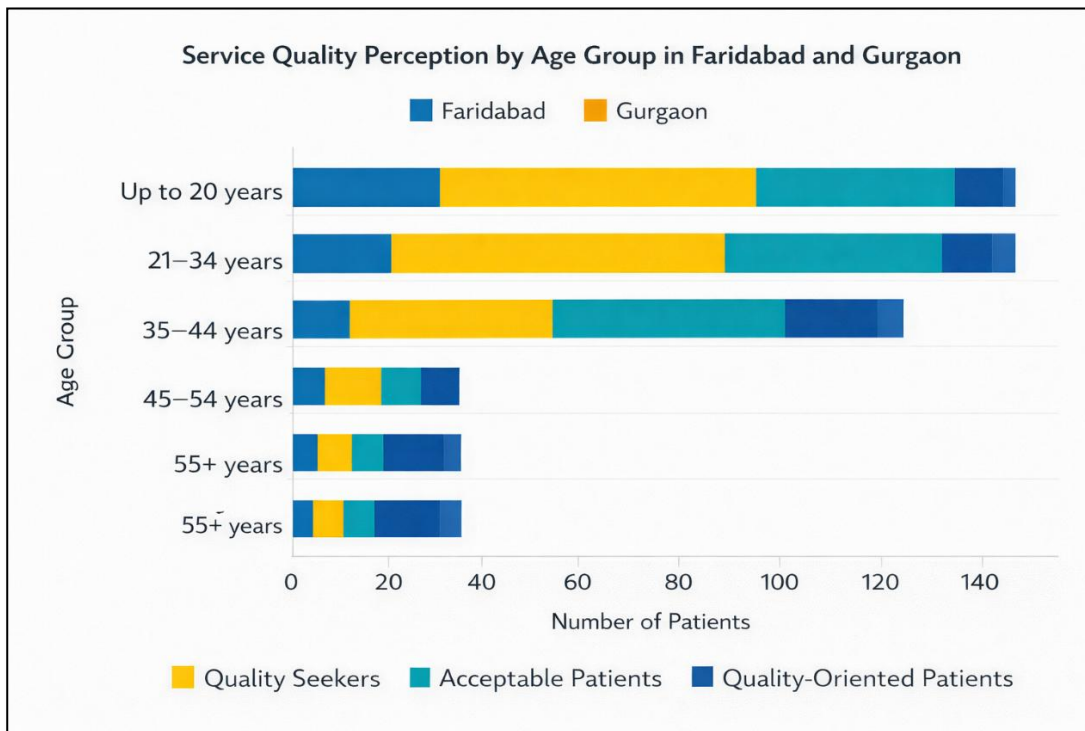


Figure 1: Service Quality Clusters Across Age Groups: A Regional Comparison

Older age groups, particularly those aged 45 years and above, are comparatively underrepresented in the Quality-Oriented cluster in Faridabad. This may reflect generational differences in expectations, lower familiarity with modern service processes, or potential mismatches between elderly patients’ needs and current service delivery models. Studies have shown that older patients often evaluate healthcare services using relational and trust-based criteria rather than procedural efficiency (Mosadeghrad, 2014; Alrubaiee & Alkaaida, 2011).

### 3.2 Regional Comparison of Age-Based Service Quality Perceptions

Although both regions display similar age-related patterns, Gurgaon demonstrates a more balanced age distribution across all service quality clusters. While the 21–34 years group remains dominant within the Quality-Oriented cluster in Gurgaon (60 out of 127), older age groups are more consistently represented across Quality Seekers and Acceptable Patients categories compared to Faridabad. This finding suggests that Gurgaon hospitals may be implementing more inclusive and age-adaptive service delivery practices. Greater availability of digital support systems, patient navigation assistance, and structured communication protocols in Gurgaon’s more urbanized healthcare ecosystem may reduce age-related disparities in service perception. Prior studies have highlighted that hospitals with higher organizational maturity and service standardization tend to deliver more uniform patient experiences across demographic groups (Donabedian, 2005; Meesala & Paul, 2018).

### 3.3 Statistical Association Between Age Group and Service Quality Cluster

To examine whether patient age group is statistically associated with perceived service quality, a Chi-Square test was conducted. The results are presented in Table 4.2. The Pearson Chi-Square value of 9.695 with a p-value of 0.287 indicates that there is no statistically significant categorical association between age group and service quality perception at the 5 percent significance level. This suggests that differences observed across age categories may not be strong enough to establish distinct group-wise variations when age is treated as a nominal variable. However,

the Linear-by-Linear Association test reveals a statistically significant result ( $\chi^2 = 4.893$ ,  $p = 0.027$ ), indicating the presence of a directional or trend-based relationship between age and service quality perception. This implies that service quality perception changes progressively with age rather than abruptly across predefined age brackets.

This finding aligns with prior research suggesting that demographic variables such as age often exert gradual influences on service evaluations rather than discrete categorical effects (Brady & Cronin, 2001; Lee & Lin, 2009). Younger patients typically display higher expectations related to speed, transparency, and digital engagement, whereas older patients may demonstrate moderated evaluations influenced by trust, familiarity, and health complexity.

Table 2. Chi-Square Test Summary: Association Between Age Group and Service Quality Perception

| Statistic                    | Value | df | p-value |
|------------------------------|-------|----|---------|
| Pearson Chi-Square           | 9.695 | 8  | 0.287   |
| Likelihood Ratio             | 9.218 | 8  | 0.324   |
| Linear-by-Linear Association | 4.893 | 1  | 0.027   |
| Valid Cases                  | 507   |    |         |

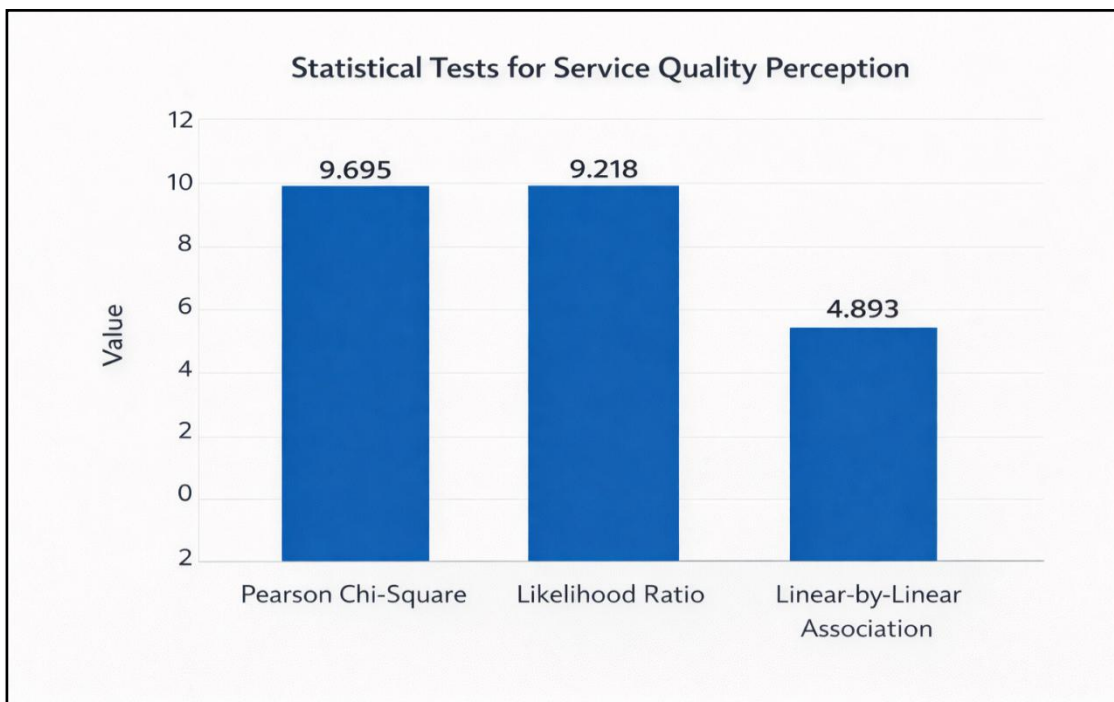


Figure 2: Comparison of Chi-Square Statistics for Service Quality Perception

### 3.4 Interpretation and Managerial Implications

The consistent dominance of the 21–34 years age group within the Quality-Oriented cluster highlights this demographic as the most quality-sensitive and evaluative segment of the patient population. This group is digitally literate, information-driven, and more inclined to compare healthcare services against external benchmarks, making them critical contributors to hospital reputation and service feedback systems (Andaleeb, 2001; Meesala & Paul, 2018).

Patients aged 20 years and below also exhibit substantial representation in higher service quality clusters, indicating early engagement with healthcare services and increasing awareness of service standards. However, their evaluative depth may be limited by fewer healthcare experiences.

In contrast, patients aged 45 years and above show lower representation in the Quality-Oriented cluster, particularly in Faridabad. This may result from technological barriers, physical accessibility challenges, or communication gaps. Research suggests that without age-sensitive service frameworks, older patients may experience difficulty navigating modern healthcare systems, adversely affecting perceived service quality (Mosadeghrad, 2014; Alrubaiee & Alkaaida, 2011).

From a strategic perspective, hospitals should adopt differentiated service approaches. Younger patients require efficiency, digital access, and transparency, while older patients benefit from simplified processes, empathetic staff interaction, and personalized assistance. Implementing such age-responsive service models can enhance patient satisfaction, inclusivity, and long-term loyalty across demographic segments. Table 3.

**Table 3: Age-wise Representation in Quality-Oriented Service Perception and Strategic Implications**

| Age Group          | Representation in Quality-Oriented Cluster             | Implications for Hospital Service Strategy   |
|--------------------|--|--|
| Up to 20 years     | Moderate to high representation                        | Provide clear communication, guidance, and supportive service processes to build long-term trust and positive service perception |
| 21–34 years        | <b>Highest representation (dominant group)</b>         | Emphasize efficiency, digital access, transparency, responsiveness, and standardized service delivery                            |
| 35–44 years        | Moderate representation                                | Maintain consistent service quality with a mix of digital and interpersonal support  |
| 45–54 years        | Low representation                                     | Simplify processes, improve staff assistance, and strengthen communication clarity   |
| 55 years and above | <b>Lowest representation (especially in Faridabad)</b> | Implement age-sensitive frameworks, personalized assistance, empathetic interaction, and geriatric-friendly services             |

#### 4. Conclusion

This study demonstrates that patient age influences hospital service quality perception in a nuanced and progressive manner. While categorical differences across age groups are not statistically significant, a clear linear trend exists, indicating that perceptions evolve gradually with age. Younger adults, particularly those aged 21–34 years, emerge as the most quality-conscious and perceptive demographic across both Faridabad and Gurgaon. The findings highlight the importance of **differentiated service strategies** in hospital management. Hospitals must prioritize efficiency, digital accessibility, and transparency to meet the expectations of younger patients, while simultaneously implementing geriatric-friendly service frameworks that emphasize empathy, accessibility, and personalized support for older populations. By adopting age-sensitive and regionally adaptive service models, healthcare institutions can enhance patient satisfaction, equity, and long-term loyalty.

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#### Ethics Statement

The study was conducted in accordance with standard ethical guidelines for social science and healthcare research. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection.

#### References

- Alrubaiee, L., & Alkaaida, F. (2011). The mediating effect of patient satisfaction in the relationship between service quality and patient loyalty. *International Journal of Marketing Studies*, 3(1), 103–127. <https://doi.org/10.5539/ijms.v3n1p103>
- Andaleeb, S. S. (2001). Service quality perceptions and patient satisfaction: A study of hospitals in a developing country. *Social Science & Medicine*, 52(9), 1359–1370. [https://doi.org/10.1016/S0277-9536\(00\)00235-5](https://doi.org/10.1016/S0277-9536(00)00235-5)
- Brady, M. K., & Cronin, J. J. (2001). Some new thoughts on conceptualizing perceived service quality: A hierarchical approach. *Journal of Marketing*, 65(3), 34–49. <https://doi.org/10.1509/jmkg.65.3.34.18334>
- Choi, K. S., Lee, H., Kim, C., & Lee, S. (2004). The service quality dimensions and patient satisfaction relationships in healthcare. *Journal of Services Marketing*, 18(2), 120–132. <https://doi.org/10.1108/08876040410528712>
- Dagger, T. S., & Sweeney, J. C. (2006). The effect of service evaluations on behavioral intentions and quality of life. *Journal of Service Research*, 9(1), 3–18. <https://doi.org/10.1177/1094670506289534>
- Donabedian, A. (2005). Evaluating the quality of medical care. *The Milbank Quarterly*, 83(4), 691–729. <https://doi.org/10.1111/j.1468-0009.2005.00397.x>
- Lee, H., & Lin, Y. (2009). The impact of service quality on patient satisfaction in healthcare services. *Journal of Service Science and Management*, 2(2), 104–112. <https://doi.org/10.4236/jssm.2009.22013>
- Meesala, A., & Paul, J. (2018). Service quality, consumer satisfaction and loyalty in hospitals: Thinking for the future. *International Journal of Pharmaceutical and Healthcare Marketing*, 12(4), 453–472. <https://doi.org/10.1108/IJPHM-10-2017-0058>



Mosadeghrad, A. M. (2014). Factors influencing healthcare service quality. *International Journal of Health Policy and Management*, 3(2), 77–89. <https://doi.org/10.15171/ijhpm.2014.65>

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.