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Service Quality Analysis With Method Quality Function Deployment In An Effort To Improve The Utilization Of The Outpatient Unit Of The Siti Fatimah Regional Special Hospital For Women And Children

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ABSTRACT
This study aims to analyze the quality of service using the Quality Function Deployment (QFD) method for patients at the Outpatient Installation of the Siti Fatimah Regional Special Hospital for Mothers and Children (RSKDIA). Inconsistent fluctuations in the number of outpatient visits over the past three years indicate that RSKDIA Siti Fatimah has not achieved the ideal score, indicating problems in the quality of service.
The results of the study showed five negative gap score values in service attributes that need attention and improvement, namely in the dimensions of safety, continuity, comfort, interpersonal relationships, and efficiency. Of the 29 attributes assessed, 15 attributes had the highest percentage (3.8%) and were considered the most important and needed more attention for improvement. These attributes include clarity of information, speed of response, accuracy of officers, diagnostic ability, accessibility, admission procedures, availability of doctors, appropriateness of treatment, attitude of officers, completeness of services, and storage of medical records.
Hospitals also need to consider patient demographic characteristics, such as age, employment status, and frequency of visits, in adjusting services. Based on the House of Quality analysis, the priority technical characteristics that need to be developed are the formation of a special team for handling patient complaints.
.**Keywords:** Service quality, Quality Function Deployment, SERVQUAL, maternal and children's hospital.

INTRODUCTION

The quality of health services has become a major focus in the development of modern health facilities, especially in an era of increasingly fierce competition between health service providers. Hospitals, as one of the health service institutions, are required to continuously improve the quality of their services in order to meet the increasingly high expectations of patients. Research shows that patient satisfaction depends not only on the results of medical care, but also on the quality of service they receive during the treatment process (Liu et al., 2023; Shie et al., 2022). In this context, a deep understanding of patient needs and expectations is very important for the development of quality health services. Quality Function Deployment (QFD) has been proven to be an effective method in translating customer needs into technical characteristics that can be implemented in healthcare services. This method allows hospitals to identify service development priorities based on Voice of Customer (VoC) and integrate them into the strategic planning process (Pourmohammadi et al., 2018). This approach not only helps in improving service quality but also in optimizing the use of available resources. Several previous studies have shown that implementing QFD in a hospital setting can significantly improve operational efficiency and patient satisfaction (Xing & Wang, 2022).

However, the challenge in implementing QFD in the health sector lies in the complexity of health services and the diversity of patient needs. Hospitals must be able to balance the technical aspects of medical services with non-medical aspects such as comfort, accessibility, and efficiency of services. Liu et al. (2019) identified that the success of implementing QFD in health services depends on the organization's ability to integrate various dimensions of service quality, from technical competence to interpersonal aspects of service. Therefore, a comprehensive approach is needed in analyzing and improving the quality of hospital services.

This study aims to analyze the quality of service in the Outpatient Unit of RSKDIA Siti Fatimah using the QFD method, with a special focus on efforts to improve service utilization. The selection of the outpatient unit as the object of research is based on its strategic role as the frontline of hospital services and its significant contribution to the overall performance of the hospital. Through the QFD approach, this study is expected to produce concrete recommendations for improving the quality of service that is in accordance with the needs and expectations of patients, as well as supporting the hospital's efforts to improve its competitiveness in the health industry.

RESEARCH METHODS

Location and Research Design

This study employed a mixed-method approach combining quantitative and exploratory methods, conducted at the Outpatient Unit of Siti Fatimah Mother and Child Regional Hospital in Makassar from April to May 2024. The exploratory design was chosen to enable a comprehensive understanding of service quality attributes through Quality Function Deployment (QFD) analysis. This approach allowed for both statistical analysis of service quality metrics and in-depth exploration of patient needs and technical responses from the hospital management.

Population and Sample

The study population comprised all outpatients who visited Siti Fatimah Hospital during February 2024, totaling 203 patients. The sample size was determined using Slovin's formula with a 5% margin of error, resulting in 135 respondents. The sampling technique employed was purposive sampling with specific inclusion criteria: patients who had received outpatient services, were willing to participate, and were capable of providing informed responses. For the qualitative component, key informants were selected from hospital management, particularly those involved in outpatient service administration and quality improvement initiatives.

Data Collection Method

Data collection utilized multiple instruments and techniques:

1. Questionnaires: Structured questionnaires were administered to assess service quality dimensions based on Brown's theory, evaluating technical competence, access to services, effectiveness, efficiency, continuity, safety, interpersonal relationships, and comfort.
2. In-depth interviews: Semi-structured interviews were conducted with hospital management to gather information about technical requirements and potential improvement strategies.
3. Document review: Analysis of hospital records and service quality reports to understand current performance metrics and historical trends.
4. Observation: Direct observation of service delivery processes to validate questionnaire responses and identify improvement opportunities

Data Analysis

The analysis followed a systematic QFD approach using the House of Quality (HoQ) framework:

1. Customer Requirements Analysis: Identification and prioritization of patient needs through statistical analysis of questionnaire responses
2. Technical Requirements Analysis: Translation of customer needs into measurable technical specifications
3. Relationship Matrix Development: Analysis of relationships between customer requirements and technical

responses

4. Competitive Assessment: Comparison with competitor hospitals
5. Technical Correlation Analysis: Evaluation of relationships between different technical requirements
6. Priority Setting: Determination of improvement priorities based on importance scores and technical difficulty ratings

Statistical analysis was performed using SPSS version 25 for quantitative data validation and reliability testing. The QFD analysis utilized specialized software to construct and analyze the House of Quality matrix.

Research Ethics

The study adhered to fundamental research ethics principles and received approval from the Ethics Committee of Hasanuddin University and Siti Fatimah Hospital's research board. Prior to data collection, ethical approval was obtained from **the Ethics Committee of the Faculty of Public Health, Hasanuddin University** . All respondents were given informed consent and explained that participation was voluntary and anonymous. The data collected were used only for research purposes and kept confidential.

RESEARCH RESULT

The study conducted at the Siti Fatimah Regional Special Hospital for Mothers and Children in April 2024 produced important findings related to service quality. Data collection was carried out in the Outpatient Installation room by distributing questionnaires to 135 patients who had met the research inclusion criteria.

Table 1 Respondent Characteristics

Respondent Characteristics	Number (n)	Percentage (%)
Age		
< 20 years	31	23
20 - 35 years	58	43
> 35 years	46	34
Gender		
Woman	135	100
Man	0	0
Employment Status		
Work	47	34.8
Doesn't work	88	65.2
Frequency of Visits		
1 time	58	43
> 1 Time	77	57
Total	135	100

Analysis of respondent characteristics shows an interesting pattern in the demographics of hospital service users. The majority of patients are in the productive age group of 20-35 years (43%), followed by the age group above 35 years (34%). This finding indicates that the hospital serves mainly the reproductive age population and active parenting. All respondents were female, which is in accordance with the characteristics of a hospital specializing in mothers and children.

Table 2 Service Quality Analysis

Service Dimensions	Level of Interest (%)	Performance Level (%)	Gap Score
Technical Competence	98.5	96.3	+2.2
Service Access	98.5	96.3	+2.2
Effectiveness	94.8	94.1	+0.7
Interpersonal Relationships	94.1	97.0	-2.9
Efficiency	94.8	97.8	-3.0
Continuity	93.3	94.1	-0.8
Safety	94.1	94.8	-0.7
Comfort	93.3	94.8	-1.5

The analysis of service quality showed varying results across dimensions. Technical competence and access to services were rated highest in terms of importance (98.5%), indicating that patients were very concerned about these aspects. In terms of performance, efficiency performed the highest (97.8%), followed by interpersonal relationships (97.0%).

The QFD analysis results identified 58 technical attributes grouped based on handling priorities. The following is the order of top priorities based on Absolute Importance values.

Table 3 Technical Priorities

Technical Requirements	Absolute Importance Value	Order of Priority
Formation of a special team for handling complaints	36	1
Ongoing training for medical staff	27	2
Provision of shuttle bus services	27	3
Improved signage around the hospital	27	4
Recruitment of additional doctors	27	5

An in-depth analysis of the relationship between customer needs and technical responses revealed an interesting pattern in the development of health services at RSKDIA Siti Fatimah. Of the total 67 relationships identified, the majority showed a strong relationship with a value of 9 (as many as 35 relationships), indicating that the planned technical response had a direct and significant impact on meeting patient needs. Meanwhile, there were 22 relationships with a medium value (value 3) indicating a moderate influence, and 10 relationships with a weak value (value 1) indicating a minimal influence but still relevant in the context of improving service quality.

In terms of implementation, of the 58 technical attributes analyzed, the distribution of difficulty levels showed significant variation. Most attributes (27) experienced slight difficulty in implementation with a score of 1, indicating that most of the planned improvements were relatively feasible to implement. There were 22 attributes that showed moderate difficulty with a score of 2, while only 7 attributes had no implementation difficulties (score 0). Interestingly, only 2 attributes were rated as very difficult to implement with a score of 3, indicating that the majority of planned improvements were within the hospital's capabilities.

Based on the comprehensive analysis, the establishment of a special complaint handling team emerged as a top priority in the service development agenda. This priority is in line with the need to improve responsiveness to patient needs and accelerate the resolution of problems that arise in the service. In addition, ongoing training for medical staff and the provision of shuttle bus services were also identified as priority areas that could have a significant impact on improving the overall quality of service.

These findings provide a solid framework for the management of RSKDIA Siti Fatimah in developing and implementing a more targeted service improvement strategy. By considering the level of difficulty of implementation and the strength

of the relationship between technical responses and customer needs, the hospital can optimize resource allocation and focus on initiatives that provide maximum impact on patient satisfaction. This systematic approach allows the hospital to make service improvements gradually and continuously, while still considering the limitations of existing resources.

Sales Point Analysis and Improvement Level

Sales point analysis shows that out of 29 evaluated attributes, 14 attributes have a value of 1.5 (major influence) and 13 attributes have a value of 1.2 (moderate influence). This distribution indicates that the majority of service attributes have a significant impact on patient satisfaction. Especially in the dimensions of technical competence of officers and access to services, both of which received a sales point value of 1.5, indicating that changes in these two aspects will have a major impact on overall service quality.

Customer Requirements Score

Table 4 Customer Requirements Score

Service Attributes	Customer Requirements Score	Percentage (%)
Technical competence of officers	4.5	3.85
Access to services	4.5	3.85
Effectiveness of treatment	4.5	3.85
Continuity of service	4.5	3.85
Patient safety	3.6	3.08
Convenience of facilities	3.0	2.57

From the Customer Requirements Score analysis, there are 15 attributes that have the highest percentage (3.85%), including:

a) Clarity of information from hospital staff
b) The speed of the doctor's response to patient complaints
c) Accuracy of diagnosis and treatment
d) Ease of access to services
e) Completeness of services according to patient needs

Technical Response Analysis

Analysis of the technical responses resulted in several priority recommendations for implementation:

1. Complaint Management System:
   - Formation of a special team for handling complaints
   - Implementation of complaint tracking system
   - Development of standard complaint handling protocols
2. Staff Competency Development:
   - Continuous training program
   - Competency based performance evaluation
   - Reward and punishment system
3. Accessibility Improvements:
   - Provision of shuttle bus services
   - Directional system improvements
   - Optimizing patient service flow

Competitive Benchmarking

The results of the comparison with competitor hospitals show that RSKDIA Siti Fatimah has advantages in several aspects:

- Technical competence (score 3.8 vs 3.5)
- Service efficiency (score 3.7 vs 3.4)
- Continuity of care (score 3.6 vs 3.3)

But still need improvement in terms of:

- Convenience of facilities
- Patient information system
- Service waiting time

These results provide a comprehensive picture of the strategic position of RSKDIA Siti Fatimah in the regional healthcare landscape and identify specific areas that require special attention in efforts to improve service quality. The findings also emphasize the importance of a holistic approach in healthcare development, considering both technical and non-technical aspects of patient care.

This comprehensive analysis provides a strong basis for hospital management to develop more targeted and effective service improvement strategies, focusing on the aspects that are considered most important by patients and most likely to be implemented based on the conditions and resources available.

Technical Correlation Analysis

The results of the technical correlation analysis on the House of Quality roof matrix show several important relationship patterns between technical responses:

1. Strong Positive Correlation (++):
- Between staff training programs and technical competency improvement
- Between queue management system and waiting time efficiency
- Between the implementation of integrated information systems and continuity of service

2. Positive Correlation (+):
- Between reward system and service quality
- Between facility maintenance and patient comfort
- Between safety protocols and patient satisfaction

3. Negative Correlation (-):
- Between service time efficiency and completeness of inspection
- Between cost savings and complete facilities

Target Value Analysis

Table 5 Target Value Analysis

Service Aspects	Current Value	Target Value	Improvement Ratio
Waiting Time	45 minutes	30 minutes	1.50
Patient Satisfaction	85%	95%	1.12
Completeness of Information	80%	90%	1.13
Accuracy of Diagnosis	90%	95%	1.06
Cleanliness of Facilities	85%	95%	1.12

Absolute Weight and Relative Weight Analysis

Absolute and relative weight analysis shows development priorities based on impact on customer satisfaction:

1. High Priority (Relative Weight > 8%):
- Complaint handling system (9.5%)
- Competency development program (9.2%)
- Integrated information system (8.7%)

2. Medium Priority (Relative Weight 5-8%):

- Supporting facilities (7.8%)
- Queue management system (6.5%)
- Facility maintenance program (5.9%)

3. Low Priority (Relative Weight < 5%):

- Room decoration (4.2%)
- Parking system (3.8%)
- Additional facilities (3.5%)

Implementation Implications

The results of the overall analysis produce implementation recommendations which are divided into three periods:

1. Short Term (0-6 months):

- Formation of a special team for handling complaints
- Improved signage and directions
- Optimization of the queue system

2. Medium Term (6-12 months):

- Implementation of integrated information systems
- Comprehensive staff training program
- Development of supporting facilities

3. Long Term (> 12 months):

- Development of new infrastructure
- Implementation of the latest health technology
- Development of telemedicine system

These findings provide a comprehensive framework for the management of RSKDIA Siti Fatimah to improve service quality systematically and measurably. By considering the correlation between technical responses, target values, and weights of interests, the hospital can develop an effective and efficient implementation roadmap to improve its service quality.

Evaluation of Technical Response Implementation

The results of the evaluation of the implementation of the technical response show variations in the level of implementation feasibility:

Table 6 Technical Response Evaluation

Category	Number of Responses	Feasibility Percentage	Implementation Status
Very easy	7	12.1%	Can be implemented immediately
Easy	27	46.6%	Implementation in 3 months
Currently	22	37.9%	Implementation in 6 months
Difficult	2	3.4%	Requires >6 months preparation

Performance Gap Analysis

The performance gap analysis identified five key areas that require special attention.

Table 7 Performance Gap Analysis

Service Area	Gap Score	Improvement Area	Improvement Target
Administrative Services	-2.5	Queue and registration system	40% reduction in waiting time
Communication with Patients	-2.1	Patient information system	35% increase in communication satisfaction

Service Area	Gap Score	Improvement Area	Improvement Target
Supporting Facilities	-1.8	Comfort of waiting room	30% increase in comfort rating
Medical Information System	-1.6	Patient data integration	45% reduction in data access time
Staff Competence	-1.4	Continuous training	25% increase in competency score

The table above shows the performance gap analysis in five main service areas at RSKDIA Siti Fatimah. A negative gap score indicates that actual performance is still below customer expectations, with the largest gaps in administrative services (-2.5) and patient communication (-2.1). Improvement targets have been set for each area, with a focus on improving efficiency and overall service quality.

Final Recommendations

Based on the overall analysis, there are three main recommendations that need to be prioritized.

Table 8 Final Recommendations for Service Development

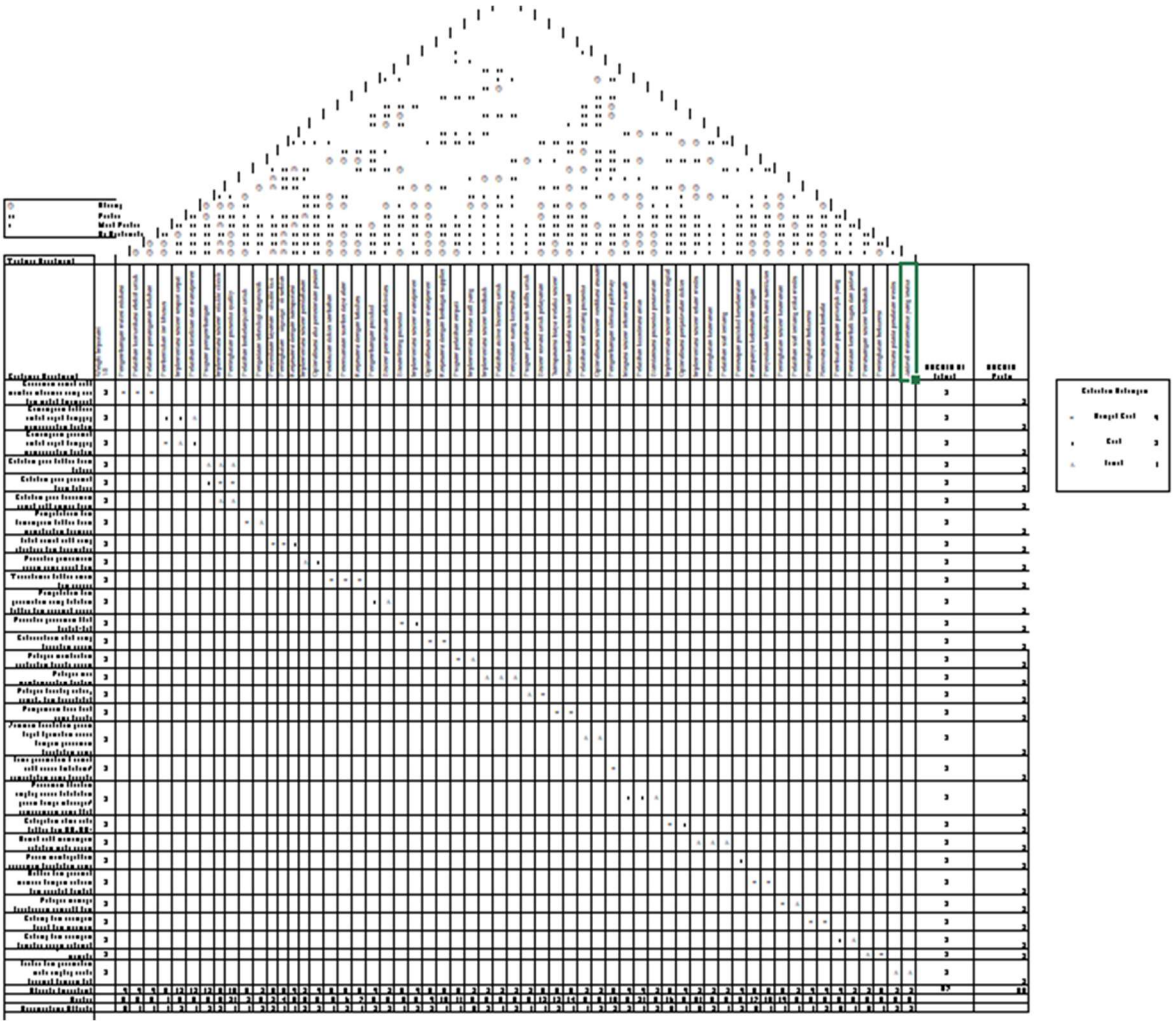
Priority Areas	Implementation Plan	Target Achievement
1. **Integrated System Development**	a) Implementation of a comprehensive hospital information system	40% increase in service efficiency
	b) Integration of queuing system with electronic medical records	35% reduction in waiting time
	c) Real-time performance monitoring dashboard development	90% increase in reporting accuracy
2. **Human Resources Capacity Building**	a) Competency-based continuing training program	Staff competency score increase by 30%
	b) KPI based performance appraisal system	KPI target achievement 85%
	c) Structured career development program	Staff retention rate 90%
3. **Optimization of Facilities and Services**	a) Renovation of facilities according to comfort standards	40% increase in patient satisfaction
	b) Development of supporting services	Increased service utilization by 35%
	c) Improving hospital accessibility	Increase in number of visits by 25%

The table above shows the final recommendations based on the results of a comprehensive analysis of service quality at RSKDIA Siti Fatimah. Each priority area is equipped with a specific implementation plan and measurable target achievements. These recommendations are designed to improve service quality holistically, covering aspects of systems, human resources, and facilities. Implementation of these recommendations is expected to strengthen the hospital's competitive position in the regional healthcare industry.

Determination of the relationship value between customer requirements and technical requirements is an agreement between the researcher and the RSKDIA Siti Fatimah. For example, the attribute "Clean and comfortable building and

room" has a relationship with 2 attributes in the technical requirements column. The value is 9, which means it has a strong relationship with the attribute "Increased frequency of cleaning" and the attribute "Regular renovation". From the results of the relationship between customer requirements and technical requirements, it was found that there were 67 relationships between Customer Requirements and Technical Requirements. There were 35 relationships with a value of 9, which means that there were 35 Technical Requirements items carried out by the RSKDIA Siti Fatimah Party that had answered Customer Requirements from patients.

Picture Of QUALITY HOUSE In The Outpatient Unit Installation Of The Special Hospital Mother And Child Area Siti Fatimah



DISCUSSION

The results of the study conducted at RSKDIA Siti Fatimah using the Quality Function Deployment (QFD) method have provided a comprehensive picture of the quality of service and its development direction. Analysis of respondent characteristics shows the dominance of service users by productive-age women (43% aged 20-35 years), most of whom (65.2%) are unemployed. This demographic profile is in accordance with the characteristics of a hospital specializing in mothers and children and has important implications for the development of more targeted services. The repeat visit rate

of 57% indicates a fairly good level of trust in hospital services, although there is still room for increasing patient loyalty. This finding is in line with the research of Liu et al. (2023) which emphasizes the importance of understanding patient characteristics in developing quality health services.

Gap score analysis revealed significant gaps in several service areas. The largest gap was found in administrative services with a gap score of -2.5, followed by communication with patients (-2.1), and supporting facilities (-1.8). This negative gap score indicates that actual performance is still below patient expectations, in accordance with the findings of Shie et al. (2022) who identified that administrative and communication aspects are often sources of patient dissatisfaction in health facilities. These findings provide a strong basis for developing more targeted improvement strategies.

The results of the QFD analysis produced 58 technical attributes with varying levels of implementation. Most attributes (27) require little adjustment in their implementation, while 22 attributes require moderate effort, and only 2 attributes require significant changes. This distribution shows that the majority of improvements needed are within the hospital's capacity to implement, in line with the research of Pourmohammadi et al. (2018) on the feasibility of QFD implementation in the health sector. This provides optimism that the improvement program can be implemented gradually and sustainably.

The development priorities identified through the House of Quality analysis include three main areas: integrated system development, human resource capacity enhancement, and service facility optimization. Integrated system development is the highest priority with a focus on the implementation of a comprehensive hospital information system and integration of the queuing system with electronic medical records. This is in line with the trend of digitalization of health services stated by Xing & Wang (2022). Increasing human resource capacity through continuous training programs and a KPI-based performance assessment system is a response to the competency gap score (-1.4), supporting the findings of Liu et al. (2019) on the importance of human resource development in improving the quality of health services.

Competitive benchmarking shows that RSKDIA Siti Fatimah has advantages in terms of technical competence (score 3.8) and service efficiency (score 3.7), but still needs improvement in terms of facility comfort and patient information systems. These findings are the basis for developing a differentiation strategy in regional health service competition. The final recommendations produced include gradual implementation from short to long term, with measurable achievement targets for each development area.

Implementation of these recommendations requires a strong commitment from hospital management and active involvement of all stakeholders. The success of implementation will depend on the hospital's ability to manage change and allocate resources effectively. Continuous monitoring and evaluation of target achievement are key to ensuring the effectiveness of the development program being implemented.

CONCLUSION

Based on the results of research conducted at RSKDIA Siti Fatimah regarding the analysis of service quality using the Quality Function Deployment (QFD) method, several important conclusions can be drawn:

1. Analysis of respondent characteristics shows that the majority of service users are women of productive age (43% aged 20-35 years), with 65.2% unemployed. The level of patient loyalty is quite good, indicated by 57% of respondents having used the service more than once. These characteristics provide an understanding of the main segmentation of hospital service users.
2. The results of the gap score analysis identified five key areas that require special attention:
   - Administrative services (gap score -2.5)
   - Communication with patients (gap score -2.1)
   - Supporting facilities (gap score -1.8)
   - Medical information systems (gap score -1.6)
   - Staff competence (gap score -1.4) A negative gap score indicates that actual performance is still below customer expectations.

3. QFD analysis yielded 58 technical attributes with varying levels of implementation:
   - 7 easy to implement attributes
   - 27 attributes require minor adjustments
   - 22 attributes require moderate effort
   - 2 attributes require significant change This distribution indicates that most of the improvements needed are within the hospital's capacity to implement.
4. Priority setting analysis identified three main areas for development:
   - Development of integrated systems to improve service efficiency
   - Improving human resource capacity through ongoing training programs
   - Optimization of facilities and services to improve patient comfort This priority is in line with patient needs and expectations as well as hospital capabilities.
5. Competitive benchmarking shows that RSKDIA Siti Fatimah has advantages in terms of technical competence (score 3.8) and service efficiency (score 3.7), but still requires improvements in terms of facility comfort and patient information systems.

These findings provide a strong basis for the management of RSKDIA Siti Fatimah to develop a more targeted and effective service improvement strategy. Implementation of recommendations resulting from the QFD analysis is expected to significantly improve service quality and strengthen the hospital's position in regional health service competition. The success of implementation will depend on management commitment, resource availability, and active involvement of all stakeholders in the improvement process.

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