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INFLUENCE OF SERVICE QUALITY ON PATIENT SATISFACTION IN PRIMARY DENTAL HEALTHCARE SERVICES

Erdianto Setya Wardhana¹⁾, Kusuma Arbianti¹⁾, Nira Ardlina¹⁾, Sandy Christiono²⁾, Fauziah Illiyatul Wakhidah³⁾

¹⁾ Department of Dental Public Health, Faculty of Dentistry, Universitas Islam Sultan Agung, Semarang – Indonesia

²⁾ Department of Pediatric Dentistry, Faculty of Dentistry, Universitas Islam Sultan Agung, Semarang – Indonesia

³⁾ Dentistry Study Program, Faculty of Dentistry, Universitas Islam Sultan Agung, Semarang – Indonesia

ABSTRACT

Background: Community Health Centers (Puskesmas) serve as primary healthcare providers in Indonesia, delivering essential medical services including dental and oral care for communities, families, and individuals. High-quality services emphasize five key dimensions of service quality: assurance, empathy, tangibles, reliability, and responsiveness. **Purpose:** This study aimed to examine the effect of service quality on patient satisfaction at the Dental Clinic of Mijen I Community Health Center. **Methods:** A concurrent mixed-methods design was applied using purposive sampling, with 142 patients as respondents. The independent variable was service quality, while the dependent variable was patient satisfaction. Data were collected through questionnaires and interview guidelines, and analyzed using validity and reliability testing, descriptive statistics, Spearman's correlation, and ordinal regression. **Results:** The univariate analysis showed the highest score in assurance (90%) and the lowest in empathy and tangibles (88%). The average level of patient satisfaction was 85%. Bivariate analysis indicated positive correlations between service quality dimensions and satisfaction, with coefficients ranging from 0.207 to 0.347, the strongest being responsiveness. Multivariate analysis demonstrated that service quality simultaneously influenced patient satisfaction, with a Nagelkerke R^2 value of 0.381, meaning that 38.1% of satisfaction was explained by the five service quality dimensions, while the remaining 61.9% was influenced by other factors not examined in this study. **Conclusion:** Service quality significantly contributes to patient satisfaction, particularly through responsiveness, assurance, and reliability. Strengthening these dimensions is crucial to improving patient experiences at community-based dental health facilities.

Keywords: Dental, Healthcare, Patient Satisfaction, Service Quality

Correspondence: Erdianto Setya Wardhana, Universitas Islam Sultan Agung, Kaligawe Raya KM. 4 Semarang Indonesia, erdianto.wardhana@unissula.ac.id, 081809150881

INTRODUCTION

Achieving Healthy Indonesia 2025 is a strategic goal of the national health development program, aiming to ensure equitable access to high-quality and affordable health services for all citizens. Health efforts focus not only on preventive and promotive measures but also on curative and rehabilitative services¹. The improvement of healthcare quality must include oral health services, which are an integral component of the national health system and should be implemented in harmony with other health development efforts².

The Indonesian Ministry of Health Regulation No. 89 of 2015 outlines the implementation of dental and oral health services. These services are provided both individually and collectively, with the primary objectives of preventing disease, treating oral health problems, and restoring oral functions. Service delivery must comply with professional standards, ethical codes, and operational procedures, and should be carried out in an integrated and continuous manner by the central government, local authorities, and community stakeholders³.

Community Health Centers (PUSKESMAS) play a pivotal role as primary healthcare facilities, particularly in providing promotive and preventive services alongside medical care. The quality of services delivered at Puskesmas significantly influences public trust and patients' decisions in choosing healthcare facilities. High-quality and ethical service delivery has the potential to increase patient satisfaction, sometimes even exceeding expectations⁴. One of the essential services offered at Puskesmas is dental and oral healthcare, which targets individuals, families, and communities at large⁵.

According to Indonesian Health Act No. 17 of 2023, the primary goal of dental and oral health services is to improve community health through integrated and sustainable public health programs, personal care, and school-based oral health initiatives⁶. However, despite improved access to healthcare facilities, patient utilization remains relatively low when the quality of service is perceived as unsatisfactory. Complaints often involve inadequate facilities, unfriendly staff attitudes, limited service hours, or insufficient care delivery⁷.

Patient satisfaction reflects the gap between expectations and the actual services received. Services that meet or exceed expectations result in high satisfaction, whereas failure to meet them leads to dissatisfaction⁸. High-quality service not only enhances patient satisfaction but also encourages loyalty, attracts new patients, reduces complaints, and supports organizational performance. The Ministry of Health has established a minimum patient satisfaction standard of 95% for healthcare facilities. Services that achieve or surpass this benchmark are considered to meet quality standards, while those below it are deemed inadequate⁹.

Healthcare service quality is commonly assessed using five dimensions: (1) tangibles, referring to the physical facilities, equipment, and communication media; (2) reliability, which reflects consistency and dependability in service delivery; (3) responsiveness, describing promptness and attentiveness to patient needs; (4) assurance, encompassing competence, courtesy, and trustworthiness of staff; and (5) empathy, which relates to staff's attention and understanding toward patients¹⁰. These dimensions have been widely used to evaluate healthcare performance and patient satisfaction across various settings

Previous studies have highlighted variations in the dominant dimensions influencing patient satisfaction across different healthcare facilities. Responsiveness was reported as the most influential factor. High levels of satisfaction were also found in assurance, reliability, empathy, and tangibles. In contrast, assurance was identified as the most dominant factor, while responsiveness scored the lowest^{11,12}. These variations suggest that patient satisfaction is highly context-dependent and influenced by facility-specific service characteristics. Several previous studies have demonstrated that service quality significantly influences patient satisfaction in healthcare services, including dental care. Studies reported that responsiveness and assurance are often the most dominant factors affecting patient satisfaction, while tangibles and empathy also contribute significantly to patients' perceptions of service quality^{11,12}. Furthermore, research conducted in primary healthcare settings showed that inadequate service quality is strongly associated with low patient visits and decreased trust in healthcare providers¹³. Other studies also indicate that improving service quality dimensions can lead to increased patient loyalty and better healthcare utilization¹³.

Despite these findings, inconsistencies remain regarding which service quality dimension has the strongest influence on patient satisfaction, particularly in dental services at primary healthcare facilities such as Puskesmas. In addition, variations in geographical location, patient characteristics, and facility resources may lead to different outcomes. Therefore, further research is needed to explore the relationship between service quality and patient satisfaction in specific local contexts. Given the importance of service quality in determining patient satisfaction, this study aims to analyze the effect of service quality on patient satisfaction at the Dental Clinic of Puskesmas Mijen I. The findings are expected to provide valuable input for improving and maintaining the quality of dental and oral healthcare services in primary healthcare settings.

MATERIALS AND METHODS

Material

The material of this study consisted of patients who received dental treatment at the Dental Clinic of Puskesmas Mijen I between January and December 2024. A total of 2,631 visits were recorded during that period, with an average of 220 patients per month. The instruments used in this study included a service quality questionnaire consisting of 25 items covering five dimensions and a patient satisfaction questionnaire consisting of 15 items adapted from the Patient Satisfaction Questionnaire (PSQ). Both questionnaires were developed using a Likert scale ranging from "strongly disagree" to "strongly agree" and had been tested for validity and reliability in previous studies. Ethical approval for this research was obtained from the Health Research Ethics Committee of Sultan Agung Islamic University with approval number XXX/KEPK-FKG/2024.

Methods

This research employed a mixed-method design combining quantitative and qualitative approaches. The quantitative component was carried out through the administration of structured questionnaires on service quality and patient satisfaction, while the qualitative component involved semi-structured interviews with selected patients. The study population included all patients who received treatment at the dental clinic, and the sample size was determined using Slovin's formula with a 5% margin of error, resulting in 142 respondents. In addition, 11 patients were purposively selected for interviews to ensure diverse representation across age, gender, visit type, and education level. Quantitative data were analyzed using univariate analysis for descriptive statistics, bivariate analysis with the Spearman correlation test to identify relationships between service quality and patient satisfaction, and multivariate analysis with ordinal regression to assess the combined effect of service quality dimensions. Qualitative data were

analyzed through data reduction, structured data display, and conclusion drawing with verification to support and enrich the quantitative results.

Steps of Procedure

Data collection was conducted after patients agreed to participate and signed informed consent. Each patient was given a questionnaire which took approximately 10–15 minutes to complete, and interviews were conducted for about 10 minutes per participant. The inclusion criteria consisted of patients aged 18 years and above or younger patients assisted by parents, while exclusion criteria included patients unable to communicate, those with mental health problems, or those in emergency conditions. Quantitative data were analyzed to examine the relationship between service quality and patient satisfaction, while qualitative data were used to enrich and validate the survey findings, ensuring a comprehensive understanding of the research problem.

RESULTS

Quantitative and Qualitative Findings

The study findings were obtained through questionnaires tested for validity and reliability, involving more than 30 respondents. An instrument was considered valid when the calculated r-value exceeded the r-table at the 5% significance level and reliable if Cronbach's Alpha was greater than 0.6 (Nuryani, 2019). The service quality questionnaire (25 items, 33 respondents) was valid ($r\text{-count} > 0.3440$) and reliable ($\alpha > 0.6$). Likewise, the patient satisfaction questionnaire (15 items, 40 respondents) was valid ($r\text{-count} > 0.3120$) and reliable ($\alpha > 0.6$). The distribution of questionnaires was conducted among patients at the Dental Clinic of Puskesmas Mijen I between January and February 2025, involving a total of 142 respondents. The demographic characteristics of the respondents, including gender and age group, are summarized in Table 1.

Table 1. Characteristics of Respondents by Gender and Age Group

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	44	31%
	Female	98	69%
Age Group	≤ 17 years	41	29%
	18–44 years	73	51%
	45–59 years	24	17%
	≥ 60 years	4	3%
Total		142	100%

The results indicate that the majority of respondents were female (69%), while male respondents represented 31%. In terms of age distribution, most respondents were in the 18–44 years age group (51%), followed by ≤ 17 years (29%), 45–59 years (17%), and ≥ 60 years (3%). Service quality was measured through five dimensions: reliability, responsiveness, assurance, tangibles, and empathy. Each dimension comprised five items, and mean scores were converted into percentages. The Likert scale was used for interpretation: 0–25% (very dissatisfied), 26–50% (dissatisfied), 51–75% (satisfied), and 76–100% (very satisfied) (Handayani, 2025). As shown in Table 2, assurance achieved the highest score (90%), followed by reliability and responsiveness (89%), while empathy and tangibles scored 88%. The overall mean score of 89% indicates patients were very satisfied with the clinic's service quality.

Table 2. Overall Service Quality

	HARGA/KG
0.4 - 0.6	37.500
0.7	37.500
0.8	36.500
0.9 - 1.0	35.500
1.1 - 1.2	34.500
1.3	32.500
1.4 - 1.8	32.500

Service Quality Dimension	Percentage (%)	Interpretation
Assurance	90%	Very Satisfied
Empathy	88%	Very Satisfied
Tangibles	88%	Very Satisfied
Reliability	89%	Very Satisfied
Responsiveness	89%	Very Satisfied
Overall Mean	89%	Very Satisfied

Patient satisfaction was analyzed across five domains (Table 3). Financial aspects and environment scored the highest (86%), followed by interpersonal behavior (85%), while professionalism and comfort scored 84%. The overall satisfaction mean was 85%, also categorized as very satisfied.

Table 3. Overall Patient Satisfaction

Patient Satisfaction Dimension	Percentage (%)	Interpretation
Interpersonal Behavior	85%	Very Satisfied
Professionalism	84%	Very Satisfied
Comfort	84%	Very Satisfied
Financial Aspects	86%	Very Satisfied
Environment	86%	Very Satisfied
Overall Mean	85%	Very Satisfied

At the item level, the highest agreement was related to cost transparency (88%) and staff politeness (86%), while waiting time received the lowest (83%), indicating a need for improvement (Table 4).

Table 4. Distribution of Patient Responses to Satisfaction Questionnaire Items

Statement Item	Agreement (%)	Disagreement (%)
Dentists explain the treatment clearly	87%	13%
Waiting time is acceptable	83%	17%
Clinic facilities are adequate	85%	15%
Staff provide services politely/respectfully	86%	14%
Costs are affordable and transparent	88%	12%

Spearman's correlation test confirmed that all service quality dimensions significantly influenced patient satisfaction ($p < 0.05$). Correlations were positive but varied in strength: assurance and empathy showed weak correlations, while tangibles and responsiveness demonstrated moderate associations (Table 5).

Table 5. Spearman Correlation Test between Service Quality Dimensions and Patient Satisfaction

Service Quality Dimension	N	Sig. (p-value)	r	Interpretation
Assurance	142	0.001	0,274	Weak positive
Empathy	142	0.014	0,207	Weak positive
Tangibles	142	0.000	0,316	Moderate positive
Reliability	142	0.000	0,298	Weak positive
Responsiveness	142	0.000	0,347	Moderate positive

Ordinal regression analysis was conducted to evaluate the collective influence of service quality dimensions. The results (Table 6) indicated that assurance, empathy, tangibles, reliability, and responsiveness together explained **38.1%** of the variance in patient satisfaction (Nagelkerke $R^2 = 0.381$). The remaining 61.9% was attributed to other factors not examined in this study.

Table 6. Ordinal Regression Test: Simultaneous Effect of Service Quality on Patient Satisfaction

Pseudo R-Square	Value
Cox and Snell	.380
Nagelkerke	.381
McFadden	.084

These findings emphasize that service quality is a significant determinant of patient satisfaction in dental services. Nevertheless, satisfaction remains multifactorial, influenced by elements beyond the scope of service quality alone, such as expectations, past experiences, and external conditions. In addition to the quantitative analysis, this

study incorporated qualitative data obtained through in-depth interviews to further explore patient experiences regarding the quality of services at the Dental Clinic of Puskesmas Mijen I. The interview results were classified according to the five dimensions of service quality in the SERVQUAL model: assurance, empathy, tangibles, reliability, and responsiveness. A summary of patient statements for each dimension is presented in Table 7.

Table 7. Summary of Qualitative Findings on Service Quality Dimensions

Dimension	Key Patient Statements	Interpretation
Assurance (confidence in service and professional competence)	“Dentists are quick and thorough in providing treatment and always give explanations after examination” (R5). “Dentists and dental staff are skilled, friendly, and ensure appropriate actions according to patient needs” (R10, R11). “The handling is always consistent with the patient’s condition, and the treatment outcomes are satisfactory” (R7–R9).	Patients perceived dentists and staff as competent, skilled, and capable of providing clear explanations and appropriate treatment, which increased trust and satisfaction.
Empathy (caring and individualized attention)	“The dentist shows seriousness and politeness, providing good direction and solutions” (R8). “The dentist is friendly and explains every procedure clearly” (R9, R11). “The dentist always tries to calm patients’ anxiety by giving reassurance or light conversations” (R2, R7, R9, R10).	Patients highlighted the attentive, respectful, and supportive approach of dentists, especially in reducing anxiety and creating a comfortable environment during treatment.
Tangibles (physical facilities and equipment)	“The clinic is clean, comfortable, and the equipment is adequate” (R4, R6). “The room is bright, cool, tidy, and the instruments are complete, especially for tooth extraction” (R9, R11).	Patients considered the facilities to be clean, comfortable, and adequately equipped, which contributed positively to their overall treatment experience.
Reliability (consistency and accuracy of service)	“Procedures are quick, simple, and appropriate” (R4, R7). “Registration is easy, waiting is reasonable, and services are delivered in proper order” (R8, R9). “Dentists act quickly without unnecessary delays” (R1, R2, R6, R11).	Patients perceived service procedures as efficient, reliable, and aligned with expectations, with minimal complications in registration or treatment flow.
Responsiveness (willingness to help and prompt attention)	“The dentist responds attentively to patient complaints” (R1, R4, R5). “Dentists always ask about patient complaints and explain the condition before treatment” (R6, R7, R9, R11).	Patients emphasized that dentists were attentive, responsive, and provided detailed explanations before any treatment, which fostered confidence and satisfaction.

DISCUSSION

The findings of this study highlight the importance of service quality dimensions in shaping patient satisfaction within primary dental healthcare settings. These findings emphasize that service quality serves as a key modifiable factor that can be optimized by healthcare providers to improve patient-centered outcomes. These include patient emotions, aesthetics, product characteristics, facility location, and visual design¹⁴.

This result aligns with findings that highlighted the significant role of service quality in improving patient satisfaction at RSUD Haji, South Sulawesi Province, where responsiveness and simplified procedures were dominant factors¹³. Similarly, it was reported that service quality contributed 49.6% to patient satisfaction among KIS participants at a community health center, while other elements such as cost, accessibility, and institutional image accounted for the remainder¹⁵. These consistencies with previous studies strengthen the external validity of the present findings and suggest that improving service quality is a universally applicable strategy across different healthcare settings. These findings reinforce the notion that service quality plays a central role in shaping patient perceptions but should be supported by broader systemic and contextual factors. At the dimensional level, emerges as an essential dimension that contributes to building patient trust and confidence in healthcare services. This suggests that professional competence, clear communication, and trust-building by dental staff are critical, even if not the most dominant factors¹⁶. The practical implication of this finding is that strengthening professional ethics, communication skills, and clinical competence can enhance patient trust, which is a fundamental component of long-term healthcare relationships. The importance of professionalism and effective doctor–patient communication in improving confidence and satisfaction was also emphasized¹⁷.

The empathy dimension demonstrates the importance of patient-centered care approaches that address not only clinical needs but also emotional and psychological aspects. This indicates that supportive attitudes, efforts to reduce patient anxiety, and emotional reassurance positively affect patient experiences¹⁸. This finding highlights that empathy can serve as a differentiating factor in healthcare quality, particularly in dental services where patient anxiety is often

high. Empathy in healthcare also encompasses personal attention and relationship-building, both of which are central to meaningful service delivery¹⁹.

Tangibles, including physical facilities, cleanliness, and equipment, play a crucial role in shaping first impressions and reinforcing patient perceptions of service quality. Patients generally perceived the clinic as clean, comfortable, and well-equipped, though some suggested improvements such as additional dental chairs and radiographic facilities. This suggests that investment in infrastructure and technology not only improves clinical capacity but also enhances patient confidence and satisfaction. Well-maintained facilities have been noted to significantly enhance patient perceptions of service quality²⁰. Continuous improvements in physical infrastructure remain important to sustain and further increase satisfaction.

Reliability reflects the consistency and dependability of healthcare services, which are essential for maintaining patient trust, with patients valuing efficient and consistent service delivery. From a managerial perspective, improving standard operating procedures and service workflows can enhance reliability and minimize service errors. Although categorized as a weak correlation, procedural efficiency is known to improve satisfaction²¹, and timeliness and accuracy have been identified as key aspects of healthcare reliability²². Even when statistical influence is modest, the ability to provide prompt, orderly, and dependable services is crucial to patient-centered care.

Finally, responsiveness appears to be the most influential dimension in enhancing patient satisfaction, particularly in the context of direct patient-provider interactions. Patients highly appreciated staff attentiveness, willingness to listen, and the provision of clear explanations before treatment. This finding underscores the importance of timely and proactive communication in meeting patient expectations and improving overall healthcare experience. Responsiveness has been highlighted as an important factor in addressing patient needs and quick, attentive, and proactive support has been shown to significantly enhance healthcare experiences²³.

Overall, this study highlights that optimizing service quality dimensions particularly responsiveness, tangibles, and assurance offers significant benefits for improving patient satisfaction and healthcare utilization. Service quality particularly responsiveness, tangibles, and assurance plays a critical role in shaping positive patient experiences. The practical benefit of these findings is that healthcare managers can prioritize targeted improvements in these dimensions to achieve more efficient and patient-centered service delivery. Continuous improvement across all dimensions, combined with supportive external factors, will be essential for sustaining high-quality dental healthcare services

CONCLUSION

This study concludes that service quality significantly influences patient satisfaction at the Dental Clinic of Puskesmas Mijen I, with all dimensions tangibles, reliability, responsiveness, assurance, and empathy, playing important roles in shaping patient experiences. Among these, responsiveness, tangibles, and assurance contribute more prominently, indicating the importance of timely communication, adequate facilities, and professional competence. These findings suggest that improving service quality is a practical strategy to enhance patient satisfaction and trust. However, as patient satisfaction is also influenced by other factors, continuous and comprehensive quality improvement efforts are necessary to achieve optimal and sustainable dental healthcare services.

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