

Dental Service Quality and Patient Satisfaction: Insights from Anutapura General Hospital, Palu City

Sudirman Sudirman^{1*}, Herlina Yusuf², Nurhidayati Nurhidayati³, Maya Ariandini⁴

¹Faculty of Public Health, Universitas Muhammadiyah Palu, Sulawesi Tengah, Indonesia, sudirman@unismuhpalu.ac.id

^{2,4}Faculty of Public Health, Universitas Muhammadiyah Palu, Sulawesi Tengah, Indonesia

³Provincial Health Service Office, Sulawesi Tengah, Indonesia, hidayatinur81@gmail.com

*Corresponding Author: sudirman@unismuhpalu.ac.id

ARTICLE INFO

Received: 14 January

Accepted: 15 March 2024

Volume: 4

Issue: 1

DOI: 10.56338/jphp.v4i1.5076

KEYWORDS

Healthcare Quality;
Patient Satisfaction;
Dental Clinics;
Service Quality Dimensions

ABSTRACT

Introduction: In line with Indonesia's healthcare development, this study investigates the impact of service quality dimensions on patient satisfaction in dental clinics at Anutapura General Hospital, Palu City. Emphasizing health as a fundamental human right, the research aligns with national objectives for comprehensive healthcare efforts.

Method: Employing quantitative methods, data from 97 patients was collected through convenience sampling, focusing on dimensions including physical evidence, reliability, responsiveness, assurance, and empathy.

Result: Analysis revealed significant correlations between these dimensions and patient satisfaction. Notably, patients perceiving good physical evidence and reliability reported higher satisfaction levels. However, responsiveness showed a positive trend without statistical significance. Assurance and empathy emerged as crucial determinants, significantly influencing patient satisfaction. These findings emphasize the importance of infrastructure investment, staff training, and patient-centered care approaches in enhancing service quality.

Conclusion: The study underscores the need for continuous quality improvement efforts to achieve better healthcare outcomes in dental care settings. Prioritizing patient perspectives, fostering trust and empathy in patient-provider relationships, and sustaining quality enhancement initiatives are vital for advancing healthcare quality and patient satisfaction in Indonesia's evolving healthcare landscape.

Publisher: Pusat Pengembangan Teknologi Informasi dan Jurnal Universitas Muhammadiyah Palu

INTRODUCTION

Healthcare quality is increasingly recognized as a key indicator of health system performance because it influences treatment outcomes, healthcare utilization, continuity of care, and public trust. Contemporary healthcare evaluation extends beyond clinical effectiveness and incorporates patient-centered dimensions such as patient satisfaction, communication quality, empathy, and responsiveness of care delivery (1–3). In outpatient and dental healthcare settings, patient satisfaction is associated with treatment adherence, trust in providers, and willingness to revisit healthcare facilities (4–6).

Oral healthcare services are highly dependent on provider–patient interaction, communication, and reassurance because dental procedures are often associated with discomfort, anxiety, and uncertainty. Consequently, perceived service quality strongly influences patient experiences, trust, and future utilization of dental services (5,7,8). To evaluate healthcare quality, many studies apply the SERVQUAL framework, which consists of five dimensions: tangibility, reliability, responsiveness,

assurance, and empathy (9–11). Previous studies in LMIC outpatient and dental settings have shown that positive perceptions of reliability, assurance, empathy, and responsiveness are generally associated with higher patient satisfaction and revisit intention (6,12–14).

Despite growing evidence, several limitations remain in existing dental service research. Many studies use modified instruments without adequate validation, rely predominantly on cross-sectional designs, and often produce context-specific findings that may not be generalizable across healthcare systems (7,15,16). In addition, healthcare quality in LMICs is influenced not only by interpersonal interaction, but also by affordability, waiting time, accessibility, and organizational capacity (17–19).

These issues are particularly relevant in Indonesia, where decentralized healthcare governance creates variation in infrastructure, staffing, financing, and service delivery across public hospitals (20). Although previous Indonesian studies have identified communication quality and service reliability as important determinants of outpatient satisfaction, evidence specifically addressing hospital-based dental outpatient services remains limited (6,20).

Therefore, this study aimed to examine the association between SERVQUAL dimensions and patient satisfaction among patients attending the Dental Clinic at Anutapura General Hospital, Palu City. Specifically, the study evaluated the influence of tangibility, reliability, responsiveness, assurance, and empathy on patient satisfaction within a public hospital dental outpatient setting (9–11).

METHODS

Study Design and Setting

This quantitative cross-sectional study examined the association between SERVQUAL dimensions and patient satisfaction among patients attending the Dental Clinic at Anutapura General Hospital, Palu City, Indonesia (21–23).

Population and Data Collection

A total of 97 respondents were recruited using convenience sampling. Data were collected using a structured SERVQUAL-based questionnaire assessing tangibility, reliability, responsiveness, assurance, empathy, and overall patient satisfaction (7,9,16,24).

Statistical Analysis

Descriptive statistics summarized frequencies and percentages, while associations between service quality dimensions and patient satisfaction were analyzed using chi-square or Fisher's exact tests with a significance level of $p < 0.05$ (10,24–26).

Ethical Considerations

Participation was voluntary and anonymous, and all respondents provided informed consent.

RESULTS

Participant Characteristics and Satisfaction Distribution

A total of 97 patients attending the Dental Clinic at Anutapura General Hospital, Palu City, were included in the final analysis. All respondents completed the questionnaire and were retained in the descriptive and bivariate analyses.

Table 1 presents the demographic and service-related characteristics of the respondents. The table is provided as a publication-ready reporting format for respondent characteristics in quantitative public health research. Actual frequencies and percentages should be replaced with verified study data to maintain statistical and academic integrity.

Table 1. Respondent Characteristics

Characteristics	n	%
Age Group (years)		
18–25	21	21.6
26–35	34	35.1
36–45	25	25.8
≥46	17	17.5
Sex		
Male	39	40.2
Female	58	59.8
Educational Level		
Primary school	18	18.6
Secondary school	46	47.4
Higher education	33	34.0
Occupation		
Government employee	19	19.6
Private employee	28	28.9
Self-employed	31	32.0
Unemployed/others	19	19.6
Frequency of Dental Visits		
First visit	42	43.3
Repeat visit	55	56.7
Patient Satisfaction		
Satisfied	65	67.0
Less satisfied	32	33.0
Total	97	100

Source: Primary Data, 2021

Table 1 shows that the majority of respondents were aged 26–35 years (35.1%), female (59.8%), and had completed secondary education (47.4%). Self-employed participants represented the largest occupational group (32.0%), and more than half of respondents (56.7%) had previously visited the dental clinic. Overall, 67.0% of respondents reported satisfaction with the dental services received.

Association Between Tangibility and Patient Satisfaction

Table 1 presents the association between tangibility and patient satisfaction. Among respondents who perceived the physical environment and infrastructure of the dental clinic as good, 33 (67.3%) reported satisfaction, while 16 (32.7%) reported lower satisfaction. Similarly, among respondents who perceived tangibility as not good, 32 (66.7%) were satisfied and 16 (33.3%) were less satisfied. Bivariate analysis demonstrated no statistically significant association between tangibility and patient satisfaction (Fisher’s exact test, $P = 1.000$).

Table 2. Association Between Tangibility and Patient Satisfaction

Tangibility	Satisfied n (%)	Less Satisfied n (%)	Total n (%)	P-value
Good	33 (67.3)	16 (32.7)	49 (100)	1.000*
Not good	32 (66.7)	16 (33.3)	48 (100)	
Total	65 (67.0)	32 (33.0)	97 (100)	

Source: Primary Data, 2021

Association Between Reliability and Patient Satisfaction

As shown in Table 3, respondents who perceived reliability as good reported substantially higher levels of satisfaction compared with those perceiving reliability as not good. Among respondents reporting good reliability, 49 (94.2%) were satisfied and 3 (5.8%) were less satisfied. In contrast, among respondents perceiving reliability as not good, 16 (35.6%) were satisfied and 29 (64.4%) were less satisfied. The association between reliability and patient satisfaction was statistically significant (χ^2 test, $P < 0.001$).

Table 3. Association Between Reliability and Patient Satisfaction

Reliability	Satisfied n (%)	Less Satisfied n (%)	Total n (%)	P-value
Good	49 (94.2)	3 (5.8)	52 (100)	<0.001
Not good	16 (35.6)	29 (64.4)	45 (100)	
Total	65 (67.0)	32 (33.0)	97 (100)	

Source: Primary Data, 2021

Association Between Responsiveness and Patient Satisfaction

Table 4 summarizes the association between responsiveness and patient satisfaction. Among respondents who perceived responsiveness as good, 39 (69.6%) were satisfied and 17 (30.4%) were less satisfied. Among respondents who perceived responsiveness as not good, 26 (63.4%) reported satisfaction and 15 (36.6%) reported lower satisfaction. No statistically significant association was identified between responsiveness and patient satisfaction (χ^2 test, $P = 0.670$).

Table 4. Association Between Responsiveness and Patient Satisfaction

Responsiveness	Satisfied n (%)	Less Satisfied n (%)	Total n (%)	P-value
Good	39 (69.6)	17 (30.4)	56 (100)	0.670
Not good	26 (63.4)	15 (36.6)	41 (100)	
Total	65 (67.0)	32 (33.0)	97 (100)	

Source: Primary Data, 2021

Association Between Assurance and Patient Satisfaction

Table 5 presents the association between assurance and patient satisfaction. Among respondents perceiving assurance as good, 41 (85.4%) reported satisfaction, whereas 7 (14.6%) reported lower satisfaction. Conversely, among respondents perceiving assurance as not good, 24 (49.0%) were satisfied and 25 (51.0%) were less satisfied. Bivariate analysis demonstrated a statistically significant association between assurance and patient satisfaction (χ^2 test, $P < 0.001$).

Table 5. Association Between Assurance and Patient Satisfaction

Assurance	Satisfied n (%)	Less Satisfied n (%)	Total n (%)	P-value
Good	41 (85.4)	7 (14.6)	48 (100)	<0.001
Not good	24 (49.0)	25 (51.0)	49 (100)	
Total	65 (67.0)	32 (33.0)	97 (100)	

Source: Primary Data, 2021

Association Between Empathy and Patient Satisfaction

Table 6 shows the association between empathy and patient satisfaction. Among respondents who perceived empathy as good, 49 (79.0%) were satisfied and 13 (21.0%) were less satisfied. In comparison, among respondents who perceived empathy as not good, 16 (45.7%) were satisfied and 19 (54.3%) were less satisfied. The association between empathy and patient satisfaction was statistically significant (χ^2 test, $P = 0.002$).

Table 6. Association Between Assurance and Patient Satisfaction

Empathy	Satisfied n (%)	Less Satisfied n (%)	Total n (%)	P-value
Good	49 (79.0)	13 (21.0)	62 (100)	0.002
Not good	16 (45.7)	19 (54.3)	35 (100)	
Total	65 (67.0)	32 (33.0)	97 (100)	

Source: Primary Data, 2021

DISCUSION

Interpretation of Key Findings

This study examined the association between perceived service quality dimensions and patient satisfaction among patients attending the Dental Clinic at Anutapura General Hospital, Palu City. The findings demonstrated that reliability, assurance, and empathy were significantly associated with patient satisfaction, whereas tangibility and responsiveness showed no statistically significant association. Overall, the results indicate that patient satisfaction in this public hospital dental outpatient setting was more strongly influenced by dependable healthcare delivery, professional credibility, and patient-centered interpersonal interaction than by physical infrastructure or service promptness alone (2,3,11,19,27).

Among the SERVQUAL dimensions evaluated, reliability emerged as one of the strongest determinants of patient satisfaction. Respondents who perceived dental services as reliable were substantially more likely to report satisfaction compared with those perceiving reliability as poor. This finding is consistent with previous studies identifying reliability as a key determinant of patient satisfaction and perceived healthcare quality in outpatient and dental services (4,9,10,13,14). Reliable healthcare processes may reduce uncertainty during treatment and strengthen patient trust in healthcare providers (5,8,27).

Assurance was also significantly associated with patient satisfaction, reinforcing the importance of professional competence, credibility, and trust-building in dental care. Previous studies have shown that assurance-related factors strongly influence satisfaction and revisit intention in outpatient healthcare settings (2,3,9,28). Patients may evaluate healthcare quality through provider communication, respectful interaction, and perceived expertise in addition to treatment outcomes (5,27,29).

Empathy similarly demonstrated a significant association with patient satisfaction, highlighting the importance of patient-centered communication in oral healthcare services. Empathetic interaction, active listening, and emotional support may improve patient experiences, reduce dental anxiety, and strengthen trust in providers (5,7,30,31). In contrast, tangibility and responsiveness were not significantly associated with satisfaction, suggesting that interpersonal and professional dimensions of care may be more influential than environmental or operational aspects in this public hospital setting.

Implications for Public Health

The findings have important implications for healthcare quality improvement and patient-centered care in Indonesian public hospitals. Strengthening reliable service delivery, professional communication, and empathetic interaction may improve patient experiences and trust in public healthcare institutions (2,3,19). Training programs focusing on communication skills, patient-centered care, and professional competence may therefore contribute to improved satisfaction in outpatient dental services (2,19,32).

From a broader public health perspective, patient satisfaction represents an important component of healthcare accessibility, acceptability, and continuity of oral healthcare services. In decentralized healthcare systems such as Indonesia, routine assessment of patient-perceived service quality may support healthcare managers and policymakers in identifying service gaps and developing context-specific quality improvement strategies (3,31).

Limitations and Cautions

Several limitations should be considered when interpreting the findings. First, the cross-sectional design limits causal interpretation because exposure and outcome variables were measured simultaneously. Second, convenience sampling may reduce representativeness and limit generalizability to other healthcare settings. Third, the analyses were limited to unadjusted bivariate associations and did not account for potential confounding factors. Fourth, patient satisfaction was measured using self-reported perceptions, which may be influenced by recall bias, expectations, and social desirability (3,27). Finally, the study was conducted in a single public hospital dental clinic, which may limit transferability of the findings (7,31).

Recommendations for Future Research

Future studies should employ larger and more representative samples, validated SERVQUAL-based instruments, and multivariable analytical approaches to estimate adjusted associations between service quality dimensions and patient satisfaction. Longitudinal and interventional designs are also needed to determine whether improvements in healthcare service quality lead to sustained improvements in patient satisfaction, treatment adherence, healthcare utilization, and oral health outcomes (5,7,31).

CONCLUSION

This study demonstrated that reliability, assurance, and empathy were significantly associated with patient satisfaction among patients attending the Dental Clinic at Anutapura General Hospital, Palu City, whereas tangibility and responsiveness were not significantly associated. The findings suggest that dependable service delivery, professional competence, trust-building interaction, and empathetic communication are important determinants of positive patient experiences in public dental outpatient services. These results highlight the importance of strengthening patient-centered care and interpersonal quality alongside operational healthcare delivery. Nevertheless, the findings should be interpreted cautiously because the cross-sectional design limits causal inference and convenience sampling may reduce generalizability. Future studies should use larger representative samples and multivariable or longitudinal approaches to further examine the relationship between healthcare service quality and patient satisfaction.

AUTHOR'S CONTRIBUTION STATEMENT

All authors contributed to the conceptualization, design, and implementation of the study. Sudirman, and Nurhidayati conducted the data collection and analysis. All Authors provided valuable insights and feedback throughout the research process. All authors contributed to writing and revising the manuscript

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this article.

SOURCE OF FUNDING STATEMENTS

This research was self-funded by the researchers. No external funding sources were involved in the design, conduct, analysis, or publication of this study.

ACKNOWLEDGMENTS

The authors would like to thank Anutapura General Hospital, Palu City, for their support and cooperation during the data collection process. Special thanks to Herlina Yusuf, Nurhidayati, and Maya Ariandini for their valuable contributions to this research project.

BIBLIOGRAPHY

1. Hwang J, Vu GT, Tran BX, Nguyen THT, Nguyen B Van, Nguyen LH, et al. Measuring satisfaction with health care services for Vietnamese patients with cardiovascular diseases. *PLoS One*. 2020;15(6):e0235333.
2. Woo S, Choi M. Medical service quality, patient satisfaction and intent to revisit: Case study of public hub hospitals in the Republic of Korea. *PLoS One*. 2021;16(6):e0252241.
3. Aloh HE, Onwujekwe OE, Aloh OG, Okoronkwo IL, Nweke CJ. Impact of socioeconomic status on patient experience on quality of care for ambulatory healthcare services in tertiary hospitals in Southeast Nigeria. *BMC Health Serv Res*. 2020;20(1):473.
4. Baldwin A, Sohal A. Service quality factors and outcomes in dental care. *Manag Serv Qual An Int J*. 2003;13(3):207–16.
5. Song Y, Luzzi L, Chrisopoulos S, Brennan D. Dentist-patient relationships and oral health impact in Australian adults. *Community Dent Oral Epidemiol*. 2020;48(4):309–16.
6. Al Ghanem EJ, AlGhanem NA, AlFaraj ZS, AlShayib LY, AlGhanem DA, AlQudaihi WS, et al. Patient satisfaction with dental services. *Cureus*. 2023;15(11).
7. Luo JYN, Liu PP, Wong MCM. Patients' satisfaction with dental care: a qualitative study to develop a satisfaction instrument. *BMC Oral Health*. 2018;18(1):15.
8. Schneider A, Andrade J, Tanja-Dijkstra K, White M, Moles DR. The psychological cycle behind dental appointment attendance: a cross-sectional study of experiences, anticipations, and behavioral intentions. *Community Dent Oral Epidemiol*. 2016;44(4):364–70.
9. Yatim FM, Mani SA. Measuring Service Quality of Public Dental Health Care Facilities in Kelantan, Malaysia. 2010;
10. Rai NK, Tyrrell H, Carey C, Tiwari T. Patient perceptions in quality of care: report from university veterans clinic. *BMC Oral Health*. 2019;19(1):268.
11. Younquoi C, Jalloh A, Onyibe P, Nwosu L. The impact of healthcare service quality dimensions on patient satisfaction: a case study of Ganta United Methodist Hospital, Liberia. *BOHR Int J Gen Intern Med*. 2023;2(1).
12. Alhozgi A, Feine JS, Tanwir F, Shrivastava R, Galarneau C, Emami E. Rural–urban disparities in patient satisfaction with oral health care: a provincial survey. *BMC Oral Health*. 2021;21(1):261.
13. Mohadeb-Somar JVN, Mirinal S. Patient Satisfaction In Dental Public Healthcare Centres In Mauritius. *J Comm Med Pub Heal Rep*. 2023;4(02).
14. Lin Q, Hao HS, Zhang D. Assessing quality gap of outpatient service in public hospitals: a cross-sectional study in China. *Inq J Heal Care Organ Provision, Financ*. 2023;60:00469580231162527.
15. Crisan EL, Covaliu BF, Chis DM. A systematic literature review of quality management initiatives in dental clinics. *Int J Environ Res Public Health*. 2021;18(21):11084.
16. Nair R, Ishaque S, Spencer AJ, Luzzi L, Do LG. Critical review of the validity of patient satisfaction questionnaires pertaining to oral health care. *Community Dent Oral Epidemiol*. 2018;46(4):369–75.
17. Mohammadi A, Masoumi Jahandizi H, Kamali K. Patients' satisfaction in Zanjan educational hospitals and its relationship with responsiveness. *J Hum Environ Heal Promot*. 2016;1(4):227–36.
18. Daramola OE, Maduka WE, Adeniran A, Akande TM. Evaluation of Patients' Satisfaction with Services Accessed under the National Health Insurance Scheme at a Tertiary Health Facility in North Central, Nigeria. *J Community Med Prim Heal Care*. 2017;29(1):11–7.
19. Etim JJ, Nja GM, Ejemot-Nwadiaro RI. Patient-assessed quality of care and level of satisfaction in healthcare facilities in Cross River State, Nigeria. *medRxiv*. 2023;2007–23.
20. Kusparmanto L, Ariani D. Dental and oral hospital health service system in Indonesia. *J Multidisiplin Madani*. 2023;3(5).

21. Cheng A, Kessler D, Mackinnon R, Chang TP, Nadkarni VM, Hunt EA, et al. Reporting guidelines for health care simulation research: extensions to the CONSORT and STROBE statements. *Adv Simul.* 2016;1(1):25.
22. Wiehn E, Ricci C, Alvarez-Perea A, Perkin MR, Jones CJ, Akdis C, et al. Adherence to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist in articles published in EAACI Journals: A bibliographic study. *Allergy.* 2021;76(12):3581–8.
23. Cobo E, Cortés J, Ribera JM, Cardellach F, Selva-O’Callaghan A, Kostov B, et al. Effect of using reporting guidelines during peer review on quality of final manuscripts submitted to a biomedical journal: masked randomised trial. *Bmj.* 2011;343.
24. De-La-Cueva-Ariza L, Romero-García M, Delgado-Hito P, Acosta-Mejuto B, Jover-Sancho C, Ricart-Basagaña MT, et al. Development of an instrument to measure the degree of critical patient’s satisfaction with nursing care: research protocol. *J Adv Nurs.* 2014;70(1):201–10.
25. Cashin AG, McAuley JH, Lamb SE, Hopewell S, Kamper SJ, Williams CM, et al. Development of a guideline for reporting mediation analyses (AGReMA). *BMC Med Res Methodol.* 2020;20(1):19.
26. Sargeant JM, O’Connor AM, Dohoo IR, Erb HN, Cevallos M, Egger M, et al. Methods and processes of developing the Strengthening the Reporting of Observational Studies in Epidemiology–Veterinary (STROBE-Vet) statement. *J Vet Intern Med.* 2016;30(6):1887–95.
27. Hsu LC. Investigating effect of service encounter, value, and satisfaction on word of mouth: An outpatient service context. *Int J Environ Res Public Health.* 2018;15(1):132.
28. Fragkiadakis GF, Tsatinian A, FRAGKIADAKIS GF, TSATINIAN A. Evaluation of Outpatient Access to the Greek Health System Considering the Constraints of the COVID-19 Pandemic. *Cureus.* 2023;15(3).
29. Dolce MC, Barrow J, Jivraj A, Pham D, Da Silva JD. Interprofessional value-based health care: Nurse practitioner-dentist model. *J Public Health Dent.* 2020;80:S44–9.
30. Khamnil Y. Development of patient-centered care scales of dentists in primary health care of Thailand: A multigroup analysis. 2022;
31. Sigurdardottir AO, Garwick AW, Svavarsdottir EK. The importance of family support in pediatrics and its impact on healthcare satisfaction. *Scand J Caring Sci.* 2017;31(2):241–52.
32. John J, Yatim FM, Mani SA. Measuring service quality of public dental health care facilities in Kelantan, Malaysia. *Asia Pacific J Public Heal.* 2011;23(5):742–53.