Pesquisa Brasileira em Odontopediatria e Clínica Integrada 2023; 23:e200098
https://doi.org/10.1590/pboci.2023.031
ISSN 1519-0501 / eISSN 1983-4632

ORIGINAL ARTICLE

Effect of Quality of Dental Health Services to Patient Satisfaction in Indonesia 2019: Importance-Performance Analysis

Fuad Husain Akbar[1], Abdul Hair Awang[2], Fridawaty Rivai[3]

[1]Department of Dental Public Health, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.
[2]Faculty of Social Sciences and Humanities, National University of Malaysia, Selangor, Malaysia.
[3]Department Hospital Management, Faculty of Public Health, Hasanuddin University, Indonesia.

Correspondence: Fuad Husain Akbar, Department of Dental Public Health, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia. **E-mail:** fuadgi2@gmail.com

Academic Editor: Wilton Wilney Nascimento Padilha

Received: 18 November 2020 / **Review:** 13 December 2021 / **Accepted:** 17 July 2022

How to cite: Akbar FH, Awang AH, Rivai F. Effect of quality of dental health services to patient satisfaction in Indonesia 2019: importance-performance analysis. Pesqui Bras Odontopediatria Clín Integr. 2023; 23:e200098. https://doi.org/10.1590/pboci.2023.031

ABSTRACT

Objective: To determine the effect of the quality of dental health services based on dimensions of empathy and responsiveness to patient satisfaction in urban and rural areas in Bone District, Indonesia. **Material and Methods:** This survey used an analytical observational method with a pilot pathfinder survey design. The total of participants included in this survey was 442, with 223 in the urban area and 219 in the rural area. This survey was held on 25 February – 1 March 2019. The Mann-Whitney test was applied, adopting a significance level of 5%. **Results:** Empathy and responsive dimensions in urban (3.58 ± 0.94 and 3.50 ± 0.94) and rural (3.43 ± 0.99 and 3.63 ± 0.86) areas were in the moderate category. The administration staff was able to complete administrative procedures, and the Dental assistant responded promptly to the patient's request and needs. **Conclusion:** The quality of empathy and responsiveness dimensions in dental treatment fall in the moderate category for urban and rural areas; this means that empathy and responsiveness dimensions in dental service in hospital/public health need to be improved.

Keywords: Health Services; Quality of Health Care; Personal Satisfaction.

Introduction

Nowadays, health plays a significant importance in everyday life. The ever-increasing number of clinics built, whether it is public or private, proves this statement. Each hospital's services are assessed on a scale that measures the patient's perspective [1,2]. The Law of the Republic of Indonesia Number 44 in 2009 concerning Hospitals states that health services are the right of every person guaranteed in the 1945 Constitution of the Republic of Indonesia, which must be realized by efforts to increase the highest degree of public health [3]. Based on Ministry of Health Regulation Number 4 the Year 2018 Chapter II Article 2 paragraph 1 b, each hospital has an obligation to provide health services that are safe, quality, anti-discriminatory and effective by prioritizing patient interests following Hospital service standards [4,5].

The issue of service quality has attracted tremendous attention in the health industry lately. The quality of medical services provided by clinics is sometimes still not optimal. The quality of health services is the level of perfection of health services carried out under the established code of ethics and standard of service, thus providing satisfaction for each patient [6,7]. The challenge of conveying service quality in line with perceptions and expectations still needs to be of concern to both the managers and providers of health services [8-10]. Indonesia is a developing country and is faced with health quality problems. According to data from the Global Health Index, Indonesia is ranked 117th out of 199 countries. This shows that the level of health care in Indonesia is slightly below the mid-level [11-14].

Research on the assessment of dental care has increasingly attracted the attention of the scientific community. Achieving quality dental care is very desirable for patients. The health of the patient's teeth and mouth has an important effect on patient satisfaction. The satisfaction of patients with dental care will also impact the use of dental health services in the future [6,7,15,16].

Patient satisfaction is explained as a person's feelings of contentment or disappointment resulting from comparing the results of a product related to their expectations. Therefore, continuous monitoring and evaluation of patients' perspectives are needed for quality improvement and to provide feedback to health professionals. Information obtained through patient surveys has proven to be an important source of service quality improvement and strategic planning for health services [15,17-19].

One of the best and most widely used models to evaluate the quality of health services is the SERVQUAL (Service Quality) model. This model is also recognized as a gap analyzer model used to measure the gap between patient expectations and perceptions regarding the quality of services provided by the hospital. The researchers identified five dimensions of service quality determinants in the order of importance, namely Reliability, Responsiveness, Assurance, Empathy, and Tangibles [20,21].

Based on research conducted in dental clinics in Iran, the biggest discrepancies in the service quality dimensions are from the empathy dimension, which showed that healthcare providers paid little regard to patients' views and opinions [22]. Another research in the United Kingdom, Denmark and Bandung showed that more patients are now anaware of dental health care and demand services that meet their expectations [23,24].

Based on data from the 2015 Public Health Office about the health profile of the Bone Regency, in 2014, there were only two hospitals in the Bone Regency. There are, namely, 38 public health units consisting of 17 treatment public health units and 21 non-treatment public health units to serve and care for 738,515 citizens of Bone Regency. There are 21 dentists with a ratio of 2.48 dentists per 100,000 residents, whereas the ideal dentist and population ratio based on the Healthy Indonesia target is 11 dentists per 100,000 residents [25,26].

When the data from Bone Regency Public Health Office observed, the number of health facilities and dentists ratio did not reach the desirable balanced ratio between health facilities, dentists, and the Bone Regency's population, which indicated that the number of health facilities and health care providers available is not yet optimal. In contrast, the quality of the service provided is based on the availability of healthcare facilities. Based on this condition, a survey is necessary to assess the effect of dental treatment quality on patients' satisfaction based on empathy and responsiveness in Bone Regency.

According to all the exposition given, the researchers are interested in surveying to assess the effect of dental treatment quality on patients' satisfaction based on empathy and responsiveness in urban and rural areas in Bone Regency.

Material and Methods

Study Design and Sample

This research is an observational analytic with a pilot pathfinder survey design. The subjects included in this study were citizens of Bone Regency, South Sulawesi, Indonesia, who had undergone dental treatment at the public health center, hospital, and dental offices. The total in this survey was 453 people; everyone filled out the questionnaire, with 11 participants excluded because they were not willing to fill out the questionnaire; hence the total in this survey was 442. There were 223 participants in the urban area, namely Tanete Riattang Barat sub-regency and 219 participants in the rural area, namely Ulaweng sub-regency; this survey was conducted from February 25th- March 1st, 2019.

Data Collection

This survey used two analyses: SERVQUAL and Importance-Performance Analysis (IPA). SERVQUAL questionnaire adapted from Parasuraman and Zeithaml was used to assess the quality of service. This questionnaire discusses two dimensions and consists of 17 questions, with eight questions for empathy dimensions consisting of communication, attention, and knowledge regarding patients' needs from dentists, dental nurses, and administrative staff, nine questions for responsiveness, including questions about ability, respond, and skill from the same goal.

A 5-point Likert scale was used to assess "very satisfied (5)", "satisfied (4)", "neutral (3)", "dissatisfied (2)", and "very dissatisfied (1)" [24]. "Very satisfied (5)", "satisfied (4)", and "neutral (3)" are categorized as satisfied and "dissatisfied (2)", and "very dissatisfied (1)" are categorized as unsatisfied. The service dimensions are classified into "low: 1-2.33, moderate: 2.34-3.66, high: 3.67-5.00" category [27]. Importance-Performance Analysis (IPA) was used to assess satisfaction. IPA is used in many fields to give knowledge regarding customer evaluation (in this case, patient) regarding critical problems in service quality. Importance (Expectation) and performance (satisfaction perception) from service quality analyzed with IPA are divided into four quadrants (Fgure 1). Where expectations are on the y-axis and performances are on the x-axis [28].

Data Analysis

The data was processed using Statistical Package for Social Science/SPSS software, version 25.0. The Mann-Whitney test was used for the analyses, adopting a significance level of 5% [29].

Ethical Clearance

Ethical clearance was obtained from the Ethical and Research Advisory Committee, Faculty of Dentistry, Hasanuddin University (Protocol 0138/PL.09/KEPK FKG-RSGM UNHAS/2019). Informed consent was obtained from all participants.

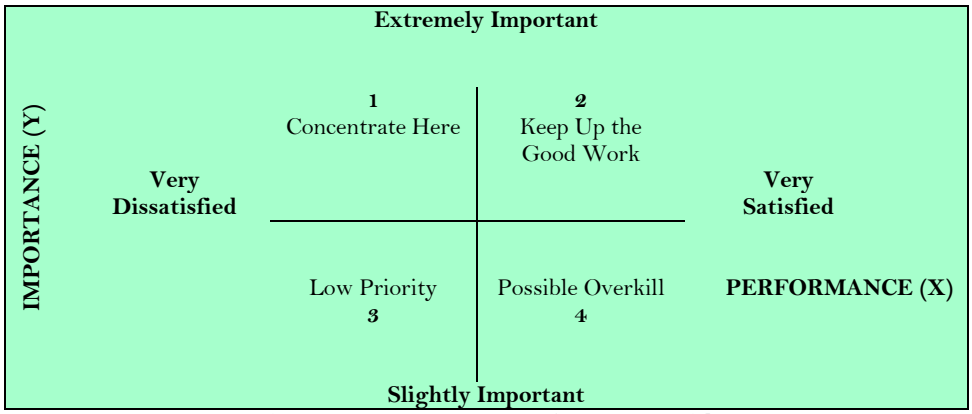


Figure 1. Importance-performance grid.

Results

Table 1 shows subject distributions based on socio-demographic characteristics for urban and rural areas. The data show a predominance of females (65.4%), aged from 18-24 years old (31.0%), Bugis ethnicity (98.4%), religion is Muslim 439 (99.3%), married (55.7%), high school graduates (28.7%), unemployed or work as a housewife (56.6%), monthly income raging from 0-150.000 Rupiah (56.1%), residence distance to the public centre are from 0-5km (79.4%), and insurance coverage (73.3%).

Table 1. Distribution of subjects according to socio-demographic characteristics.

Variables	Urban		Rural		Total	
	N	%	N	%	N	%
Gender						
Male	62	27.8	91	41.6	153	34.6
Female	161	72.2	128	51.4	298	65.4
Ages (years old)						
18–24	36	16.1	101	46.1	137	31.0
25–34	31	13.9	26	11.9	57	12.9
35–44	40	17.9	36	16.4	76	17.2
45–55	58	26.0	41	18.7	99	22.4
56>	58	26.0	15	6.8	73	16.5
Ethnic						
Bugis	220	98.7	215	98.2	435	98.4
Makassar	3	1.3	2	0.9	5	1.1
Mandar	0	0.0	2	0.9	2	0.5
Religion						
Muslim	222	99.6	217	99.1	439	99.3
Budhist	1	0.4	0	0.0	1	0.2
Christian	0	0.0	2	0.9	2	0.5
Marital Status						
Unmarried	40	17.9	115	52.5	155	35.1
Married	154	69.1	92	42.0	246	55.7
Widow	23	10.8	12	5.5	36	8.1
Widower	5	2.2	0	0.0	5	1.1
Educational Status						
Did not attend school	39	17.5	7	3.2	46	10.4
Elementary school	61	27.4	44	20.1	105	23.8
Junior high school	23	10.3	45	20.5	68	15.4

Senior high school	50	22.4	77	35.2	127	28.7
University	50	22.4	46	21.0	96	21.7
Occupation						
Unemployment/housewife	127	57.0	123	56.2	250	56.6
Farmer	22	9.9	19	8.7	41	9.3
Labor	5	2.2	0	0.0	5	1.1
Entrepreneur	21	9.4	31	14.2	52	11.8
Private sector employees	8	3.6	6	2.7	14	3.2
Civil servant	39	17.5	33	15.1	72	16.3
Others	1	0.4	7	3.2	8	1.8
Monthly Income						
Rp.0 – Rp.150.000	133	59.6	115	52.5	248	56.1
Rp.150.000 – Rp.500.000	17	7.6	31	14.2	48	10.9
Rp.500.000 – Rp.1.000.000	16	7.2	16	7.3	32	7.2
Rp.1.000.000 – Rp.2.000.000	17	7.6	25	11.4	42	9.5
> Rp.2.000.000	40	17.9	32	14.6	72	16.3
Distance to the Health Service Centre						
0 – 5 km	182	81.6	169	77.2	351	79.4
6 – 10 km	31	13.9	36	16.4	67	15.2
>10 km	10	4.5	14	6.4	24	5.4
Health Coverage Status						
Yes	177	79.4	147	67.1	324	73.3
No	46	20.6	72	32.9	118	26.7
Total	223	100.0	219	100.0	442	100.0

Table 2 shows the distribution of subjects' answers for the empathy dimension, and it shows that for the urban area, the average score is 3.58 ± 0.94, which falls into the moderate category. For the rural area empathic dimension answers distribution, the average score is 3.43 ± 0.99, which falls into the moderate category.

Table 2. Distribution of subject answers to the dimensions of empathy in urban and rural areas.

Empathy	Mean	SD	Category
URBAN			
1. Dentist gave an explanation related to the patient's treatment (E1)	3.68	0.91	High
2. Dental assistant gave explanation related to the patient's treatment (E2)	3.39	0.90	Moderate
3. Administrative staff gave explanation related to administration procedures (E3)	3.67	0.90	High
4. Dentist gave personal attention in listening to the patient's complaint (E4)	3.66	1.01	High
5. Dental assistant gave personal attention in listening to the patient's complaint(E5)	3.66	0.94	Moderate
6. Administration staff gave personal attention to registration procedures (E6)	3.49	0.94	Moderate
7. Dentist's knowledge regarding the patient's needs for the treatment (E7)	3.68	0.88	High
8. Dental assistant's knowledge regarding the patient's needs for the treatment (E8)	3.42	1.01	Moderate
Total	3.58	0.94	Moderate
RURAL			
1. Dentist gave explanation related to the patient's treatment (E1)	3.68	0.87	High
2. Dental assistant gave explanation related to the patient's treatment (E2)	3.40	1.05	Moderate
3. Administrative staff gave explanation related to administration procedures (E3)	3.22	1.02	Moderate
4. Dentist gave personal attention in listening to the patient's complaint (E4)	3.73	0.95	High
5. Dental assistant gave personal attention in listening to the patient's complaint (E5)	3.17	1.10	Moderate
6. Administration staff gave personal attention to registration procedures (E6)	3.42	0.96	Moderate
7. Dentist's knowledge regarding the patient's needs for the treatment (E7)	3.69	0.89	High
8. Dental assistant's knowledge regarding the patient's needs for the treatment (E8)	3.14	1.05	Moderate
Total	3.43	0.99	Moderate

Low: 1-2.33; Moderate: 2.33-3.66; High: 3.67-5.00.

Based on the results in Table 3 regarding the distribution of subject answers to responsive dimension questions in urban areas, the total average score is 3.50 ± 0.94, which falls into the moderate category. For the

distribution of answers to subjects in responsive dimensions in rural areas, the average score is 3.63 ± 0.86, which falls into the moderate category.

Table 3. Distribution of subject answers to the question of the dimensions of responsiveness in urban and rural areas.

Responsiveness	Mean	SD	Category
URBAN			
1. Dentist was able to help and instill confidence in the patient on the treatment (R1)	3.59	0.96	Moderate
2. Dental assistant was able to assist the dentist during treatment (R2)	3.70	0.82	High
3. Administrative staff was able to complete administration procedures (R3)	3.38	0.95	Moderate
4. Dentist responded promptly to patient's request and needs during treatment (R4)	3.56	0.93	Moderate
5. Dental assistant responded promptly to patient's request and needs during treatment (R5)	3.40	0.95	Moderate
6. Administrative staff responded promptly related to long waiting time (R6)	3.32	0.95	Moderate
7. Dentist was capable and adept in doing all procedures (treatment) (R7)	3.66	0.95	High
8. Dental assistant was capable and adept in doing all procedures (assisting the dentists in the treatment) (R8)	3.45	0.97	Moderate
9. Administrative staff was capable and adept in doing all administration procedures (R9)	3.40	1.02	Moderate
Total	3.50	0.94	Moderate
RURAL			
1. Dentist was able to help and instill confidence in the patient on the treatment (R1)	3.72	0.94	High
2. Dental assistant was able to assist the dentist during treatment (R2)	3.68	0.78	High
3. Administrative staff was able to complete administration procedures (R3)	3.52	0.81	Moderate
4. Dentist responded promptly to patient's request and needs during treatmen (R4)	3.70	0.86	High
5. Dental assistant responded promptly to patient's request and needs during treatment (R5)	3.61	0.82	Moderate
6. Administrative staff responded promptly related to long waiting time (R6)	3.36	0.91	Moderate
7. Dentist was capable and adept in doing all procedures (treatment) (R7)	3.73	0.81	High
8. Dental assistant was capable and adept in doing all procedures (assisting the dentist in the treatment) (R8)	3.63	0.82	Moderate
9. Administrative staff was capable and adept in doing all administration procedures (R9)	3.67	0.97	High
Total	3.63	0.86	Moderate

Low: 1-2.33; Moderate: 2.33-3.66; High: 3.67-5.00.

Based on Table 4, the average subject answers the dimensions of empathy and responsiveness in urban and rural areas. For the dimensions of empathy and responsiveness in urban areas, the average scores are (3.58 ± 0.94) and (3.49 ± 0.94), which fall into the moderate category. Whereas for the dimensions of empathy and responsiveness in rural areas, each had an average of (3.43 ± 0.99) and (3.563 ± 0.86), which falls into the moderate category; patients were not satisfied with the services provided.

Table 4. Subject answers to questions on the dimensions of empathy and responsiveness in urban and rural areas average score.

Dimension		Average	Standard Deviation	Category
Urban	Empathy	3.58	0.94	Moderate
	Responsiveness	3.49	0.94	Moderate
Rural	Empathy	3.43	0.99	Moderate
	Responsiveness	3.63	0.86	Moderate

Low: 1-2.33; Moderate: 2.33-3.66; High: 3.67-5.00.

According to results shown in Table 5, there is a significant difference between subject's satisfaction rate for the quality of service given in hospitals/public health centres/dental offices in urban and rural areas in terms of empathy dimension, namely administrative staff was able to complete administrative procedures and dental assistant responded promptly to patient's request and needs during treatment ($p<0.05$).

Table 5. The average level of patient satisfaction with the quality of health services at hospital, primary health care / dentist practices based on dimensions of empathy and responsiveness in urban and rural areas.

Questions	Urban				Rural				p-value
	Satisfied		Unsatisfied		Satisfied		Unsatisfied		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Empathy									
E1 Dentist's communication	3.80	0.79	2.37	1.07	3.76	0.79	2.69	1.14	0.859
E2 Dental assistant's communication	3.48	0.84	2.37	0.83	3.49	0.99	2.19	1.17	0.436
E3 Administrative staff's communication	3.77	0.80	2.53	1.12	3.32	0.97	2.06	1.00	0.000*
E4 Dentist's attention	3.77	0.91	2.42	1.22	3.85	0.83	2.13	1.02	0.552
E5 Dental assistant's attention	3.75	0.85	2.74	1.33	3.28	1.05	1.81	0.75	0.000*
E6 Administrative staff's attention	3.62	0.85	2.16	0.90	3.52	0.87	2.19	1.17	0.295
E7 Dentist know what patient need	3.79	0.78	2.53	1.02	3.80	0.77	2.31	1.20	0.758
E8 Dental assistant know what patient need	3.54	0.92	2.05	0.91	3.22	1.02	2.13	0.89	0.006
Responsiveness									
R1 Dentist's ability	3.73	0.83	2.11	1.05	3.84	0.83	2.25	1.06	0.097
R2 Dental assistant's ability	3.72	0.76	3.42	1.30	3.80	0.65	2.25	0.93	0.802
R3 Administrative staff's ability	3.49	0.89	2.26	0.87	3.64	0.69	2.00	0.73	0.152
R4 Dentist's response	3.66	0.85	2.42	1.02	3.81	0.75	2.31	1.01	0.105
R5 Dental assistant's response	3.49	0.91	2.42	0.84	3.73	0.70	2.06	0.77	0.018
R6 Administrative staff's response	3.43	0.89	2.21	0.85	3.44	0.84	2.31	1.14	0.567
R7 Dentist's skills	3.79	0.83	2.21	0.92	3.86	0.65	2.13	0.96	0.524
R8 Dental assistant's skills	3.57	0.88	2.21	1.03	3.76	0.68	2.06	0.85	0.048
R9 Administrative staff's skills	3.53	0.92	2.00	1.00	3.80	0.85	2.06	1.06	0.006
Total	61.93		40.42		61.92		36.94		
Mean	3.64		2.38		3.64		2.17		

*Mann Whitney Test; Significant p<0.05.

The quadrant of importance-performance analysis shown in Figures 2 and 3 (urban and rural areas) can be explained. In quadrant 1, importance is high, but performance is low. This quadrant is labelled as "concentrate here / top priority". Based on the survey conducted, the attributes included in quadrant 1 for Figure 2 are "R5" and Figure 3, namely "E2, E6, R6", which indicate that health services are considered necessary by patients, but the service is not satisfactory, so health care providers must improve the quality of their services.

In quadrant 2, high importance and high performance are observed. This quadrant is labelled as "keep up the good work". Based on the survey conducted, the attributes included in quadrant 2 for Figure 2 are "E3, E4, E5, E7, R2 R4" and Figure 3, namely "E1, E7, R1, R2, R4", which indicate that health services are considered necessary by patients and services are very satisfying so health care providers must maintain the quality of their services. In quadrant 3, low interest and low performance. This quadrant is labelled as "low priority". Based on the survey conducted, the attributes included in quadrant 3 for Figure 2 are "E2, E6, E8, R3, R6, R8, R9" and Figure 3, namely "E3, E5. E8, R3", which shows that health services are considered insignificant by patients and their services are also not satisfactory, but health care providers still have to improve the quality of service to satisfy the patients, with that being said, health care providers must maintain the quality of their services. In quadrant 4, low interest and high performance. This quadrant is labelled as "possible overkill". Based on the survey, the attributes included in quadrant 4 in Figure 2 are "E1, R1, R7" and Figure 3, which shows that health services are considered not crucial by patients, but the service is satisfactory.

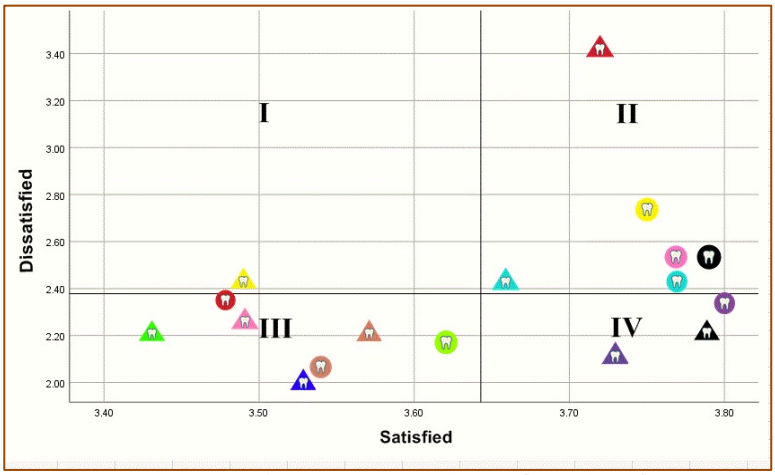
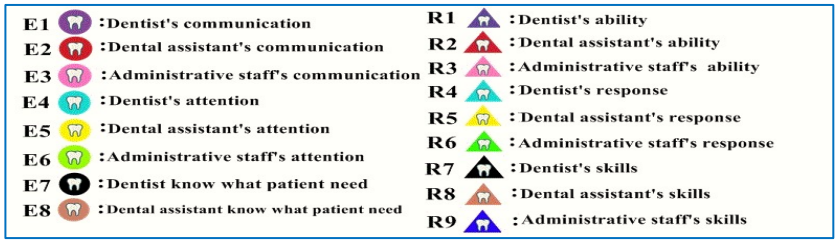


Figure 2. Importance-performance analysis quadrant in urban areas.



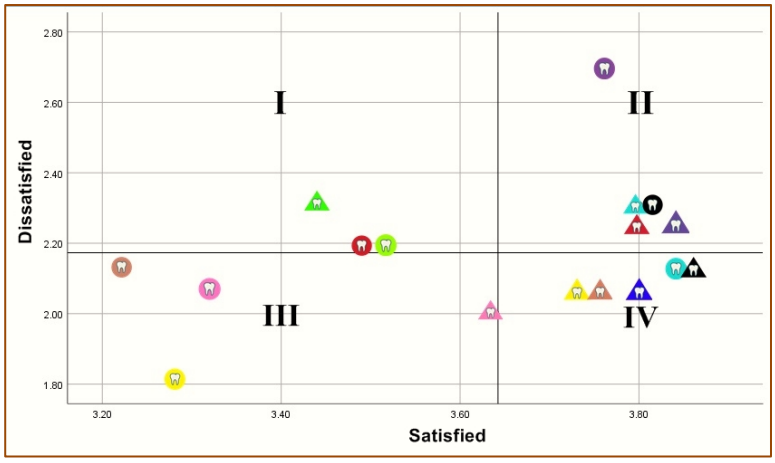
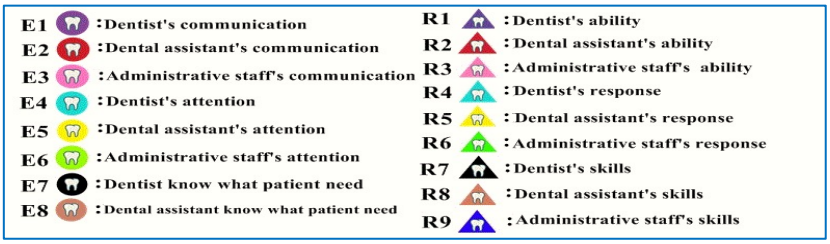


Figure 3. Importance-performance analysis quadrant in rural areas.



Discussion

This study has limited research dimensions in assessing satisfaction with service quality, but researchers present patient satisfaction on the dimensions of empathy and responsiveness. Based on the survey conducted in

Bone Regency, the results showed that patients seeking dental treatment have a female predilection. Previous studies conducted in Australia, Bandung, Malaysia, Arab, and Indonesia showed that more females visit health facilities than their male counterparts [14,23,27,30,31].

According to Table 2, results obtained for the dimensions of empathy in the urban and rural areas show that the average score falls into the moderate category. The interaction between patients and dental healthcare providers is significant and impacts the quality of health services [22,32,33]. Also, based on the results of the empathy dimension in rural areas, it can be seen that administrative staff's attention, dental assistant, and administrative explanation for patient's treatment fall into the moderate category. The results of this survey are consistent with another research conducted in Nigeria, where patients have the highest perception of dental assistants' knowledge regarding care to patients. This is also in line with another research conducted in North Mamuju, Indonesia, which stated that the higher the quality of service, the higher the level of satisfaction [23,34,35].

Based on Table 3, the survey results obtained in the responsive dimensions of urban and rural areas show that the average score falls into the moderate category. Based on the analysis conducted in Indonesia, patients stated that health services must reflect responsiveness [11,36]. In contrast to the research conducted in Hong Kong, patients were satisfied with the attention given by the dentist during treatment [37,38]. This study is also following research conducted in India, which stated that dentists should encourage patients to participate in decision-making and verify their willingness and ability to follow treatment plans. This can help maintain good relationships between the dentist and the patient [39,40,41]. The results of this survey are under research conducted in Malaysia, where the ability of medical personnel influences patients' assessment of service quality. Patients want health staff, including dental assistants, who have good ability and provide adequate information to patients [28,42,43].

The dimensions of empathy and responsiveness in urban and rural areas fall into the moderate category (Table 4). Demonstrate that interactions between patients and health care providers are fundamental and affect the quality of health services. The most important thing that must be well prepared and managed by the hospital is the health care providers' high level of empathy toward patients (for example, caring, communicative, and polite) [11,22]. In another study conducted in Iran, the highest expectation score was also related to responsiveness dimensions. If hospitals improve services and patient satisfaction, on a responsive dimension, in the first instance, staff training about patient needs is very important [22,44].

Based on the results in Table 5, questions that are of significant value to patient satisfaction in urban and rural areas are administrative staff, explanations regarding administrative procedures are provided, and dental assistants paying attention to listening to patient complaints. These results are consistent with studies of the quality of hospital services from a patient perspective. Indonesian patients need more empathy than professionalism, while patients in other countries need the opposite [11,29]. The results are also consistent with the research conducted in Vietnam, where many patients expressed their concern about the attitudes of some medical staff and doctors. In the context of health services, it seems that patients are more dissatisfied with the attitude of medical staff that are less friendly or attentive [46-49].

The results of the Importance-Performance Analysis in Figure 2 in the urban area and Figure 3 in the rural area show that the average answer of satisfied subjects is in quadrant II and is not satisfied in quadrant III. For dentists, dental assistants, and administrative staff to achieve a high level of satisfaction with dental services, they should highlight the importance of giving patients further explanations of their treatment options. Dentists have to focus on completing treatment as quickly as possible to minimize waiting time, and they also concentrate

on explaining care and treatment options for patients to their satisfaction. However, it can be understood that dental care cannot be done in a short time [24,45,50].

Conclusion

Based on the research conducted in Bone Regency, the analysis of the results shows that dimensions of empathy and responsiveness influence the quality of dental treatment services. Dimensions of empathy and responsiveness fall into the moderate category in rural and urban areas; this means that dental treatments in hospital/public health center/dental offices, empathy and responsiveness need to be improved to reach higher patient satisfaction.

Following Importance-Performance Analysis, most subjects in urban and rural areas that are satisfied are in the II quadrant, and those who are not satisfied are in the III quadrant; this can be used to identify the strength and weakness of the service given to the patients. The four-quadrant matrix help identify areas that need improvement and compromise a plan to minimize patients' dissatisfaction with the health care they receive. This also helps give knowledge regarding targets that need a specific and correct strategy to improve them.

Authors' Contributions

FHA	https://orcid.org/0000-0003-4819-4820	Conceptualization, Methodology, Validation, Formal Analysis, Investigation, Writing - Original Draft, Writing - Review and Editing and Visualization.
AHA	https://orcid.org/0000-0002-0837-7975	Methodology, Formal Analysis, Data Curation and Writing - Review and Editing.
FR	https://orcid.org/0000-0002-5213-4997	Conceptualization, Methodology, Validation, Investigation and Writing - Review and Editing.

All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

Financial Support

None.

Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

References

[1] Budiwan V, Efendi. The understanding of Indonesian patients of hospital service quality in Singapore. Procedia Soc Behav Sci 2016; 224:176-83. https://doi.org/10.1016/j.sbspro.2016.05.436

[2] Shafiq M, Naeem M.A, Munawar Z, Fatima I. Service quality assessment of hospitals in Asian context: an empirical evidence from Pakistan. Inquiry 2017; 54:46958017714664. https://doi.org/10.1177/0046958017714664

[3] Ministry of Health of The Republic of Indonesia. Law Number 44 of 2009 on Hospital (State Gazette of the Republic of Indonesia of 2009 Number 153, Supplement to the State Gazette of the Republic of Indonesia Number 5072). Jakarta; 2009. [In Indonesian].

[4] Ministry of Health of The Republic of Indonesia. Regulation of the Minister of Health of the Republic of Indonesia Number 4 Year 2018 About Obligations of Hospitals and Patient Responsibilities. Jakarta; 2018. [In Indonesian].

[5] Bahadori M, Raadabadi M, Ravangard, Baldacchino D. Factors Affecting dental service quality. Int J Health Care Qual Assur 2015; 28(7):678-9. https://doi.org/10.1108/IJHCQA-12-2014-0112

[6] Adebayo ET, Adesina BY, Ahaji LE, Hussein NA. Patient assessment of the quality of dental care services in a Nigerian hospital. J Hosp Adm 2014; 3(6):20-1. https://doi.org/10.5430/jha.v3n6p20

[7] Parasuraman A, Zeithaml VA, Berry LL. A Conceptual model of service quality and its implications for future research. J Mark 1985; 49(4):41-50. https://doi.org/10.1177/002224298504900403

[8] Isaac T, Zaslavsky AM, Clear PD, Landon B. The relationship between patients' perception of care and measures of hospital quality and safety. Health Serv Res 2010; 45(4):1024-5. https://doi.org/10.1111/j.1475-6773.2010.01122.x

[9] Dahyanto D, Arofiati F. The analysis of inpatients satisfaction on service quality at Yogyakarta Respira Hospital. JMMR 2018; 7(2):162-9. https://doi.org/10.18196/jmmr.7269

[10] Byarugaba JM. Health service quality as perceived by patients of referral hospitals in Uganda. Int J Contemp Manag 2013; 99-112.
[11] Handayani PW, Hidayanto AZ, Sandhyaduhita P, Kasiyah, Dumilah A. Strategic hospital services quality analysis in Indonesia. Expert Syst Appl 2015; 42(6):3067-78. https://doi.org/10.1016/j.eswa.2014.11.065
[12] Bahannan S, Eltelety S, Hassan MH, Ibrahim S, Amer H, Meligy O, et al. Oral and dental health status among adolescents with limited access to dental care services in Jeddah. Dent J 2018; 6(2):15. https://doi.org/10.3390/dj6020015
[13] Nemati S, Ghasempour M, Khafr S. Impact of oral and dental health on quality of life in Iranian preschool children and their families. Electron Physician 2016; 8(11):3296-3301. https://doi.org/10.19082/3296
[14] Mariño R, Giacaman RA. Patterns of use of oral health care services and barriers to dental care among ambulatory older Chilean. BMC Oral Health 2017; 17(1):38. https://doi.org/10.1186/s12903-016-0329-2
[15] Rocha J, Pinto A, Batista M, Paula de JS, Ambrosano G. The importance of the evaluation of expectations and perceptions to improve the dental service quality. Int J Health Care Qual Assur 2017; 30(6):568-70. https://doi.org/10.1108/IJHCQA-01-2016-0008
[16] Bhat N,Sultane P, Chhabra S, Choudhary S, Nandini S, Jolly T, Deekshita P, et al. Assessment of patient satisfaction toward dental care services of patients visiting dental schools in Udaipur, Rajasthan, India. Int J Oral Health Dent 2017; 5(1):34-41. https://doi.org/10.5005/jp-journals-10051-0079
[17] Tashkandi F, Lama O, Lingawi H. Patients' satisfaction with dental care services provided by educational dental hospital. IJHSR 2017; 7(6):135-36.
[18] John J, Fekriah M, Shani A. Measuring service quality of public dental health care facilities in Kelantan, Malaysia. Asia Pac J Public Health 2011; 23(5):742-53. https://doi.org/10.1177/1010539509357341
[19] Saeed AA, Mohamed BA. Patients' perspective on factors affecting utilization of primary health care centers in Riyadh, Saudi Arabia. Saudi Med Journal 2002; 23(10):1237-42.
[20] Rezaei S, Matin B, Moradi K, Bijan B, Masoud F, Behnam S, et al. Measurement of quality of educational hospital services by the SERVQUAL model: The Iranian patients' perspective. Electron Physician 2016; 8(3):2101-6. https://doi.org/10.19082/2101
[21] Kotler P, Keller K. Marketing Management. 12th. Ed. New Jersey: Pearson Prentice Hall; 2006. 413-414p.
[22] Dopeykar N, Bahadori M, Mehdizadeh P, Ravangard R, Mahmood S, Seyed MH. Assessing the quality of dental services using SERVQUAL model. Dent Res J 2018; 15(6):430-6. https://doi.org/10.4103/1735-3327.245230
[23] Adebayo T, Adesina B.A, Ahaji L, Hussein N.A. Patient assessment of the quality of dental care services in a Nigerian hospital. J Hosp Adm 2014; 3(6):20-8. https://doi.org/10.5430/jha.v3n6p20
[24] Dewi FD, Grita S, Yevis M. Patient satisfaction analysis on service quality of dental health care based on empathy and responsiveness. Dent Res J 2011; 8(4):172-7. https://doi.org/10.4103/1735-3327.86032
[25] Bone District Health Office. Bone District Health Profile. Health Profile of Bone Regency. Chapter V Health Resource Situation; 2015. 88-96p. [In Indonesian].
[26] Ministry of Health of the Republic of Indonesia in 2013. Indonesian Medical Council Secretariat ratio of dentists per 100,000 population in Indonesia in 2013. 13p. [In Indonesian].
[27] Al-Damen R. Health care service quality and its impact on patient satisfaction "Case of Al-Bashir Hospital." Int J Bus Manag 2017; 12(9):136. https://doi.org/10.5539/ijbm.v12n9p136
[28] Sulaiman A, Hisham NH. Applying importance-performance analysis to information systems: an exploratory case study. JIITO 2008; 3(3):95-103. https://doi.org/10.28945/132
[29] World Health Organization. Oral Health Surveys: Basic Methods. 5th. Ed. Geneve: WHO; 2013. 18-20p.
[30] Akbar FH, Ayuandika U. Gender and age differences in patient satisfaction with dental care in the urban and rural areas of Indonesia: Pilot pathfinder survey. Pesqui Bras Odontopediatria Clin Integr 2018; 18(1):e4093. https://doi.org/10.4034/PBOCI.2018.181.80
[31] Akbar FH, Pasiga B, Samad R, Pratiwi R, Awar AI, Djamaluddin N, et al. Evaluation of expectations and perceptions on quality of dental services in Bantaeng District, South Sulawesi, Indonesia, 2018. J Int Dent Med Res 2018; 11(3):938-44.
[32] Guadagnolo BA, Cina K, Koop B, Brunette D. A Pre-post survey analysis of satisfaction with health care and medical mistrust after patient navigation for American Indian cancer patients. J Health Care Poor Underserved 2011; 22(4):1-7. https://doi.org/10.1353/hpu.2011.0115
[33] Badohari M, Ravangard R, Asghari B. Perceived barriers affecting access to preventive dental services: application of DEMATEL method. Iran Red Crescent Med J 2013; 15(8):659-61. https://doi.org/10.5812/ircmj.11810
[34] Kim TY. T test as a parametric statistic. Korean J Anesthesiol 2015; 68(6):540-6. https://doi.org/10.4097/kjae.2015.68.6.540
[35] Akbar FH, Pasiga BD, Montho R. Association between service health quality and patient satisfaction – a case study of people in North Mamuju, Indonesia 2017. Int J Manag 2017; 8(1):168-74.
[36] Aliman NK, Mohamad WN. Perceptions of service quality and behavioral intentions: a mediation effect of patient satisfaction in the private health care in Malaysia. Int J Mark Stud 2013; 5(4):15-29. https://doi.org/10.5539/ijms.v5n4p15

[37] Akbar FH, Pasiga B. Patient satisfaction level with health care quality at Dental Hospital of Hasanuddin University. Adv Social Sci Educ Human Res 2018; 127:253-8. https://doi.org/10.2991/icaaip-17.2018.59

[38] Luo JY, Liu PP, Wong MC. Patients' satisfaction with dental care: a qualitative study to develop a satisfaction instrument. BMC Oral Health 2018; 18:1-10. https://doi.org/10.1186/s12903-018-0477-7

[39] Akbar FH, Pratiwi R, Cendikiawan R. Relationship between oral health status with knowledge, attitude, and behavior of elementary school children. J Int Dent Med Res 2017; 10(3):921-6.

[40] Schneider B, White S. Service Quality Research Perspective. Los Angeles: Sage Publication; 2004. 30-1p.

[41] Kadanakuppe S. Effective Communication and empathy skills in dentistry for better dentist-patient relationships. J Dent Probl Solut 2015; 2(3):58-59. https://doi.org/10.17352/2394-8418.000020

[42] Akbar FH, Pratiwi R, Samad R, Fanissa F. Patient satisfaction on health service center in urban and rural area. Adv Health Sci Res 2017; 2:92-9. https://doi.org/10.2991/hsic-17.2017.14

[43] Hassali MA, Alian AA, Basyirah AAR, Saleh KA, Fahad S, Noman UH, et al. Assessment of general of public health care services in kedah Malaysia. Australas Med J 2014; 7(1):35-44. https://doi.org/10.4066/AMJ.2014.1936

[44] Aghamolaei T, Eftekhaari TE, Rafati S, Kahnouj K, Ahangari S. Service quality assessment of a referral hospital in Southern Iran with SERVQUAL technique:patients' perspective. BMC Health Serv Res 2014; 14:332. https://doi.org/10.1186/1472-6963-14-322

[45] Cong NT, Mai NT. Service quality and its impact on patient satisfaction: an investigation in Vietnamese public hospitals. JEEIR 2014; 2(1):66-78. https://doi.org/10.24191/jeeir.v2i1.9136

[46] Akbar FH, Pratiwi R. Patient Satisfaction against the quality of dental health services at dental polyclinic of Tenriawaru General Hospital in Bone Regency. J Dentomaxillofac Sci 1(3):177-84. https://doi.org/10.15562/jdmfs.v1i3.313

[47] Akbar FH, Pasinringi S, Awang AH. Factors affecting dental center service quality in Indonesia. Pesqui Bras Odontopediatria Clín Integr 2019, 19:e4269. https://doi.org/10.4034/PBOCI.2019.191.53

[48] Husain FA, Tatengkeng F. Oral health-related quality of life appraised by OHIP-14 between urban and rural areas in Kutai Kartanegara Regency, Indonesia: pilot pathfinder survey. Open Dent J 2017; 11:557-64. https://doi.org/10.2174/1874210601711010557

[49] Akbar FH, Pasinringi S, Awang AH. Assessment of patient satisfaction level to dental health care services in Indonesia. Pesqui Bras Odontopediatria Clín Integr 2020; 20:e4825. https://doi.org/10.1590/pboci.2020.077

[50] Akbar FH, Pasinringi S, Awang AH. Relationship between health service access to dental conditions in urban and rural areas in Indonesia. Pesqui Bras Odontopediatria Clín Integr 2019, 19:e4652. https://doi.org/10.4034/PBOCI.2019.191.83