

## Original Article

# Patient satisfaction analysis on service quality of dental health care based on empathy and responsiveness

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## ABSTRACT

**Background:** Transformation of health care is underway from sellers' market to consumers' market, where the satisfaction of the patients' need is a primary concern while defining the service quality. Hence, commitment to provide a high-quality service and achieving patients' satisfaction becomes an important issue for dental health care provider. The aim of this research is to investigate the quality of dental health care service based on empathy and responsiveness aspects.

**Methods:** A total of 90 questionnaires were completed by the dental patients who came to dental polyclinic located in Government Hospital, West Java, Indonesia. The questionnaire was concerned on two dimensions of service quality model, i.e. empathy and responsiveness. The obtained data were analyzed using inferential statistics (*t* test) and also descriptive statistics with importance-performance analysis.

**Results:** All the attributes tested by *t* test showed that perception and expectation differed significantly, except for responsiveness, i.e. ability of dental assistants in assisting the dentist (*t* test  $0.505 < t$  table 1.987). The most important factor in evaluating patient satisfaction is the response given by administration staff related to long waiting time (*t* test 5.377), followed by dental assistant's knowledge about the patient's need during treatment (*t* test 4.822) and explanation that was given by dentist (*t* test 4.700).

**Conclusion:** It can be inferred from IPA that priority should be given to dentist's communication and dental assistant's knowledge toward patient's needs to enhance the service quality.

**Key Words:** Dental health services, empathy, responsiveness, satisfaction, service quality

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## INTRODUCTION

The decrease in caries prevalence is a worldwide trend, but it is evident in developing countries and it is of concern for the government. According to national health system in Indonesia, health care service is the main factor that can reach and provide a healthy life to the society.

Nowadays, transformation of health care is underway

from sellers' market to consumers' market where the satisfaction of the patient's need is part of definition of quality.<sup>[1]</sup> Hence, commitment to provide a high-quality service and achieving patient's satisfaction become important issues for the dental health care provider.

Quality of care from the patients' perspectives and patient satisfaction are two major multidimensional concepts that are used several times interchangeably. Quality of care has a subjective profile, as it involves cognitive evaluation process or a structural measure. On the other hand, patient satisfaction tends to have an objective profile and determinant, which is patients' subjection.<sup>[2]</sup>

Kotler defined satisfaction as: "a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance or outcome, in

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relation to his or her expectations".<sup>[3]</sup> Limited number of studies have examined the fulfillment of patient's expectations by comparing patient's views on ideal behavior and the actual behavior of dentists.<sup>[4]</sup> These studies clearly show the gap that exists between the sort of service patients hope to receive and the service they actually receive.

Most studies on patient satisfaction actually explore patients' perception of various service quality attributes. The service quality dimensions by the service quality (SERVQUAL) model are *Tangibles*, *Empathy*, *Reliability*, *Responsiveness*, and *Assurance*, which are very useful in this regard.<sup>[5]</sup>

*Service Quality (SQ) = Perceived Quality (PQ) – Expected Quality (EQ)*, for every question.

$E > P$ ; *Dissatisfied*

$E = P$ ; *Satisfied*

$E < P$ ; *Highly satisfied*

Expectations and demands regarding empathy (approach to the patient), assurance and responsiveness were placed at the top of the patient's priority.<sup>[6]</sup> Communication skill, a component of empathy, has been shown to be important in limiting patient dissatisfaction (e.g. explanation of illness, dental treatment and confidentiality of medical records).<sup>[7,8]</sup> On the other hand, a study conducted by Goedhart *et al*, where the attendees examined in Holland, found that communication skills of dental personnel were relatively undervalued compared to various aspects of treatment quality.<sup>[9]</sup> Based on these findings, this study attempts to identify the relative importance of two dimensions of SERVQUAL model, i.e. empathy and responsiveness, in patient evaluation.

Importance–performance analysis (IPA) is used in many areas to provide insight into customers' (i.e. patients') evaluation of critical issues in service quality.<sup>[10,11]</sup> The importance (expectation) and performance (perceived satisfaction) of service quality were analyzed using IPA by categorizing them into four quadrants, as shown in Figure 1.<sup>[11,12]</sup>

The IPA framework was proposed by Martilla and James in marketing research in order to understand customer satisfaction as a function of both expectation concerning the significant attributes and judgments about their performance. Hence, importance and performance data are plotted on a two-dimensional grid with importance on the y-axis and performance on the x-axis as in Figure 1. The data are then mapped into four quadrants.<sup>[12,13]</sup>

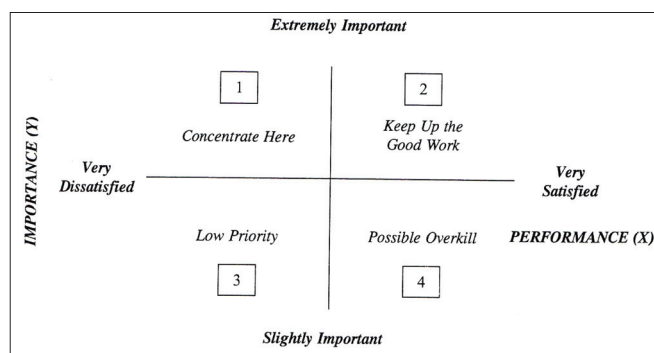


Figure 1: Importance–performance grid

## MATERIALS AND METHODS

The participants for this study were the literate dental patients at dental polyclinic located in Government Hospital, West Java, Indonesia. The sample consisted of 90 participants based on average monthly population of 564 dental patients, a 10% precision level where the confidence level is 95% and  $P=0.5$ .<sup>[14]</sup> This sample size was estimated to provide significant differences between patients' perception and expectation.

This questionnaire-based study was divided into two parts. The first part of the questionnaire contained questions relating to socio-demographic data about the patients. The second part was designed to measure the patients' perception and expectation. The questionnaire was concerned on two dimensions of SERVQUAL, i.e. empathy and responsiveness aspects. As seen in Table 1, questionnaire on empathy aspect covered communication, attention and knowledge about patients' need by dentists, dental assistants and administration staff. From responsiveness aspect, the questionnaire included ability, response and skill from the same objectives.

The original SERVQUAL model included a pair of questions for each item. One of the statements measured perception and the other measured expectation. The questionnaire conducted in positive statement, using a 5-point Likert scale, where the items are scored as "strongly agree/importance (5)", "agree/importance (4)", "not sure (3)", "disagree/unimportance (2)" and "strongly disagree/unimportance (1)". An overall service quality score was derived by subtracting the expectation statement value from the perception statement value (perception minus expectation).

The data obtained were analyzed using inferential and descriptive statistics. The descriptive method is used

**Table 1: Explanation of measurement variable for the latent constructs**

Variable	Attributes	Respondent	Explanation
Empathy	Communication	Dentist	Listen to the complaint as best interest; explain about the treatment and administration procedures
		Dental assistant	
		Administration staff	
	Attention	Dentist	Give personal attention to the patient
		Dental assistant	
		Administration staff	
	Knowledge about needs	Dentist	Know the patient's needs regarding treatment for chief complaint
		Dental assistant	
Responsiveness	Ability	Dentist	Able to help and complete all the procedures to patient (treatment, administration)
		Dental assistant	
		Administration staff	
	Response	Dentist	Respond promptly to patient's request
		Dental assistant	
		Administration staff	
	Skilful	Dentist	Capable of doing all the standard procedures (treatment, administration)
		Dental assistant	
		Administration staff	

to map on IPA. The perception can be determined from the performance (X) given by the dental staff, based on patient's experience. Expectation can be measured from the importance (Y) of each question, based on patient's opinion. Inferential statistics (*t* test) was entered onto statistical package for social sciences (SPSS) for Windows software to analyze the differences between the perception and expectation of the patient on the service quality of oral health services, regarding responsiveness and empathy aspects.

## RESULTS

Table 2 shows the socio-demographics of the patients. As can be seen from Table 2, the gender distribution showed 46.67% females and 53.33% males. The highest proportion of the patients (42.22%) was of the age group between 21 and 30 years, followed by the 31–40 year age group (24.44%). The educational level of patients ranged from senior high school (56.67%), followed by junior high school (18.89%), university degree (11.11%), to diploma and elementary school (6.67%). A variety of occupations were reported by the patients. The highest frequencies were of private

**Table 2: Profile of the respondents (n=90)**

Characteristics	Frequency	%
Gender		
Male	42	46.67
Female	48	53.33
Age group (years)		
<11	1	1.11
11–20	12	13.33
21–30	38	42.22
31–40	22	24.44
41–50	14	15.56
51–60	2	2.22
>60	1	1.11
Education		
Elementary school	6	6.67
Junior high school	17	18.89
Senior high school	51	56.67
Diploma college	6	6.67
University degree	10	11.11
Occupation		
Unemployed	26	28.89
Government	4	4.44
Private sector	37	41.11
Own business	14	15.56
Retired	1	1.11
Teacher	1	1.11
Housewife	3	3.33
Student	4	4.44

sector (41.11%) employees, followed by unemployed patients (28.89%).

The results obtained by *t* test, as presented in Table 3, showed significant difference between perception and expectation of the patient, where *t* test > *t* table; except for an indicator, i.e. the ability of dental assistant in assisting dentist (*t* test 0.505 < *t* table 1.987), which is not significant.

An examination for the two dimensions of SERVQUAL model indicated that the three highest gap scores in predicting patient satisfaction evaluation were response by administration staff related to long waiting time (0.62±1.07), followed by dental assistant's knowledge about patient's needs during treatment (0.38±0.74) and communication related to explanation for the treatment that was given by dentist (0.32±0.65). On the other hand, the least gap obtained from the data are dental assistant's ability in assisting the dentist (0.03±0.63), followed by dentist's knowledge about the patient's need and ability of the dentist to help (0.21±0.81) and instill confidence in the patient about the treatment (0.21±0.63).

The importance–performance grid shown in Figure 2

**Table 3: Assessment of perception, expectation and gap from questionnaires**

Question	Perception (X)		Expectation (Y)		Gap		t test
	Mean	SD	Mean	SD	Mean	SD	
<b>Empathy</b>							
Dentist gave explanation related to the patient's treatment (Q1)	4.14	0.57	4.47	0.50	0.32	0.65	4.700*
Dental assistant gave explanation related to the patient's treatment (Q2)	4.00	0.79	4.24	0.64	0.24	0.81	2.857*
Administration staff gave explanation related to administration procedures (Q3)	4.09	0.70	4.36	0.66	0.27	0.68	3.700*
Dentist gave personal attention in listening to the patient's complaint (Q4)	4.37	0.66	4.64	0.53	0.28	0.73	3.586*
Dental assistant gave personal attention in listening to the patient's complaint (Q5)	4.22	0.67	4.52	0.50	0.30	0.69	4.009*
Administration staff gave personal attention to registration procedures (Q6)	4.16	0.79	4.46	0.54	0.30	0.89	3.33*
Dentist's knowledge regarding the patient's needs for the treatment (Q7)	4.34	0.74	4.56	0.54	0.21	0.81	2.460*
Dental assistant's knowledge regarding the patient's needs for the treatment (Q8)	4.06	0.71	4.43	0.62	0.38	0.74	4.822*
<b>Responsiveness</b>							
Dentist was able to help and instill confidence in the patient on the treatment (Q9)	4.34	0.66	4.56	0.52	0.21	0.63	3.194*
Dental assistant was able to assist the dentist during treatment (Q10)	4.31	0.55	4.34	0.54	0.03	0.63	0.505
Administration staff was able to complete administration procedures (Q11)	4.11	0.66	4.33	0.62	0.22	0.65	3.245*
Dentist responded promptly to patient's request and needs during treatment (Q12)	4.23	0.82	4.47	0.67	0.23	0.96	2.305*
Dental assistant responded promptly to patient's request and needs during treatment (Q13)	3.93	0.76	4.27	0.63	0.33	0.79	4.099*
Administration staff responded promptly related to long time waiting (Q14)	3.66	1.12	4.28	0.69	0.62	1.07	5.377*
Dentist was capable and adept in doing all procedures (treatment) (Q15)	4.24	0.71	4.47	0.67	0.22	0.80	2.622*
Dental assistant was capable and adept in doing all procedures (assisting the dentist in the treatment) (Q16)	4.10	0.74	4.37	0.63	0.27	0.60	4.246*
Administration staff was capable and adept in doing all administration procedures (Q17)	4.07	0.93	4.38	0.57	0.31	0.82	3.616*
Total	70.38		75.13				
Mean	4.14		4.42				

\*t table 1.987, sig t test > t table

can be explained as follows. In quadrant 1, importance is high but performance is low. This quadrant is labeled as “concentrate here”. According to our study, attributes 1 and 8 belong to this quadrant, which indicates that the existing dental service requires urgent corrective action and thus should be given top priority. Items in quadrant 2 are labeled as “keep up with the good work”. The results of this study show that attributes 4, 5, 6, 7, 9, 12, and 15 are under quadrant 2, which indicate high importance and high performance, i.e. the existing dental service has strength and should continue to be maintained. The third quadrant labeled as “low priority” is the category of low importance and low performance. In our study, attributes 2, 3, 11, 13, 14, 16, and 17 were having low performance and also were not perceived to be an important feature by the patients. Finally, quadrant 4 labeled as “possible overkill” represents low importance and high performance. Only attribute 10 is in this quadrant, which suggests insignificant strength and a possibility that the resources invested may be better diverted elsewhere. In this study, patients attached only slight importance to this attribute. However, there may be other good reasons for continuing this performance.

## DISCUSSION

The questionnaire tries to measure the level of importance as well as performance of quality attributes. Results obtained show that in drawing up an opinion of the service quality, patients give different levels of importance to different aspects of the services. Most of the patients who participated in this study were dissatisfied with the responses by the administration staff related to long time waiting, followed by dental assistant's knowledge about the patient's need regarding the chief complaint, and explanation that was given by the dentist.

The results show that long waiting time for the treatment seemed to be the main reason for patient dissatisfaction in Government Hospital, West Java, Indonesia. This is in concordance with several studies reporting that waiting time was the least satisfactory issue.<sup>[15-18]</sup> Dissatisfaction with waiting time in the clinic reveals an important problem that needs to be resolved, possibly through limiting the number of patients to reduce the waiting time.<sup>[15]</sup> But it is difficult to apply in this hospital, as the number of patients in need of dental treatment are quite high. The



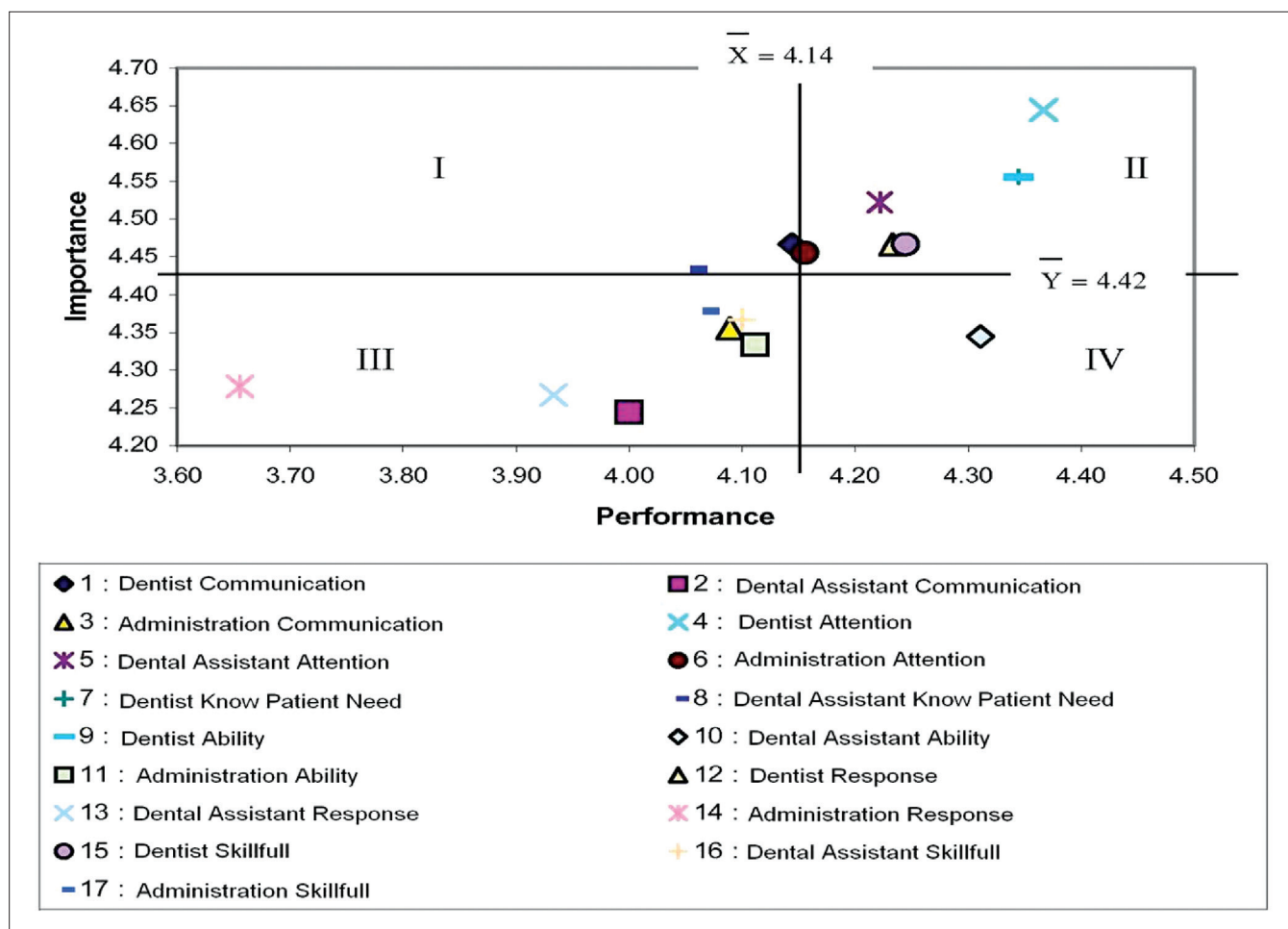


Figure 2: Importance–performance analysis grid

possible way to solve the problem is by increasing the numbers of dental staff in the polyclinic, as well as the dental chairs. Making a proper appointment with time schedule can minimize dissatisfaction with an exception for emergency cases.

The other reason for dissatisfaction, as seen from the results obtained, was dental assistant’s knowledge regarding patient’s needs for the treatment and communication related to explanation of treatment given by the dentist. Limited studies were concerned with dental assistant’s knowledge about patient’s needs, even though in this study it is shown to be an important aspect. Many times, patients felt reluctant in discussing their complaints with the dentist and they felt more comfortable to explain their complaints to the dental assistant. When this happens, dental assistant becomes the bridge between the dentist and patient. Also, during the treatment, while the dentist focuses on the teeth, it is the dental assistant who informs the dentist about the patient’s pain and uncomfotability. Prior to the treatment, dental

assistants can be asked to enquire the patient’s complaint before sending them to the dentist for instrument preparation purposed. In this situation, definitely a supportive dental assistant with high ettiquette can account for higher satisfaction.<sup>[17,19]</sup>

It was found that the explanation given by a dentist about the treatment was an important aspect and received low satisfaction. This is in accordance with several studies which indicated that the doctor’s explanation of illness and treatment options to the patient received a low evaluation.<sup>[7,15,20]</sup> On the other hand, this result contrasted with another investigation, where the mannerism of dental surgeons, initial examination, accurate diagnosis and explanation of the treatment received “good” score in patient satisfaction.<sup>[17,19]</sup> Providing the patient with further explanation of their treatment options should be highlighted by the dentist to achieve high level of satisfaction with dental service.<sup>[7]</sup> Dentist should not only be focused on finishing the treatment as fast as possible just to minimize the waiting time, but also

concentrate on explanation of the treatment as well as the treatment options to the patient, to their satisfaction.

With reference to IPA, it identifies the strengths and weaknesses of dental service offered to the patients. The four-quadrant matrix organization helps to identify the areas for improvement and to plan actions for minimizing the gap between importance and performance.<sup>[13]</sup> In this study, after mapping importance–performance grid, it is found that dental assistant’s knowledge about the patient’s needs during treatment and dentist’s communication demanded top priority to enhance the service quality and need to be managed and monitor accordingly. On the other hand, while the highest gap was that of administration staff’s response regarding long waiting time, which showed low priority, it did not pose a threat for discontinuation. Similar findings from another study mentioned the three least important decision-forming factors for patients to be opening hours, waiting time and time spent with the dentist.<sup>[21]</sup> But it can be understood that dental treatment cannot be done in a short time. For this, the patients need some explanation from the administration staff regarding the prediction of waiting time for their treatment.

## CONCLUSION

The combination of *t* test analysis with mapping on important–performance grid offers a number of advantages for evaluating patient’s acceptance of quality services. It can be inferred from the IPA that priority should be given to dentist’s communication. This also provides an insight about the targets that need appropriate strategies to improve.

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