



Gap Analysis: Patient Expectations and Perceptions of Dental Service Quality in Hyderabad City, India

Shoeb Ahmed Ilyas

Centre for Economic and Social Studies, Nizamiah Observatory Campus, Begumpet, Hyderabad, Pin code: 500016, India

ABSTRACT

Background: Dental hospitals share substantial commonalities in their delivery of technical services, monitoring of the non-technical aspects of dental service quality is essential for patient satisfaction. This study aims to measure the service quality gap of patients' perceptions and expectations in five dimensions at a dental facility in Hyderabad city, India using the SERVQUAL tool. **Materials and Methods:** This was a cross-sectional and descriptive-analytical study conducted at a super specialty dental facility. The purpose of this research was to investigate patients' perceptions of dental service quality by measuring patients' expectations from dental service and perception of actual service provided and to identify areas of dental services that need improvement. Dental patients receiving dental care in multiple visits were selected. The required data were collected using the modified SERVQUAL questionnaire. Descriptive statistics and t-test were used to analyze subjects' responses. **Results:** Quality of services provided to patients was significantly lower than their expectations. The highest quality gap was related to affordability of dental treatment fees (-1.9) and lowest in communication and infection control practices of dental staff (-0.12) respectively. There was a significant difference between the patients' expectations and their perceptions of service provided concerning all dimensions. **Conclusion:** This study provides gaps in dental service quality to improve service quality standards effectively. The dental facility management should take steps toward improving the quality of services in all dimensions, especially affordability of dental treatment, through improving efficiency of dental services, meticulous costing and word of mouth referrals. The process of improving quality is continuous and incremental; hence one must not take big leap forward.

Keywords: Gap Analysis, Dental service quality, SERVQUAL, Patient satisfaction

INTRODUCTION

Service quality is defined as the difference between customer expectations of service and perceived service [1,2]. Dental health care assumes a more personal, intimate and lasting contact with the patient.

***Corresponding Author:**
shoebilyas[at]gmaildotcom

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Even the simplest dental procedure demands a long-lasting session. In dentistry, shared decision making and evaluation of dental services depends on both patient and dentist values of oral health care, personal treatment threshold, risk/benefit ratio, probability of success of treatment, and patient financial resources, all these factors influences the complex clinical decision-making process and mostly

depend on service needs of dental patients. To reduce uncertainty, dental patients will look for evidence of quality. Patients draw influences about quality from the place, people, equipment, communication material, symbols and price that they see and hear. Therefore dental service provider's task is to "manage the evidence to tangibilize the intangible [3]."

Generally, perceptions of high service quality are determined in part by the dentist's reputation [4], whereas patient satisfaction is mainly associated with short term service encounter and specific consumer judgments [5] such distinctions have considerable validity, due to their differential determinants of patient satisfaction and service quality. Patient satisfaction in dental care settings depends on the inter-relationships between patient expectations and perceptions of dental service quality [6]. Strong association exists between perception of service quality and patient satisfaction and also between service satisfaction and willingness to recommend service providers to friends and relatives [7]. Patient image of the dentist tangible clues, situational factors and patient satisfaction with the previous encounters appear to have the greatest influence on patient expectations whereas marketing variables such as price and advertising appear to have no affect on expectations [8].

The dental profession in India is facing an oversupply of dentists and allied dental health professionals over a few years. With increasing competition, inflation, increasing costs of dental materials, and third party dental coverage for the population is low when compared to developed countries; all these factors adversely affect the economic aspirations of dental service providers. Hospital management aims to achieve patient satisfaction, as a satisfied patient is a brand ambassador for any dental hospital. Hyderabad is a big financial city in India. The oral health care infrastructure includes public and private teaching dental hospitals, corporate dental hospitals, and small dental clinics. Hyderabad attracts many dental patients from outside the city mainly due to advanced oral health care facilities like dental implants, treatment of oral-facial defects like cleft lip, cleft palate and other reconstructive procedures, easy accessibility, well known dental surgeons and excellent dental equipment. Under Telangana State Government employees and Journalist's health scheme few dental hospitals in Hyderabad city are empanelled which have reimbursement facilities for dental treatments.

Dental hospitals are under increasing pressure to demonstrate their services as patient-focused and they undertake continuous quality improvements (QI) initiatives to improve performance improvement in service delivery as patient expectations must be properly understood and measured. From patient perspectives, any gaps in service quality are identified. This information then assists dental hospital managers in identifying cost-effective ways of closing service quality gaps and prioritizing which gaps to focus. Without adequate information on both the quality of service expected and perception of service received, the feedback from customer surveys can be highly misleading from both policy and operational perspective. This study address research questions "Do the attributes of dental service quality have any discrepancies in the patient expectations and actual perceptions of dental service quality".

METHODS

Gap theory of Parasuraman et al. (1985) [9], has defined service quality as 'a function of the gaps between the service expectations of consumers and their service perceptions. The most popular measure of service quality is SERVQUAL, an instrument developed by Parasuraman et al. (1988) [10]. In this study, dental service quality expectations and perceptions of patient responses were assessed using a modified version of the SERVQUAL questionnaire used by Mc. Alexander et al, 1994 [11], for a general dental clinic, which asses five attributes of dental service quality i.e. Reliability, Responsiveness,

Assurance, Empathy and Tangibles of dental service quality. Responses were graded on the five-point Likert scale. 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree.

A total of 132 dental patients visited dental facility for consultation and dental treatment in September 2019 to dental facility. Only 87 patients were eligible for the study as they were undergoing dental treatments in one or more visits. Below 18 years dental patients were excluded for the study. Eighty-seven structured questionnaires were administered. Only sixty-three questionnaires were received and only fifty were valid and eligible for analysis. This produced a total response and active response rates as 72.4% and 57.4 % respectively. According to Baruch (1999) cited in Saunder et al, (2007)^[12], a response rate of about 35% is considered reasonable. Wilcoxon signed ranked test was used to compare the distributions of the respondents' expectations and perceptions. Statistical significance was considered with a *P* value of less than .05.

The first part of the questionnaire is aimed at taking demographic details and measuring the expectations of the patients which describe how the state of services in the dental hospital should look like. The statements are framed in such a way that they express a desire of the respondents for a particular attribute of dental service quality. The second part of the questionnaire seeks to measure perceptions. Patients were asked to complete the part-1 expectation questionnaire before receiving dental treatment and part-2 perception questionnaire is given after receiving dental treatment to eliminate confounding factors and carry-over effect.

Ethical Consideration: Ethical clearance for this study was obtained from the dental facility Ethical Committee on research. Informed consent was taken before the administration of a questionnaire from all the participants by explaining the procedure of the survey and assuring their confidentiality.

RESULTS

Demographic characteristics such as age, gender, and educational level are important in shaping and assessing patients' satisfaction and perceived service quality in dental healthcare delivery. Table 1 shows detailed information on demographic data and background characteristics of respondents. The respondents' age varied as follows 18-30 (24 percent), 31-40 (34 percent), 41-50 (16 percent), and > 50 years (26 percent). 54 percent of the respondents were females whilst the remaining 46 percent were males. In total, 86 percent of the respondents had formal education ranging from graduation degree to post-graduation levels.

Table 1: Demographic profile of Respondents

Independent Variable	Number (n)	Percentage (%)
Age		
18-30 years	12	24
31-40 years	17	34
41-50 years	8	16
51-60 years	11	22
60+	2	4
Gender		
Male	23	46
Female	27	54

Education Level		
Primary	0	0
Board of Secondary	5	10
Board of Intermediate	2	4
Graduate Degree	24	48
Post Graduate Degree	19	38

The average expectation response scores (Table 2) ranged from 4.98 (E18: Dentist and Dental staff should take every precaution required to protect me from infections disease/infection control) to 4.24 (E4: There should not be a long waiting period between my first appointment and when I start my dental treatment). The average perception scores (Table 2) extends from 4.86 (P18: Dentist and dental staff take every precaution required to protect me from infectious diseases/infection control) to 2.8 (P14: The fees of dental facility is affordable).

Table 2: Summary of expectation, perception and gap scores of dental clinic patient response.

Variables	Expectation			Perception			Gap Scores		
	Mean	±	SD	Mean	±	SD	Mean	±	SD
1	4.56	±	6.67	4.32	±	5.74	-0.2	±	1.94
2	4.74	±	8.19	4.40	±	5.79	-0.3	±	3.04
3	4.42	±	5.81	4.00	±	3.84	-0.4	±	3.04
4	4.24	±	4.83	3.96	±	3.72	-0.3	±	1.55
5	4.64	±	7.07	4.16	±	4.43	-0.5	±	3.63
6	4.30	±	5.14	3.34	±	2.23	-1.0	±	3.65
7	4.54	±	6.43	3.90	±	3.69	-0.6	±	3.39
8	4.72	±	7.81	3.94	±	3.83	-0.8	±	5.27
9	4.26	±	4.89	2.96	±	1.50	-1.3	±	4.25
10	4.42	±	5.74	3.64	±	2.78	-0.8	±	3.96
11	4.34	±	5.29	4.22	±	4.97	-0.1	±	0.44
12	4.40	±	5.61	3.30	±	2.56	-1.1	±	4.74
13	4.38	±	5.56	3.02	±	1.56	-1.4	±	4.84
14	4.68	±	7.42	2.82	±	1.64	-1.9	±	6.89
15	4.70	±	7.76	4.12	±	4.59	-0.6	±	4.95
16	4.94	±	10.39	4.00	±	4.14	-0.9	±	8.99
17	4.34	±	5.29	3.54	±	3.47	-0.8	±	4.79
18	4.98	±	10.91	4.86	±	9.62	-0.1	±	1.49
19	4.30	±	5.14	4.08	±	4.62	-0.2	±	2.15

The discrepancy between perceptions and expectations (Perception – Expectation) formed the gap score that were used to assess dental service quality and patient satisfaction. Negative gap scores show that service quality is perceived poor and hence poor patient satisfaction while positive gap scores show that higher service quality and hence shows patient satisfaction. The highest gap score of -1.9 for the item affordability of dental treatment (P14-E14) and the minimum value of -0.12 are for items communication and infection control practices of dental staff (P11-E11 and P18-E18). Patients also have negative perceived impressions on fees, scheduling an appointment at a convenient time, on the explanation of dental procedures, flexibility of dental staff in meeting patient individual needs and

requirements and dentist interest in that as a person. The other variables like availability of dentists in an emergency, waiting time, treatment quality, trusting skills of the dentist, use of language and words, explanation of dental problems at first screening appointment, latest treatment, and technologies and manners of hospital receptionist were rated satisfactory. Wilcoxon test (Table 3) showed no significant difference in the scores of patient's expectations and perceptions at $p=0.05$ level of significance.

Table 3: Wilcoxon signed ranked test showing comparison of 'expectation' Vs 'perception' responses in dental clinic sample.

Questions	t - test results
E1 Vs P1	0.95*
E2 Vs P2	0.94*
E3 Vs P3	0.90*
E4 Vs P4	0.92*
E5 Vs P5	0.90*
E6 Vs P6	0.71*
E7 Vs P7	0.85*
E8 Vs P8	0.85*
E9 Vs P9	0.59*
E10 Vs P10	0.79*
E11 Vs P11	0.97*
E12 Vs P12	0.70*
E13 Vs P13	0.61*
E14 Vs P14	0.60*
E15 Vs P15	0.89*
E16 Vs P16	0.86*
E17 Vs P17	0.78*
E18 Vs P18	0.99*
E19 Vs P19	0.95*

* Non Significant at $P = 0.05$

DISCUSSION

Even though service quality is the new concept in dental care services, there is no substitute for measuring and maintaining service quality in today's competitive edge. Previous studies [13,14] showed the use of the SERVQUAL model as a tool for measuring service quality in dental health care services. According to the SERVQUAL model, the smaller the gap score the higher is patient satisfaction. In this study, all the dimensions have negative gap scores, which imply that none exceeded the patient's expectations. Similar findings were reported in other studies [15]. Patient's expectations of service care providers are highest in relation to affordability of dental treatment and patient's ranked communication and infection control practices of dental staff as the lowest perceived among all the dimensions. The mean gap score (table 2) was used to compute the satisfaction gap scores for each statement pair. The gap scores guide the dental health care providers to identify the key areas on which to focus quality improvement assessment.

With the rising cost of dental technology, dental materials, drugs, dental treatment modalities, increased patient expectations and the advent of third party payment systems into the oral health care sector, it is important for the dental facility to monitor service quality standards and improve patient satisfaction to sustain in long run. Dental facility must develop guidelines for incorporating gap analysis information while planning policies for service design and identify methods for closing gaps. Continuous monitoring of service quality is essential for maintaining service quality standards.

CONCLUSION

The measurement of service quality and patients' satisfaction is important to dental health care delivery because it is a concept integral to the provision of a better, more focused quality service for patients. In order to achieve this, it is clearly necessary to capture information on patient needs, expectations and perceptions so as to assess patient satisfaction about the service they receive. This study provides gaps in dental service quality to improve service quality standards effectively. The dental facility management should take steps toward improving the quality of services in all dimensions, especially affordability of dental treatment, through improving efficiency of dental services, meticulous costing and word of mouth referrals. The process of improving quality is continuous and incremental; hence one must not take big leap forward.

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