Service Quality in Health Care Centres: An Empirical Study

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Abstract

In today's highly competitive environment, Health care centers realize the importance of service quality as a measure to improve their competitive position. Consumer's perceptions about the health care services play an important role when choosing a hospital. In this paper, the service quality in corporate and non-corporate health care centers has been measured. Actually, this research work is the extension of the research work done by Sharma and Chahal, 2003 and Chahal and Sharma, 2004. The well-documented 'Service Quality model' was used as a conceptual framework for understanding service quality delivery in health care centers. An analysis covering a sample of 2.00 patients from corporate and non-corporate health care centers. The analysis revealed that the important service quality factors in health care centers are physician behaviour, supportive staff, atmospherics and operational performance. The corporate health care centre are highly rated them the non corporate health centers regarding all service quality factors. The perception on service quality factors in health care centers has a significant and positive impact on the patients' perception on the overall performance of the health care centre. The important discriminant service quality factors among the two type of health care centre are atmospherics and supportive staffs. The study suggests improvement across all service quality factors and formulation of suitable strategies for enhancing patients' satisfaction.

Key words: health care centers, service quality, customer perception

Introduction

India has been witnessing an increasing concern regarding the quality health care services especially after globalisation and liberalization policies. With the increase in urbanization and standard of living of the people, the awareness on health care services also increases. The consumer's expectation on the quality in health care services is increasing at a faster rate. Service quality has been shown to be an important element in the consumer's choice of hospitals (Lynch and Schuler, 1990). Quality in health care is defined as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs (Korwar, 1997). Health care service quality is giving patients what they want (patient quality) and what they need (professional quality), and doing so using fewest resources, without error, delays and waste, and within higher level regulations (management quality; Overtreit, 1992). The health care deals with different services such as hospital services, diagnosis services, physician consultancies and some other emerging fields. In the present study, the focusing services are all health care services together.

1.1 SERVQUAL and SERVPERF Model: An Overview

The SERVQUAL model was originally developed by Parasuraman et al., (1988) and later redefined in 1991 as a multi-dimensional scale to capture customer perceptions and expectations of service quality which involves the calculation of the differences between expectations and perceptions on a number of specified criteria (Brown et al., 1993). SERVQUAL highlights the major quality requirements of delivered service in five dimensions namely Reliability, Responsiveness, Assurance, Empathy and Tangibles (Zeithaml and Bitner, 2003; Zeithamal, 1990; and Buttle 1994).

The SERVQUAL model was identified by Cronin and Taylor (1992). Babakas and Boller (1992) have received a significant conceptual and empirical support in service research. The study of Brady et al., (2001) replicated the superiority of SERVPERF model for measuring service quality. Since the strategic value of using SERVPERF model can be better addressed through a focus on specific dimensions of service quality, especially with respect to their relevance to satisfaction and outcome variable (Smith 1995). The SERVPERF model measure the perception on various dimensions of service quality. In the present study, the SERVPERF model has been used to measure service quality.

2.1 Literature Review

The research literature on service quality has thrown numerous models by different researchers across the world. Lehtimere and Jukka (1985) present a holistic view to measure, monitor, and operational customer perceptions of service quality in health care organisation. John (1989) opined that there are four dimensions of health care service quality: these are the caring dimension, the access dimension, and the physical environment. Babakus and Glynn (1992) evaluated SERVQUAL for its potential usefulness in a hospital service environment. Sharma and Chahal (1999) identified the need of evaluating the service quality of health care service. Bowers et al., (1994) studied the five common attributes of quality from SERVQUAL model. Caring and communication were found to be significant. Three of the generic SERVQUAL dimensions were found to be related significantly to patient satisfaction: empathy, responsiveness and reliability.

Takeuchi and Quelch (1983) assessed the service quality of health care services by six dimensions: a) reliability, b) service quality, c) prestige, d) durability e) punctuality and f) ease of use. Walters (2001) judged the quality of service in health care organisation by reliability, availability, credibility, security, competence of staffs, understanding of customer needs, responsiveness to customers, courtesy of staffs, comfort of surroundings, communication between participants and associated goods provided with the service. Griffth and Alexander (2002) compared the service quality rendered by private and public hospitals in UAE. Rohini and Mahadevappa (2006) stratified the hospitals on the basis of specialty and non-specialty; Government-Private; and missionary, ISO-9000 certified and ISO-9000 non-certified. Abu Naser et al., (2006) analysed the customer expectations and perceptions towards health services through SERVQUAL model especially in Diagnosis services at Bangaladesh.

This literature review suggests a study for the existence of research gap in service quality of health care centre (corporate vs non-corporate) in India. To fill the research gap, a service quality perception study was undertaken in two corporate and two non-corporate hospitals in Madurai, Tamilnadu.

3.1 Research Objectives

The specific objectives of the study were to determine.

- The important service quality factors in the health care centre.
- How well the patients perceive the service quality factors of health care centre.
- The important discriminant service quality factors among the corporate and non-corporate health care service centre.
- The impact of service quality factors on the overall performance of the health care centre.

3.2 Data Collection and Generation of Scale Items

The study is based on the primary data collected through the construct which was tested and refined at three different stages (Sharma and Chahal, 2003). A standardized questionnaire was developed after the discussions on the aforesaid research problem with the panel of patients, academic and medical experts. The items in the construct used, take care of basic and integral components of health care services. Besides the demographic profile, the tested questionnaire consisted of 34 items on service quality pertaining to the components of health care delivery system designed within the framework of a Likert's five point scale (Chahal Hardeep, 2003; Bhat, Ramesh, 1999; Sharma and Chalal, 1995; Youseef and Bovaird 1995; and Lein and Tang, 2000). The questionnaire finalized initially was subjected to necessary alternations by administering a pre-test among 50 randomly selected patients in corporate and non corporate health care centre equally. The final service quality variables are given in Table 1.

3.3 Sample Design

Keeping in mind, the representative character of corporate and non-corporate health care centre services, the health care organizations located at Madurai City, Tamilnadu were purposely selected. In total, 100 each patients who visited the two types of health care organizations during January-March 2007 were contacted for data collection. The appropriate statistical tools were used with the help of SPSS.

4. Results and Discussion

4.1 Descriptive Analysis

The important sex among the patients in the present study is male which constitutes 70.50 per cent to the total. The patient from urban Madurai constitutes 68.5 per cent to the total. The important level of education among the patients are graduation and above graduation which constitute 34.00 and 29.00 per cent to its total respectively. The important annual incomes among the patient are below Rs.2.00 lakhs and Rs.2.0 to 3.0 lakhs which constitute 37.50 and 35.00 per cent to the total respectively. The important nature of patient among the patients is in patients who constitute 57.00 per cent to the total. The details of demographic profile of patients are given in Table 2.

4.2 Service Quality factors in Health Care Centre

For determining the service quality factors, principal axis procedure of factor analysis in SPSS was used. Initially, the data reliability for factor analysis has been conducted with the help of Kaiser-Meyer-Ohlin measure of sampling adequacy and Bartlett's test of sphericity. Measure of sampling adequacy is a statistic which indicates the proportion of variance in the variables, which is common variance, i.e., which might be caused by underlying factors. High values (Close to 1.0) generally indicate that a factor analysis may be useful with the data. If the value is less than 0.50, the results of the factor analysis probably could not be very useful (Hair, et al., 2003). Bartlett's test of sphericity indicates whether the correlation matrix is an identity matrix, which would indicate that the variables are unrelated. The significance level gives the result of the test. Very small values (less than 0.05) indicate that there are probably significant relationships among the variables. A value higher than about 0.10 or so may indicate that the data is not suitable for factor analysis (Rao and Saikia, 2006). In the present study, the KMO measure of 0.8017 and significance of chi-square at zero per cent level satisfy the validity of data for factor analysis. The extracted service quality factors of health care organizations are shown in Table 3.

This factor rotation resulted in four service quality factors (SQF) explaining 72.56 per cent of the overall variance. The most important SQF is physician behavior since its eigen value and the per cent of variation explained are 4.3684 and 20.68 per cent respectively. It consists of 9 service quality variables with the reliability co-efficient of 0.8687. It is inferred that the included nine SQ variables explain the physician behavior to the extent of 86.87 per cent. The next two SQFs are supportive staff and atmospheres since its eigen values are 3.9033 and 2.5642 respectively. The supportive staffs consist of nine SQ variables with the reliability co-efficient of 0.7903 whereas the atmospherics consist of eight SQ variables with the reliability coefficients of 0.8144. The last factor narrated by the factor analysis is operational performance with the eigen value of 2.2609. It consists of eight SQ variables with the reliability co-efficient of 0.7639. The factor analysis results in four important SQFs namely Physician Behavior, Supportive Staffs, Atmospherics and Operational Performance for further analysis.

4.3 Status of Service Quality Factors

The perception on each service quality factor among the patients is drawn from the mean score of perception on all SQ variables involved in each service quality factor. The perception SQ factors in two different health care Centers are calculated separately to exhibit the patients' perception on SQF. The't' test has been administered to find out the significant difference among the patients perception on corporate and non-corporate health care centers (HCCs). The results are shown in Table 4.

The perception on SQFs in corporate HCCs is identified as higher among the patients compared to the perception on SQFs in non-corporate HCCs. The highly perceived SQFs among the patients in corporate HCCs are Physician Behavior and Operational Performance since the respective mean scores are 3.9289 and 3.8187. Among the patients in non-corporate HCCs, these SQFs are Physician Behavior and Atmospherics since their mean scores are 2.9127 and 2.6644 respectively.

Regarding the perception on SQFs the significant difference among the patients in corporate and non-corporate HCCs is identified in all SQFs since the respective't' statistics are significant at five per cent level.

4.4 Overall Performance of the Health Care Organization

The overall performance of the health care organization among the patients in two different type of organizations are measured separately at five point scale namely highly satisfied, satisfied, moderate, dissatisfied and highly dissatisfied. The distribution of patients on the basis of their perception on overall performance of the HCCs is shown in Table 5.

The important attitude on overall performance of HCCs is moderate and satisfied which constitute 29.00 and 24.50 per cent to the total respectively. The highly satisfied patients constitute 16.00 per cent to the total. The important level of attitude on overall performance among the patients in corporate HCCs is moderate and satisfied which constitute 31.00 and 29 per cent to its total. Among the patients in non-corporate HCCs, these two levels of attitudes are moderate and dissatisfied which constitute 27.00 and 26.00 per cent to its total respectively.

4.4.1 Association between Profile of Patients and their Attitude on Overall Performance of Health Care Centers

The profile of the patients may be associated with their expectations and perception on various service quality factors. The present study has made an attempt to analyse the significant association between the profile of patients and their attitude on overall performance of corporate and non-corporate health care organizations separately with the help of one way analysis of variance. The marks assigned on the five point scale on overall performance are from 5 to 1. The score of perception on overall performance of health care organization has been included for the analysis. The result 'F' statistics are shown in Table 6.

In the case of corporate HCCs, the significantly associating profile variables with the patient's perception on overall performance of HCCs are education and nature of patient since the respective 'F' statistics are significant at five per cent level. In the case of non-corporate HCCs, the significantly associating profile variables are education, income, location and nature of patient. The analysis reveals the role of profile variables in the perception on overall performance of the HCCs.

4.5 Impact of SQFs on the Overall Performance of HCCs

The perception on SQFs of HCCs may have its own impact on the perception on the overall performance of HCCs. It is highly imperative for the policy makers to formulate suitable strategy for the improvement of SQFs. Hence, the present study has made an attempt to analyse the impact of perception on SQFs on the perception on overall performance of HCCs. The multiple regression analysis has been executed to analyse such impact. The score of perception on SQFs and overall performance of HCCs have been taken into account. The fitted regression model is

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e$$

Whereas

Y	– Score on perception on overall performance of HCCs
X_1	– Score on perception on Physician behavior
X_2	– Score on perception on Supportive Staff
X_3	– Score on perception on Atmospherics
X_4	– Score on perception on Operational Performance
b_1, b_2, b_3, b_4	– regression co-efficient of independent variables
a	– Intercept and
b	– Error term

The impact of SQFs on overall performance of HCCs has been measured Corporate, Non-corporate HCCs and also for pooled data. The results are shown in Table 7.

The significantly influencing SQFs on the overall performance of HCCs are all SQFs identified in the analysis.

In the corporate HCCs, a unit increase in perception on Physician Behavior, Supportive Staff, Atmospheres and Operational Performance results in an increase in the perception on overall performance of HCCs by 0.6824, 0.2079, 0.3633 and 0.4146 units respectively. In case of Non-corporate HCCs, a unit increase in the perception on above said SQFs results in an increase in the perception on overall performance of HCCs by 0.4246, 0.3667, 0.2134 and 0.5343 units respectively. The analysis infers that the perception on all SQFs a significant and positive impact on overall performance of HCCs. The important SQFs among the four SQFs are physician behavior and operational performance.

4.6 Discriminant SQFs among the Corporate and Non-corporate HCCs

In today's highly competitive environment, HCCs are increasingly realizing the need to focus on service quality as a measure to improve their competitive position. It is highly essential to understand in what way their HCCs differ from others. The corporate HCCs are growing at a faster rate in providing multi-specialty of services to the patients. At the same time, the Non corporate HCCs are also trying to improve their own service quality. But it is essential to understand the opinion of patients regarding their perception on SQF. The present analysis focuses on the identification of discriminant SQFs among the two groups of HCCs. Initially, the mean difference and the Wilks Lambda of SQFs have been computed and shown in Table 8.

The significant mean difference among the two group of HCCs is identified in all four SQFs since the respective't' statistics are significant at five per cent level. The higher mean difference is noticed in the case of operational performance and supportive staffs since the mean differences are 1.2154 and 1.1073. In all four SQFs, the Corporate HCCs are rated better by the patients. The higher discriminant power of SQF is identified in the case of Physician Behavior and Operational Performance since the respective Wilk's Lambda are 0.1249 and 0.1308. The significant SQFs are included for the establishment of two group discriminant analysis. The unstandardised procedure has been followed to establish such function. The function is

$$Z = 1.3341 + 0.2684X_1 + 0.3997\ X_2 + 0.4321\ X_3 + 0.2142\ X_4$$

The relative contribution of SQFs in total discriminant score is computed by the product of discriminant co-efficient and the respective mean difference of SQFs.

The highly influencing SQF in the discriminant function is Atmosphere and Supportive Staffs since their discriminant coefficients are 0.4321 and 0.3997 respectively. The higher relative contribution in total discriminant score is contributed by Atmosphere and Supportive Staffs since their contribution is 32.07 and 30.81 per cent respectively. The established discriminant function correctly classifies the cases to the extent of 79.63 per cent. The analysis reveals that the important discriminating SQFs among the Corporate and Non-Corporate HCCs are Atmospherics and Supportive Staffs.

5. Research Implications

It is clearly evident from the findings that the important Service Quality Factors in Health Care Center are Physician Behavior, Supportive Staffs, Atmospherics and Operational Performance which support the previous findings of (Chahal and Sharma, 2004; Walbridge et al., 1993; Roberts and Fred, 2003). The service quality in Corporate HCCs is rated highly by the patients compared to the Non-Corporate HCCs regarding all four service quality factors. The significantly associating profiles of patients on the perception of overall performance of the HCCs are education and nature of patient which resemble the findings of (Elbeck, 1987; Naucer and Mohammed, 2003; and Reidenbach and Sandifer 1990). The highly influencing service quality factors on the perception of the overall performance of HCCs are Physician Behavior and Operational Performance. The important discriminant service quality factors among the Corporate and Non-corporate HCCs are also the Physician Behavior and Operational Performance. The study infers that the Corporate HCCs are better rated by the patients than the non-corporate HCCs because of the Physician Behavior and Operational Performance at the Corporate HCCs. Hence it is the right time for the Non-Corporate HCCs to realize the importance of Physician Behaviour and also other service quality factors like Operational Performance, Supportive Staff and Atmosphere. The non-corporate HCCs also understand the 'poly clinic' strategy in order to provide multi-specialty services under one roof to their patients.

6. Managerial Implications

In order to enhance the present level of service quality in health care center, the present study identifies some managerial implications for a paradigm shift from medical service to customer zed service in the medical field.

Initially, the attitude of the physicians and their behavior towards the patients has to be enriched by providing continuous and on-going training programmed especially in the case of human psychology. The physician should be impartial, friendly, sympathetic and courteous to patients under all circumstances. The workshops, counseling and training courses on the human psychology show a considerable positive impact on the enrichment of service quality of physicians (Sharma and Gupta, 2004; Boyt and Schibrowsky, 1998).

Since the service quality of Supportive staffs plays an important role in the Health Care Services, the HCCs have to concentrate on this aspect. The management of health care center should see the attitude of the supportive staffs which is a major cause of the service quality of HCCs. They should monitor the requirements of the supportive staff through properly designed system and effective efficiency linked incentive plans. A consistent training programmed should be provided to the supportive staffs also. Since there is an increase in rural service seekers, the management should consider providing ambulance care facilities to them.

The atmospheric environment which includes the physical design and layout of HCCs is one of the important service qualities of HCCs. Hence, the authorities should take conscious efforts to keep the physical environment, spick and span. The management has to take care of sanitary facilities at the HCCs. Since, the cleanliness of HCCs rest on patients as well as staffs, the management has to be very strict on such aspects. If there are any violations of the guidelines for cleanliness and sanitation at HCCs, both the patients and staff should be fined immediately. The maintenance of green gardens, spacious parking place, bath room facilities and lift facilities should also be focused to increase the patient satisfaction.

In order to improve the operational performance of HCCs, there is an urgent need to have a systematic mechanism of supervision, monitoring and review of the functioning of HCCs. The HCCs should have an established administrative system to take care all such activities. It should have some trained personnel also. This will improve the service quality of the HCCs and also ensure the optimum utilization of available resources at HCCs. The HCCs should have an Research and Development cell to analyse the patients need and also their perception on the services provided by the HCCs.

7. Directions for Future Research

The present study focuses on the patient oriented study especially in Corporate and Non-corporate HCCs. This study may extend to the staffs as well as doctors oriented study. Apart from that, the comparative study on the service quality of various aspects like doctors, supportive staffs, operational performance, nursing staffs, and paramedical staffs may be conducted. The present study rests on the performance measurement only (SERVPERF). The gaps model formulated by Parasuraman et al. (1988) could be used for better understanding of patients' expectations and their respective perceptions on service quality at HCCs. The service quality at public HCCs may be focused in future in order to improve the service quality at public HCCs. Thus the scope for future research is too broad. The results would be more effective if a holistic approach is considered in the future.

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Appendix

Table 1: Variables Related to the Service Quality of Health Care Service

Sl.No.	*Variables*	*Sl.No.*	*Variables*
1.	Physician knowledge	18.	Helpfulness of supportive staff
2.	Caring of supportive staff	19.	Water facility
3.	Natural lighting at hospital	20.	Physician co-operation
4.	Well equipped operational centre	21.	Prompt service
5.	Initial Diagnosis of Physician	22.	Delivery of staff's service to the patients' expectations
6.	Working hours	23.	Polite attempt by support staff
7.	Quarries handling of support staff	24.	Operation theatre facility
8.	Cleanliness in the hospital	25.	Helpfulness of physician
9.	Handling quarries of physician	26.	Power facility
10.	Conducive internal environment	27.	Regularity in attending patient by staff
11.	Reliability of supportive staffs service	28	Welcoming the suggestions
12.	Satisfactory functioning	29.	Bathroom facility
13.	Work of physicians according to patient's expectation	30.	Physicians check-up
14.	Neatly dressed staff	31.	Bedding management
15.	Grievance redressed system	32.	Active participation of supportive staff
16.	Careful understanding by supportive staff	33.	Physicians honesty
17.	Personal attention of physician	34.	Implementation of the suggestions

Table 2: Demographic Profile of Respondents

Sl.No.	*Profile variables*	*Male*	*Female*	*Total*
	A. Location			
1.	Rural	39	24	63
2.	Urban	102	35	137
	Total	141	59	200
	B. Level of Education			
1.	High school and below	57	17	74
2.	Graduation	44	24	68
3.	Above graduation	40	18	58
	Total	141	59	200
	C. Income			
1.	Below 2,00,000	56	19	75
2.	2,00,000-3,00,000	49	21	70
3.	Above 3 lakhs	36	19	55
	Total	141	59	200
	D. Nature of Patient			
1.	In-patients	91	23	114
2.	Out-patients	14	17	31
3.	Minor operation	22	13	35
4.	Major operation	14	6	20
	Total	141	59	200

Table 3: Service Quality factors in Health Care Centres

Sl.No.	*Service quality factors*	*Number of variables in each SQF*	*Reliability co-efficient*	*Eigen value*	*Per cent of variation explained*
1.	Physician behaviour	9	0.8687	4.3684	20.68
2.	Supportive staffs	9	0.7903	3.9033	18.84
3.	Atmospherics	8	0.8144	2.5642	17.68
4.	Operational performance	8	0.7639	2.2609	15.36
KMO measure of sampling adequacy: 0.8017			Bartletts' Test of sphericity: chi-square: 114.43*		

*Significant at zero per cent level.

Table 4: Perception on Service Quality of Health Care Centers

Sl.No.	*Service Quality Factors in Health Care Organization*	*Mean score in*		*t-statistics*
		Corporate HCCs	*Non-corporate HCCs*	
1.	Physician behavior	3.9289	2.9127	2.3089*
2.	Supportive staff	3.6141	2.5068	2.1708*
3.	Atmospherics	3.7306	2.6644	2.4172*
4.	Operational performance	3.8187	2.6033	2.5991*

*Significant at five per cent level.

Table 5: Attitude on Overall Performance of the Health Care Organization

Sl.No.	*Attitude on overall performance*	*Number of patients in*		*t-statistics*
		Corporate	*Non-corporate*	
1.	Highly satisfied	15	17	32
2.	Satisfied	29	20	49
3.	Moderate	31	27	58
4.	Dissatisfied	18	26	44
5.	Highly dissatisfied	7	10	17
	Total	100	100	200

Table 6: Association between Profile of Patients and their Perception on SQFs in

Sl.No.	*Profile variables*	*F-statistics in*	
		Corporate Health Care Center	*Non-corporate Health Care Center*
1.	Sex	3.6217	2.7803
2.	Education	3.8023*	3.1163*
3.	Income	2.4649	3.2669
4.	Location	3.0308	3.9034*
5.	Nature of patient	2.9173*	2.7326*

*Significant at five per cent level.

Table 7: Impact of SERVPERF Scale on SQFs on Overall Performance of Health Care Center

Sl.No.	*SQFs*	*Regression co-efficient in*		
		Corporate HCC	*Non-corporate HCC*	*Pooled*
1.	Physician behavior	0.6824*	0.4246*	0.4917*
2.	Supportive staff	0.2079*	0.3667*	0.2309*
3.	Atmosphere	0.3633*	0.2134*	0.2781*
4	Operational performance	0.4146*	0.5343*	0.4323*
	Constant	1.6837	0.9149	1.2608
	R^2	07344	0.8193	0.8463
	F-statistics	11.9067*	13.2904*	14.2688*

*Significant at five per cent level.

Table 8: Mean Difference and the Discriminant Power of SQFs among Corporate and Non-corporate HCC

Sl.No.	*SQFs*	*Mean score in*		*Mean Difference*	*t-Statistics*	*Wilk's Lambda*
		Corporate HCC	*Non-corporate HCC*			
1.	Physician behavior	3.9289	2.9127	1.0162	2.3089*	0.1249
2.	Supportive staff	3.6141	2.5068	1.1073	2.1708*	0.2801
3.	Atmosphere	3.7306	2.6644	1.0662	2.4172*	0.3124
4.	Operational performance	3.8187	2.6033	1.2154	2.5991*	0.1308

Table 9: Relative contribution of SQFs in Total Discriminant Score

Sl.No.	*SQFs*	*Canonical Discriminant Co-efficient*	*Mean difference*	*Product*	*Relative contribution in total discriminant score*
1.	Physician behavior	0.2684	1.0162	0.2727	18.98
2.	Supportive staffs	0.3997	1.1073	0.4425	30.81
3.	Atmosphere	0.4321	1.0662	0.4607	32.07
4.	Operational performance	0.2142	1.2154	0.2603	18.14
	Total			1.4362	100.00
Per cent of cases correctly classified: 79.63.					