Original Article

Measurement Of Service Quality Of Healthcare Provider: An Application Of The SERVQUAL Gap Model

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Abstract

The quality of healthcare providers depends on the extent to which the provider's services increase the chance of getting the desired health outcome. Researchers have provided different approaches to measuring the quality of hospital services. Hospitals can provide different services, including clinical and non-clinical ones. Patients' perception of hospital functions is a valuable alternative tool to measure the quality of hospital services. Hence, the study has evaluated the service quality of private hospitals in district Kamrup (metro), Assam.

Method

The sample size is determined by using a purposive random sampling technique. The five dimensions of the SERVQUAL model are used. Further, a paired t-test is conducted to examine the significance of the gap between perception and expectation.

Results

The model is statistically fit to explain the objective of the study. All the dimensions have shown a negative gap and are statistically significant. The highest average gap is observed in the empathy dimension, while the minimum average gap is observed in the responsibility dimension.

Conclusion

The study will help the management of the concerned hospitals to improve their functional quality. The sample size is determined randomly, through which expectations and experiences of sample units are reflected only. However, socio-demographic factors can also affect the result of the study, which is not considered. Hence there is a scope for deeper investigation.

Key Words: Health care, Hospital, Quality, SERVQUAL, Non-Price.

INTRODUCTION

Quality is considered a non-price element that may enhance competition among healthcare service providers. Further, quality is the most crucial factor which positively influences on choice of a hospital. In addition, physicians respond to quality because they are motivated by patients' preferences. Hospitals invest money in buying modern medical technology and other amenities to attract physicians (source of patient admission) and patients' hospitals. However, such competition leads to a medical arms race with dire consequences. Such race produces duplicate services or may produce an over-supply of medical facilities, raising the hospital price (Robinson et al., 1985). However, such an issue is out of the scope of the study; hence our focus is only on measuring hospital service quality.

In the case of healthcare services, World Health Organization (WHO) has defined quality as the extent of services which improves health outcome. The quality of healthcare providers depends on the extent to which the provider's services increase the chance of getting the desired health outcome (Institute of Medicine, 2001). However, a hospital can provide different services, including clinical and non-clinical ones. Researchers have provided different approaches to measuring hospital service quality in such a context. Donabedian (1966) suggested structure, process and outcome criteria for measuring the quality of hospital services. The structure measure of quality indicates the characteristics of facilities, personnel, policies, and rules related to service delivery. It can be measured through bed capacity utilization (length of stay), staffing and availability of clinical services (Robinson, 1988). Further, the process measure of quality indicates the level of consistency in delivering patient care according to the suggested guidelines for healthcare. It relates to the treatment process, improving the patient's health condition. The outcome measures the effect of health care services on a patient's health status. Researchers have used mortality and readmission rates as outcome indicators to reflect the quality of hospital services. (Gaynor et al., 2010; Cooper et al., 2010; Kessler et al., 2005). These quality measures, such as an outcome or process, need complete information about a patient's health conditions, in which medical knowledge is essential. Moreover, information on medical resources consumed by patients is also needed to measure quality correctly. Unfortunately, such data may not be available, or there may be restrictions on getting information on a patient's health

status, especially in developing countries, including India. Hence, some researchers have suggested patient perception as a measure of service quality. Maxwell (1984), in his report on health care quality assessment to British Medical Association (BMA), suggested six dimensions: access to services, relevance to need, effectiveness, equity, social acceptability and efficiency. In all these aspects, patients' experience is very crucial. For example, Babakus et al. (1992) have argued that Patients' perception of hospital functions is a valuable alternative tool to measure the quality of hospital services.

The gap between perception and expectation of patients is calculated following the SERVQUAL gap model suggested by Parasuraman et al. (1988). The model has five dimensions: tangibles, responsiveness, empathy, assurance and reliability (Parasuraman et al., 1985). Researchers have applied the model to measure the quality of hospital services widely. In India, some researchers have applied the gap model (Ali et al., 2018; Sharma, 2013), while other researchers have examined the perceived quality of hospital services, ignoring the expectation of patients (Rao et al., 2006; Padma et al., 2010; Kansra et al., 2016). The present study has incorporated the perceptions along with the expectations of patients to evaluate the quality of hospital services.

It is observed that the model is statistically fit to explain the study's objective. The overall perception score is found to be lower than the expectation score. Further, the five dimensions of the SERVQUAL model have shown a significant gap between the perception and expectation of patients. The empathy dimension has shown the highest gap, followed by the tangible dimension.

The study has been organized into five sections. Succeeding the introduction section, the second section provides the methodological framework. The result of the study is mentioned in section third, and the results are discussed in section four. In section five conclusion and limitation of the study are stated.

METHODOLOGY

2.1. Study Area

The study has focused on the private hospitals of the Kamrup (metro) district of Assam. The district is located in the lower part of Assam, the gateway of northeast India. There are sixty-four private hospitals providing secondary and tertiary healthcare services (Economics and Statistical Handbook, Assam, 2018).

2.2. Data Source/ Data Collection technique

The study is based on primary data. The data were collected using a field survey (from February to May 2022), where 300 questionnaires were distributed across the 5 hospitals randomly. The survey will be conducted from November to January 2019. The study has considered the inpatients of two departments such as internal medicine and surgery. However, patients who are very critical or cannot spare time due to health condition has been avoided. The researcher visited the hospital's inpatient section and private cabin to collect the response of the patients. The response rate is around 83 per cent, or 249 respondents have given their complete response to the questionnaire.

2.3. Questionnaire Design

The questionnaire has two sections. The first section entitled the sample units' socio-demographic profile (age, gender, marital status, education). The second part of the questionnaire has entitled 20- items or statements or variables, which reflects the five dimensions of the SERVQUAL model. Following the earlier literature, the items are developed (Kant et al., 2017; Najjar and Bishu, 2018; Sharifi et al., 2021). Further, following the study of Sharifi et al. (2021), respondents are requested to give responses on five points liker scale, ranging from a minimum of 1 (strongly disagree) to a maximum of 5 (strongly agree).

2.4. Model

The study has considered five dimensions of the SERVQUAL model: tangible, reliability, responsiveness, assurance and empathy. Each of the five dimensions reflects the different aspects of service providers. For instance;

Tangibles; indicate the physical facilities like building design, machines and equipment, and employees' appearance, which is visual to the patients.

Reliability; It indicates the service provider's ability to stand with customers' trust. The dimension comprises all those aspects that examine the service provider's accuracy and dependability.

Responsiveness; It reflects the eagerness and speed in delivering services by the concerned organization.

Assurance; This dimension is related to employees' experience and knowledge and ability to inspire trust and confidence among patients

Empathy; In addition to all the above, care and attention are very important for the customer. Empathy includes care and individual attention toward customers by the service provider.

A total of 20 statements (items) or variables are distributed across five dimensions; tangibles (6), empathy (4), assurance (4), responsibility (3) and reliability (3) (see, Appendix. A). Besides giving their socio-economic background, respondents completed the questionnaire stepwise. In the first step, statements are related to expectations, and in the second step, statements are related to perceptions.

PROFILE OF RESPONDENTS

Table.1 represents the socio-demographic status of respondents or patients. The maximum numbers of respondents are within the range of 44-65 years old, in which the percentage of male respondents is higher than female respondents. Moreover, respondents mostly belong to graduate and above level of education.

Table. 1: Socio-Demographic Profile of Respondents.

Variable	Number	Percentage
Age		
≤ 21	28	11
22 - 43	63	25
44 - 65	110	44
65 and above	48	19
Sex		
Male	138	55
Female	111	45
Marital Status		
Married	172	69
Single	77	31
Education		
Higher secondary level	110	44
Graduate and above	139	56

Source: Field Survey

RESULTS

Table 2 represents the internal consistency of the model along with factor loading. The Cronbach's alpha (α) values for the overall expectation and perception variables scale are 0.63 and 0.71, respectively. However, the alpha value for each expectation and perception dimension is greater than 0.7. Thus, the variables in each dimension of expectation and perception have reflected internal consistency. Moreover, the validity of the dimensions is evaluated through average variance extraction (AVE) and composite reliability (CR). It is found that the value of AVE for each dimension of perceived service quality is more significant than 0.5, and the value of composite reliability is more significant than 0.7.

Table. 1: Internal Consistency and Factor Loading

Dimensions	Factor loading	CR	AVE	α (Exp)	α (Per)
Tangible (TAN)		0.87	0.85	0.75	0.90
TAN 1	0.891				
TAN2	0.891				
TAN3	0.792				
TAN4	0.778				
TAN5	0.730				
TAN6	0.661				
Empathy (EMP)		0.90	0.70	0.72	0.86
EMP1	0.906				
EMP2	0.836				
EMP3	0.800				
EMP4	0.786				
Reliability (REL)		0.87	0.70	0.77	0.75
REL1	0.864				
REL2	0.856				
REL3	0.800				
Assurance (ASS)		0.85	0.58	0.78	0.71
ASS1	0.798				
ASS2	0.778				
ASS3	0.743				
ASS4	0.728				
Responsibility (RES)		0.85	0.65	0.75	0.85
RES1	0.837				
RES2	0.776				
RES3	0.763				

Source: Author's Compilation

4.1. Test of sample adequacy and inter-correlation test

Table 3 shows that the sample size is good enough for the study. Bartlett's test has rejected the null hypothesis of no inter-correlation among variables at a 1 per cent significance level. Hence, factor analysis is suitable to classify the variables into some factors or dimensions.

Table.2: Result of Sampling Adequacy and Bartlett's Test

Kaiser Meyer Olkin (KMO)	**0.763**
Bartlett's test of sphericity	Appr. Chi2 = 6876.87
	Df =170
	Sig. = 0.00

Source: Author's Compilation

4.2. Factor extraction

It is found that the initial Eigenvalues for five components or factors are more significant than one (see table.1). Further, these five factors have explained around 77 per cent of the total variance, which is quite enough in social science (Haire et al., 2006). Moreover, the minimum value for factor loading is suppressed at 0.4, which implies that a value less than 0.4 will not be loaded in factors. The rotation is converged after six iterations. Further cross-loading for one variable, namely TAN5, is found. The variable is loaded in both factor 1 and factor 3, but the variable has negatively related to the third factor. However, the variable has shown strong relation with the first factor. Thus the variable is considered relevant for the first factor.

4.3. The gap between expectation and perception

The gap between the perception score and expectation score for the variables is negative, implying that patients have perceived lower than what they expected from the hospital's services. The lowest gap score is observed for the responsibility dimension. On the contrary, the highest gap is observed for the empathy dimension. Further, the paired t-test is found to be significant and thus concludes a significant difference between the average perception score and expectation score of dimensions. Moreover, the variable EMP2 has the most significant gap among the 20 variables. On the contrary, the variable AS3 has shown the lowest gap among variables.

The reliability dimension records the highest expectation score, while the responsibility dimension records the least expectation score. In the case of the perception score, the highest score is recorded by the assurance dimension, while the empathy dimension records the least score.

Table. 3: Average Gap between Perception and Expectation of Dimensions

Dimensions	**Perception (P)**		**Expectation (E)**		**Gap**		**P-value**
	Average	**Std.**	**Average**	**Std.**	**Average**	**Std.**	
Tangible	3.59	0.68	4.37	0.37	-0.77	0.17	0.00***
Empathy	3.41	0.43	4.53	0.17	-1.12	0.21	0.00***
Reliability	3.70	0.42	4.54	0.20	-0.84	0.18	0.02**
Assurance	3.86	0.11	4.46	0.52	-0.59	0.11	0.03**
Responsibility	3.77	0.35	4.21	0.17	-0.44	0.31	0.08*
Average	**3.66**	**0.31**	**4.48**	**0.22**	**-0.81**	**0.13**	**0.00*** **

Source: Field Survey

DISCUSSION

The findings indicate that hospitals have failed to meet patients' expectations, consistent with earlier studies such as Kazemi et al. (2013); Sharma (2013). The gap scores are found to be different across the five dimensions. Interestingly, patients have shown the lowest expectation (4.21) on the responsibility dimension. However, the responsibility dimension has achieved the second highest perception score (3.77). Further, on average, the dimension has reflected better performance in comparison to other dimensions of the model. Variable AS3 has shown the lowest gap among the 20 variables. Further, the dimension reflects that hospitals have tried to provide better performance in administrative activities and physicians' responses. Moreover, the empathy dimension has shown the poorest record in the study.

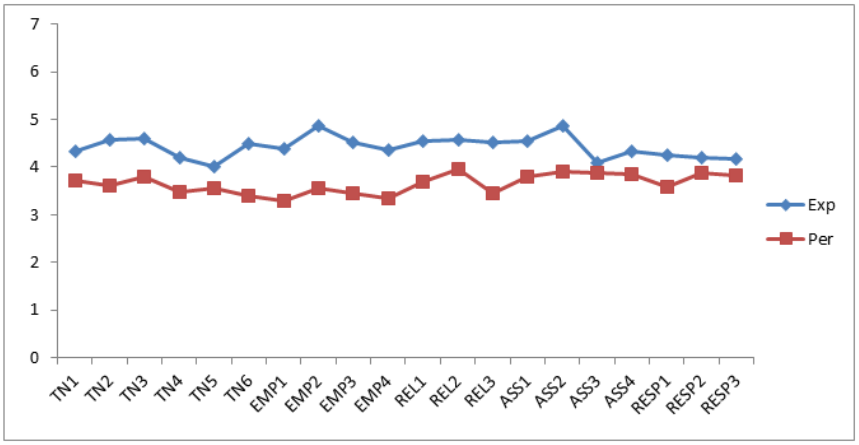

Figure.1: Gap between Perception and Expectation of Variables
Source: Author's Compilation

Figure. (1) represents the gap between perception and expectation of 20 variables. All the variables in the empathy dimension have shown a high gap between perception and expectation. The variable EM2 has shown the highest gap within the dimension and among the 20 variables. The dimension reflects the care and support of hospital staff. It is argued that patients want friendly relationships and honest behaviour from medical staff (Mnzoor et al., 2019). Hence, hospital staff should provide sympathy and care to the patients so that patients can get confidence to fight disease (Mnzoor et al., 2019). Moreover, hospitals have also shown poor performance in the reliability dimension. The gap in variables REL1, REL2, and REL3 representing the reliability dimension are wide. Variable REL3 has shown the highest gap among the three variables. In other words, hospitals have not fulfilled their promises. Such a situation may harm the image of the hospital.

The tangible (TAN) dimension defined above has shown a lower gap than the empathy dimension. Variable TN6 has shown the highest gap, which indicates that patients have bad experiences in the case of the availability of medicines in hospitals. Respondents were asked about the accessibility of medicines; they replied that hospitals should have their medicine store where all kinds of medicines remain available. Further, they added that if some medicines do not avail in the hospital, the hospital should provide them through their channel. It is because sometimes patients may not have any relatives, and the hospital should provide it in such a situation. Hence, there is a need for better facilities to provide medicines to patients.

CONCLUSION

The study has attempted to measure the quality of hospital services with the help of the SERVQUAL gap model. The service quality of the hospital is not up to the mark. Hospital staff needs to be patients friendly. Further, the hospital management should maintain the cleanliness of the hospital environment. The study will help the management of hospitals to improve functional quality. The study's sample size is randomly determined through which their expectation and experiences are reflected only. However, socio-demographic factors can also affect the result of the study, which is not considered. Hence there is a scope for deeper investigation

- Declarations
- Funding: Not Applicable
- Conflict of interest: The study has no competing interest.
- Ethics: The study is based on a field survey with the permission of the Department of Economics, Gauhati University.
- Consent for publication: Not Applicable.
- Availability of data and materials: Data and materials will be provided on reasonable request.
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APPENDIX. A

Dimensions
Tangible (TAN)
Hospital has clean, tidy and comfort bedroom (TN1)
Hospital has attractive physical environment (TN2)
Hospital has adequate number of medical facilities like MRI, CT scan (TN3)
Hospital employees are clean and well dressed (TN4)
Sufficient number of bed is available (TN5)
Hospital has sufficient parking space (TN6)
Empathy (EMP)
Hospital staff gives individual attention to patients (EMP1)
Hospital staff gives attention to all patient equally (EMP2)
Hospital provides services according to the interest of patients (EMP3)
Hospital staff understand the need of patients (EMP4)
Reliability (REL)
Hospital keeps all record and documents accurately (REL1)
Hospital services are provided on time (REL2)
Hospital provides services as promised (REL3)
Assurance (ASS)
Hospital staff provides detail information about patient's disease (ASS1)
Hospital staff's behavior is trustful (ASS2)
Patients feel safe in transaction with staff (ASS3)
Hospital staff are knowledgeable enough (ASS4)
Responsibility (RES)
Nurse always ready for help (RES1)
Hospital administration staff is very active(RES2)
Doctors give quick responds to patient's queries (RES3)