

# Perception of Cancer Patients towards the Service Quality of the Healthcare Industry: A Paradigmatic Research on Serviceability

Bikram Prasad, Indrajit Ghosal

**Abstract:** Service delivery by the healthcare organizations is undergoing radical changes in India. In the current scenario, patient centric service delivery has become the centre of attention. Hence organizations should maintain their service quality in order to gain competitive advantage and attain sustainable growth in long-term. This paper is an empirical approach to explore the service quality constructs in the healthcare organizations on the basis of technical and functional landscape from the Cancer patient's purview. The conceptual model of SERVQUAL with adjusted modification to suit the socio-economic condition of study area has been used to explore the holistic concept of hospital service quality. Exploratory factor analysis with random sampling has been used to filter out the exact constructs which hospital projects out to deliver service to the Cancer patients. Cronbach's alpha, factor loadings, data redundancy and other statistical evaluation have been used to mine out the latent attributes encompassing service quality by the hospitals from the perception of Cancer patients. The implied findings will be a path breaking age to build a resilient and sustainable serviceability

**Keywords :** Cancer, Healthcare, Hospital, Patient, Perception, SERVQUAL

## I. INTRODUCTION

In India healthcare sector has emerged as one of the largest service sector and growing exponentially with estimated market size of 280 billion USD by 2020 (PTI 2015). Healthcare services are delivered by the coordinated team of doctors, nurses, pharmacist and paramedical staff and management personnel as well as by support staff (Babacus and Mangold 1992). The skill knowledge of the medical team as well as the equipment and quality of infrastructure plays an important role in the healthcare service

In contemporary scenario, the concept of healthcare delivery have changed to patient centric management encapsulated by the concepts of increased accountability, up gradation in technology, Cost optimization, increase in occupancy rate. In such cases, an organization with proper service quality dimensions can serve it's patients in better way and gain competitive advantage (Wang *et al*, 2003). Hence a

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synchronization of the facilities available along with knowledge and skills is very much necessary in order to deliver a quality service to the patients. A proper blending of service delivery system with proper utilization of human as well material resources along with technical and administrative competence is very much necessary to deliver service to the patients (Collier 1994). Existing researches (Taner and Antony, 2006) have also inferred the need of measuring and conceptualizing service quality dimensions in the healthcare organizations. In the health care sector, patients' perception of patients towards service alters the dimensions of the healthcare (Woodside *et al.*, 1989). Thus, to achieve service excellence, hospitals must strive for sustainable development, through which the organisation can retain the patients (Reichheld and Sasser, 1990). According to Lim and Tang (2000) emphasized the need of sustainable service delivery patterns in the organisation. Regarding this Zeithmal *et al*, 1990, indicated that service quality should be measured though it is composed of unique constructs like intangibility, variability.

## II. THEORETICAL FRAMEWORK

Brook and Williams (1975) have depicted about the technical quality of the hospitals. It can be defined as the ability of the hospital to deliver quality clinical facilities to the patients. The clinical facility here can be encapsulated by the medical diagnosis, procedures and the treatment facility at the hospital. Donabedian (1982) have opined that structure, process, and outcome are the three approaches that define technical and client quality of healthcare services. This is the three gold standards for defining quality measurement (Harrington & Pigman, 2008). Parasuraman (1988) have opined that tangible, reliability, responsiveness, empathy and assurance are five elements of quality of healthcare services. Besides these affordability and accessibility have influences on service quality constructs. Existing literatures have indicated that most researchers have explored and depicted quality dimensions of healthcare based on their own research findings and inferences. Campbell *et al* (2000) have depicted that design, management and procedures are structures related to healthcare settings. Physical and staff characteristics are the two domains of structure. Quality of equipment, competency of the personnel, organizations of resources and management are the key domains of physical characteristics. Hall and Dornan (1990) have explored that satisfied patient provide more recommendation sand referrals as compared to less satisfied patients.

(Blumenthal, 1996; Donabedian, 1988, 1992; Tarlov et al., 1989; Stefen, 1988). The researchers also found that relationship is affected by patient satisfaction and is interlinked with perceptions of service quality. Wiggers (1990) have emphasized the significance of interpersonal skills to evaluate healthcare services. Babacus and Mangold (1992) inferred and emphasized more on measuring performance. They SERVQUAL dimensions have been empirically tested in healthcare settings. They have also abstracted that quality should be in compliance with the minimum standards or minimum requirements. Service Quality is measured against standards which are composed of professional conduct, technical competence and tangibles. Service quality originates from specific characteristics of services such as variability, intangibility, perishability and inseparability (Lovell & Gummesson, 2004). Collier (1994) have abstracted that client quality is equally important to clinical quality. Inefficient client quality can discredit clinical quality. Technical and client quality both are of equal importance for delivering quality healthcare. Technical quality refers to efficiency in delivering diagnostic and therapeutic care and the behavior and manner through which such care is delivered and communicated. (John, 1991; Babacus and Mangold, 1992). When performance delivered by the of the hospital is mediated by the patient expectation and get translated as service encounter in action and then it get resulted as perceived quality (John, 2010). The resulted disconfirmation can be scaled on satisfaction and service quality parameters and it should by measure of service performance only. Hence in this situation a validated SERVQUAL scale is recommended (Cronin and Taylor, 1992). O. Evans and Lindsay (1999) explored and inferred that customer satisfaction is the resonating effect of provision of goods and services that is either in accordance to customer requirements. There is a great need to explore out the quality indicators of patient satisfaction, though little have been studied in this area. (Berman-Brown and Bell, 1998). Zeithaml and Bitner (2000) and Weitzman (1995) have explored that interpersonal relationship is also very important to impart quality healthcare. The amenities of care are also important pillar of healthcare. Few other researcher have also explored that administrative constructs plays a vital role in accessing healthcare services (Duggirala et al., 2008). Skill of the staff and team working are the two basic pillars that have deeper impact on patient satisfaction. On the other hand clinical competence of the doctors are the dimensions of staff characteristics. (Campbell et al, 2000). Health Care organizations that have compliance on the quantity and quality of human material resources and other structural specifications have the ability to deliver health service according to the standards. (Campbell et al, 2000). Patient satisfaction is greatly influenced by the cognitive constructs like Perceived service quality. (Choi et al., 2005) said that contemporary situations of health care delivery have been investigated by the researchers and they have opined that patient satisfaction have become essential part of health care delivery (Smith et al) and have higher degree of managerial implications. (Choi et al, 2005). Carman (2000) have depicted that perception of the patients regarding service quality is an attitude and that very attitude is made of attributes that patient consider of utmost importance now a days. Service quality dimensions differ in case of public and private health care systems. Many researchers have explored that SERVQUAL

dimensions have significant impact on the patient satisfaction. (Bowers et al., 1994; Brown et al., 1989; Gooding, 1995; Reidenbach & Sandifer-Smallwood, 1990; Woodsie & Shinn, 1989).

Patients rely on experience which they receive based on their believe they perceive that a product should offer Sayareh et al. (2016). This standard is specifically distinguished and is referred to as experience based norms. These experience based norms helps in the prediction of performance as well as desired performance. On the other hand consumer can recognize the level of performance by comparing their experience and familiarity with the known or similar products. (Cadotte, Woodruff and Jenkins, 1987). The organisation of healthcare has undergone unprecedented reform over the past two decades, driven by the need to appease an evergrowing demand for improved service quality throughout the Organisation for Economic Cooperation and Development (OECD). Mosadeghrad (2013) defined quality healthcare as the way of constantly delighting the patient by providing efficacious, effective healthcare services according to the latest clinical guidelines and standards, which met the patient needs and helps in satisfying the consumer healthcare service quality: Sohrabi et al (2019) study reveals, most of the participants (75.9%) seek treatment in private clinic when they are ill and 58% refer to private clinics for routine medical checkup. Around 73% of the sample believes inequality exists in access to primary health care services between immigrant workers and citizens in Malaysia. Padma et al (2014) have indicated that Indian hospital administrators need to apply strategic for improving their quality of service. They have also opined that patient parties and their attendants have varied need which is needed to assess. (Sun et al., 2017) have collected data from the 31 tertiary hospitals of the China separately for the outpatient and inpatient patients. They have extracted that for outpatient highest satisfaction have been obtained from the diagnosis and treatment and for inpatient highest satisfaction have been obtained from nursing services. Shabbier et al (2016) conducted a study to explore the between the perceived healthcare services quality and patient loyalty. The questionnaire was distributed to 600 patients and analysed through regression analysis. The study concluded that perceived patient HCSQ plays an altering effect on the satisfaction level of the patient. Ahmed et al (2017) conducted the study on the 450 patients through structured questionnaires. The data was analyses through exploratory factor analysis, independent sample t –test, discriminant analysis. The study concluded that patients of the private hospitals perceive service quality more than that of public hospitals. Dosea, A.S et al., (2017) conducted an empirical research on eleven pharmacist of Farmácia Popular do Brasil and indicated that lack of staff training, improper communication creates a gap in the service. These issues should be addressed properly in order to reduce the gap of patient satisfaction. Algudairi et al., (2018) indicated that the patient's experience plays a vital role influencing the patient satisfaction especially in terms of clinical treatment and imaging based diagnosis (Diwakar et.al. The study was conducted on the four hundred patients and analysed through Med Risk instruments and MRSPS.

The study concluded that components of patient satisfaction are very much

essential to improve the quality of the healthcare. Bahadori et al(2018) investigated about the factors affecting the quality circles using fuzzy VIKOR and Grey Relational Analysis (GRA).The research work concluded that training of the members and proper system for optimal utilization of the skill and competency of the organization plays an vital role in improving the patients satisfaction specifically in terms of treatment and improved imaging based diagnosis(Diwakar et al 2018,Sukanesh et al,2011). Masurul (2019) opined that efficiency and skills of the staff are the two epitomizing factors that led to sense of loyalty among the customers which led ultimately to their satisfaction in service industry. (Hadda et al., 2019) investigated on the factors affecting service quality and opined that it is very important for the stakeholders to know about the attitude of the consumer to frame the service delivery protocols. D Cunha(2019) conducted the research on patient's perception through which it is inferred that perception of the patients are influenced by the service scape. Saeed et al (2019) investigated about the knowledge and accessibility of the cancer patients and found lack of knowledge and accessibility have altering effect on the perception of the cancer patients. (Ren et al., 2019) investigated about the role of patient engagement in the patient perception and it's impact on the treatment. The study was conducted among the three general wards in the hospital through Semi-structured, audiotaped interviews the research was conducted on the thematic analysis. The study concluded that patient engagement plays a vital role in the perception of the patient. (Jung et al., 2019) conducted as research among the 221,347 cancer cases to determine the fatality of the cancer patients in Korea. The study evaluated about the burden of the cancer patients. Besides these the study emphasized about the need of extracting the perception of the patients and their knowledge accessibility so that proper strategies can be framed out to reduce their overall burden.Susan et al.(2019) conducted a research on the effect of Family medicine on the Turtkish patients and it's ultimate impact on the patient satisfaction. The study was conducted on Paneled data and the Quasi experimental design was followed. The research indicates that altering system of medicine and customizing the strategy according to the patient can improve patient satisfaction level. (Albashayreh et al., 2019) investigated about the effect of the Psychometric properties of the Arabic version of the patient satisfaction with the Nursing quality questionnaire. The study was conducted on cross sectional mode and was based on 292 patients who were admitted to the patient for more than 48 hours. The study concluded that constructs extracted through PSNCQQ-Ar and PSNC e are very vital to evaluate the patient satisfaction. Hussain et al., (2019) conducted a research on the Southern Punjab Hospitals by using random sampling method on the sample size of 554 respondents. The study indicated that competency of the doctors in relation to communication is very much necessary to improve the level of patient satisfaction.(Wang et al., 2019) conducted a research on the 1014 rural public clinical users belonging to either provinces of china. The statistical analysis like multiple regressions was followed to know the association between the patient perceived qualities attributes with the outcome of treatment and the level of satisfaction among the patient. The study indicated those weak interpersonal primary care aspects, as well as the skills; competency of the healthcare

workers plays a vital role in influencing patient perceived satisfaction.

### III. RESEARCH GAP

The effect of factors affecting the patient's perception was accessed by many researchers and depicted in many extant literatures (Donabedian,1982; Zeithaml and Bitner 2000;Padma et al.2010) in different manner, but the results were inconsistent. Zeithmal and Bitner; 2000 have indicated that interpersonal relationship as well as administrative constructs plays an vital role in affecting the quality of service. On the other hand(Donabedian,1982 Harrington & Pigman, 2008) have indicated that structure, process, and outcome are the three approaches and gold standards that define technical and client quality of healthcare services. However no clarified findings have been available regarding the cognition of cancer patients towards service quality. In midst of such conditions, it has been felt apparent to conduct research on the factors affecting the perception of cancer patients towards service quality in the current time perspectives in the city of Kolkata

### IV. RESEARCH OBJECTIVE

Because To identify factors affecting the perception towards the service quality of the healthcare organizations.

### V. RESEARCH METHODOLOGY

The research is partly descriptive and partly analytical. Data was collected among the – cancer patients. To collect data, a structured questionnaire was distributed among the respondents without any discrimination among the male and female. The questionnaire was translated and translated back to preserve the semantic consistency between the Bengali and the English Language. The data was collected among the hospitals of the Kolkata through Convenient sampling among the healthcare facilities with oncology department. A rigorous and multi-faceted have been used to validate reliability, feasibility and acceptability of the questionnaire. For this purpose, review of literature, patients' cognitive interviews, stakeholder like healthcare regulator, hospital manager, doctor, nurse and patient, psychometric. Analyses, small-scale multi-disciplinary expert consultations and field tests. The feasibility and acceptability of the tool were examined by the percentage of missing item responses, interviewer-reported acceptability, and the time and ease of administration. The internal consistency and reliability of each dimension was examined by the Cronbach's  $\alpha$  and inter-subscale correlations. A sample size of 120 was objected for this study and out of that 100 responses have been selected. Before doing data analysis, we cleaned the data which were not logical in terms of relationship between demographic and social characteristics. SPSS 22.0 have been used to test the internal consistency and reliability of the questionnaire with Cronbach's alpha.

The data had been processed

through factor analysis method to extract the factor that affect the perception of the patient towards service quality through variance value.

VI. EXPERIMENTAL RESULTS

Factor analysis and Reliability testing

The data obtained through questionnaire as subjected to data cleaning in order to identify missing value, data redundancy, sample characteristics and meet the assumptions of normality.

A common rule of thumb is that indicators should have a Cronbach’s alpha of at least 0.7 to judge the set of items as reliable (Peterson, 1994). Factors loading ranged from 0.779 to 0.975, after Cronbach’s alpha tested for each factor with reliability values found (a = 0.862, 0.833, 0.744, 0.721 and 0.854 respectively). These five factors were: Amenability, Trustworthiness, Competency of the staff, Clinical facility and Timeliness.

Table 1 Reliability test on 24 variables

		N	%
Cases	Valid	100	100.0
	Excluded <sup>a</sup>	0	.0
	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

Table 2 Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.883	.890	24

Experimental results:

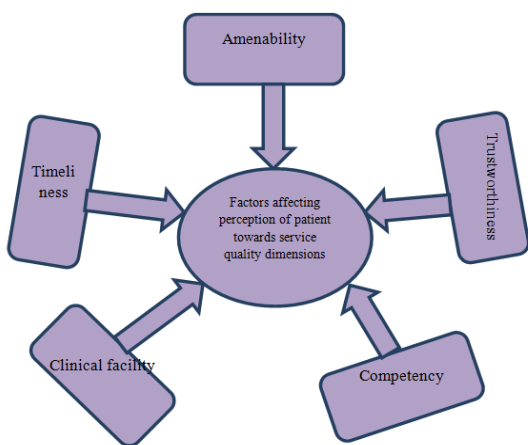


Fig1: Conceptual framework of factors affecting perception of patient towards service quality of healthcare organizations

VII. FINDINGS

**Amenability:** Amenability refers to readiness of the hospital staff to act for the hospitals. It refers to the attitude of the hospital staff by which they act for the patients. It indicated that whenever the patient or patient enquires for any service, the hospital authority serves with steadfastness.

**Trustworthiness:** Trustworthiness refers to the attitude of the hospital staff about their attitude for providing emotional support and encouragement. The words of communication implied meaning and expressed construct instils a sense of confidence and trust among the consumers.

**Competency of the staff:** The competency of the staff refers to the skills, contemporary diagnostic techniques like NLM(Non local means ) filter and wavelength packet thresholding through which they deliver service to the patients. The staffs in this case have been specified for expertise and proficiency of the organization regarding pharmacological therapeutics and low dose based CT imaging services for treatment of cancer patients.

**Clinical facility:** The clinical facility plays a vital role in delivering service to the patients and plays an influential role in affecting the positive perception of the hospital. The clinical facility starts from the day the patient is admitted and continues till the patient is discharged. The patient complies with the fact that the doctors/Consultants uses improved imaging techniques with better Image Quality Index(IQI) and Entropy differences(ED).The improved technology used by the them helps in increasing word of mouth referrals about the clinical facility provided by the doctors and the organizations.This will increase the economy of scale of the organizations along with better accessibility of the treatment to the patients.

**Timeliness:** The timeliness refers to the attitude in action through which hospital staffs deliver their service within stipulated time. The hospitals considered in this study have framed their policy and executed them within proper time frame.

Significance of the study

The investigation is totally descriptive and empirical in nature. The factors like amenability, Trustworthiness, competency to the staff, Clinical facility and Timeliness have been extracted as key pillars affecting the perception of the patients. These factors are of practical interest to the stakeholders of the healthcare organisations, policy makers, implementing bodies and subject matter experts. This study will help the hospitals and healthcare institutions to know what factors drive the patients to access healthcare services from their organization which will help them to gain competitive advantage and epitomize their sustainable growth. Besides this researchers have accomplished this study on cancer patients which will help the organisation to evaluate the needs of the cancer patients which will help to rehaul the Oncology departments in the hospitals and restructure the existing infrastructure. In future scope ,this factors can be assessed and evaluated by the policy makers to draft the new policy and suitably modify the existing so that patient centric approached can be framed collaterally and resiliently with existing transition of the urban health status and it’s changing service delivery demands.

The findings in the research will

provide foundation for MFD(Maximizing Finance for Development) in allocating resources for optimizing latest technology for embedding clinical technology like demonising imaging techniques and non clinical service disruptions by incorporating Artificial Intelligence, Robotic surgery, data transparency using blockchain techniques.

**VIII.CONCLUSION**

The factors affecting the perception of the patients have been extracted out through Explorative Factor Analysis. The factors that have been extracted are (i) Amenability (ii) Trustworthiness iii) Competency of the staff(iv)Treatment facility (v)Timeliness. Amenability defines the traits of the hospital like readiness of the hospital staff to act for the hospitals. Trustworthiness indicates the sense of confidence, reliability that the staffs of the hospitals instil among its patient. Better service delivery provides a sense of confidence among it's patient. Competency of the staff indicates the knowledge and skills of the staff to provide service for patients in better way. Treatment facility means the facilities available like clinical knowledge of the consultant/doctors in imparting right and proper clinical therapy and medications, diagnostic facility. Timeliness refers to the service delivered according to scheduled and useful time. All these factors influence the perception of the patients towards service delivered by the hospitals. The data was collected among the cancer patients. Since cancer patients have varied levels of perception (Mackillop and Stewart,1999). Regarding cancer, people appeared to be in two minds. In one hand, there is sense of fear regarding complications Mccutchan and wood, 1999) death due to cancer. Subsequently a rational thinking that cancer can be manageable and curable. Consequently, it is the duty of the organisation to follow the service quality policy and procedure so that satisfaction of the patient can be assessed. The factors obtained from EFA should be evaluated, assessed so that perception of the patients can be known. These factors can be utilized to reduce the gap of the servqual parameters and increase in the satisfaction of the patients.

**Limitations and scope of the research:**

This empirical qualitative and quantitative based investigation has been surveyed on the cancer patients of the Kolkata only. In future, the research can be extended to other parts of the West Bengal. Though an in-depth study on the psychological status, treatment status of the cancer patients. Similarly, the alternation in perception among the patients belonging to other critical disease can be done to accomplish the semantic consistency. The factors extracted can properly be used by the healthcare organizations to frame their strategies. The strategies based on this frame work can be utilized to frame and incorporate it in service quality policy and procedures for sustainable development of the healthcare organization.

**APPENDIX**

Tables :Based on Rotated Component Matrix

**Table 3**

Statement of Variables	Variance values	Factor
The front desk employees of the hospital are well groomed	.567	Amenability
Whenever I face any difficulty, the hospital takes action with earnest efforts in solving that	.705	
The hospital delivers it's service within it's specified promised time.	.771	
The employees of this hospital are always ready and willing to help you	.541	
The employees of this hospital are well behaved and courteous with me.	.738	
This hospital gives me personalized attention and importance	.700	
The employees of this hospital realize my specific needs	.896	
Doctors of this hospital gives enough consultation time to tell me what I need to know and answer my questions.	.726	

**Table 4**

Statement of Variables	Variance values	Factor
The physical facilities of hospital like infrastructural facility ,improved image thresholding analysis are in compliance with contemporary treatment methods.	.864	Trustworthiness
The employees of this hospital delivers service in prompt manner.	.506	
The behavior of employees of this hospital gives a sense of confidence in you	.605	
I feel safe while opting for healthcare facilities in this hospital.	.546	
Doctors of this hospital behave with friendly and helpful manner with me.	.787	

**Table 5**

Statement of Variables	Variance values	Factor
The hospital uses Non-local adaptive patch variation based CT image techniques.	.710	Competency
This hospital performs the service(pharmacological and diagnostic/imaging interventions) rightly since your arrival from the beginning	0.837	
The employees of this hospital have sufficient knowledge and skills to solve my queries.	.771	
This hospital performs improved Computed Tomography denoising using Non-Local Means filter and improved thresholding techniques.	.522	

Table 6

Statement of Variables	Variance values	Factor
The doctors of this hospital rightly explain about my health condition with latest technology of imaging services having improved Image Quality Index(IQI),and Entropy difference(ED)	.886	Clinical facility
The doctors of this hospital gives me exact image based diagnostic information which are better in visual quality(VQ).	.872	

Table 7

Statement of Variables	Variance values	Factor
The employees of this hospital can say accurately when the service will be delivered and accomplished.	.657	Timeliness
The waiting time to see doctor in this hospital is reasonable and justified.	.874	
The working hours in hospital are in accordance to my convenience	0.671	

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