

# EVALUATION OF FACTORS AND PERFORMANCE MEASURES: SERVICE QUALITY OF HOSPITAL

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**Abstract:** This paper is aimed to link the Critical success factors and Performance Measures to improve the Service Quality of Hospital. An instrument is modelled for identifying the problem and facts - in order to gain thorough, proper and clear understanding of healthcare services. The modelled linkages were found to be highly significant, moderately significant, and significant through empirical study and analysis. The established result can be used for further study and research to provide better Healthcare service quality. This paper will help healthcare service provider for better understanding of Service Quality management and improvement practices to meet the needs. This paper will encourage to implement practices thought to be unimportant for running business.

**Keywords:** Healthcare, Hospital performance, Critical Success Factors (CSFs), Performance Measures (PMs), Patient, Service level

**Paper type:** Research Paper

## 1. INTRODUCTION

Service industries are under enormous pressure due to rising expectations around the globe. The expectations of the stakeholders have constrained the service provider to address competitive trends and Service related issues. This is equally true for Indian healthcare service sector as well. Almost all the hospitals usually provide the same type of services, but mainly differ in quality of services (Cheng and Tang, 2000) leading the gap between expected and perceived level of service.

Healthcare is necessity irrespective of demography, culture, income, age and gender. Inaccessibility of Healthcare Services and excellence in Indian healthcare can be seen as a contradictory statement. India is second largest populous country with a population of 1.27 billion and growing at 1.25 % spends about 4-5% of its GDP on healthcare (world bank). Expectation of people are increasing day by day, creating an opportunity for players to provide the better healthcare services. However, lack of understanding of the factors responsible for excellence and dearth of patient has created an ambiguous scenario in healthcare system. Reasons attribute to growing population, lack of infrastructure, paucity of trained work force, changing disease profile, inefficient expenditure and inaccessibility of Healthcare Services. Indian healthcare establishments, have poor operational strategies, waste management and disposal policy. They ignore the rules for monetary consideration. They have untrained ward attendants, and other supporting staff. This compels hospital managers to take appropriate decisions to improve the integration of information systems by referring to technological, environmental and organizational dimension. (Hung et al., 2015). It is essential that the organizational culture encourages and support teamwork and cross-functional evaluation of performance to help employee and organization (Chow-Chua and Goh, 2002).

The study emphasizes on various issues in all those major areas in which the hospitals deal. This includes treatment time, cost feasibility, cleanliness, hygiene, patient care and comfort, privacy issues and infrastructure.

## 2. Literature Review

In 21st century, scenario has changed from merely treatment in hospital to quality treatment as service expectation and technological advancement has changed the expectation of patient and their family. Padma et al. (2014) has put basic factor, which lead to patient dissatisfaction if not fulfilled, but do not lead to satisfaction if fulfilled. One-dimensional factor cause satisfaction if their presence is high and lead to dissatisfaction if performance is low, which is directly connected to patients need and want. Excitement factors lead to patient satisfaction, which do not lead to dissatisfaction if absent. Indifferent factors neither cause satisfaction when provided nor dissatisfaction when missing. Koumaditis et al. (2013) has held leadership responsible for organizational and infrastructural

facility. Rateb et al. (2016) has listed top management commitment with highest score amongst training and education, continuous improvement and teamwork. Hariharan et al. (2004) has put patient care through better medical, nursing and paramedical in service using cross-functional approach. Drotz et al. (2014) has suggested support from Leadership in decision making through decentralization of authority, sharing of power, and active participation. Goh et al. (2013) has put safety of patient as the teamwork culture of the organization. Mosadeghrad (2013) has highlighted 50 % of the variation takes place due to incoherent culture and compatibility. Talib et al. (2011) emphasized on first impression formed at the very first service rendered that include effective food management, hygienic food and environment, confidence, treatment cost, patient focus, complaint resolution etc. Garg et al. (2014) suggests it is important for healthcare organizations to manage their staff retention in order to prevent intellectual lost and additional training cost for new employees. Sabry (2014) has found training has the highest significant correlation with quality of the service not the infrastructure as it is presumed to be an existing facility. Whereas, Dutta et al. (2014) has emphasized on physical infrastructure such as bed, equipment, tackling emergency services. Talib et al. (2015) has put India's healthcare sector needs to scale up considerably in terms of the availability and quality of its physical infrastructure as well as human resources so as to meet the growing demand and to compare favorably with international standards.

### 3. THE RESEARCH PROCESS

The measuring instrument was developed for Indian hospital - Patients, Doctors, Nursing staff, Paramedical staff, Support staff, and Management were the prime focus of study. The service quality practices adopted by the Hospital, Doctors, Support staff and perceived by the Patients and their family were studied. The gap between patients perceived service quality and received by them were analyzed. Since the objective was to develop a measuring instrument that could be used in service operations of Hospitals - hospital with minimum 50 beds were taken into consideration. The Doctors, Nurse, Paramedical staff, Support staff, Management and Patients were interviewed personally, the stakeholders were explained the necessity of this study. Expectations of patients discharged from hospital and their concerns and experiences were recorded.

The purpose of this research was to correlate the Service Quality Critical factors and Measures of Performance. This correlation was checked after the constructs were both found to be Reliable and valid. Twenty-nine healthcare attribute requirements for effective Service Quality practices and five constructs from forty-three hospitals were generated that represented five different Performance measure with sixty factors. Judgmental process of grouping similar requirements led to the classification of all these twenty-nine attributes under five groups for CSFs and sixty attributes into five groups for Performance Measures (PMs). This process resulted in an instrument strongly grounded in through literature. The twenty-nine requirements were termed as independent variables and sixty attributes were termed as dependent variables for CSFs and PMs respectively. The model proposed by Shrivastava, Mohanty and Lakhe (2006) was taken into consideration for this study.

The independent variables are the effort taken for "service quality improvement approaches" and dependent variables are the result of effort applied for "productivity improvement". The dependent variables are the outcome derived from those independent variables. Actual figures and percentages were used to evaluate hospitals performances - such as Recruitment & Retention of staff, Right time spent by doctor, Effective house-keeping and Laundry service, Fruitful treatment, Competent paramedical & support staff in terms of patient service level. Figure1 (significance model diagram) suggests Structural Model and its significance with CSFs and PMs in Indian hospitals as per data in Table 3. Table 2 and Table 3 show the Physical significances of Critical factors and Performance measures.

A doctrine that combined the characteristics of performance measures was used that ensured process output. Factor analysis was carried out to check the content reliability and validity along with multiple regression analysis to check the correlation. Multiple correlations checked the number of CSFs variables that strongly related to the PMs variables. While the Five factors were literature based, its validation was done by empirical research. Reliability and validity were demonstrated to be high that were intended to measure consistency and adequacy of data. The set of factors developed appeared to capture most of important aspects of effective service quality dimensions as thought by researchers. Empirical research overtime ultimately determined the validity of those set of Performance Measures.

The internal consistency method is the most general form used to assess the reliability of a set of measurement items indicating the constructs. Inter correlated and homogeneous measurement items are considered to be highly reliable constructs. Cronbach's alpha ( $\alpha$ ) is the most widely used reliability coefficient for measuring internal consistency. Subset having the highest reliability coefficient is likely to be the best construct with regard to internal consistency (Saraph et al., 1989). To ensure internal consistency, the minimum value of  $\alpha$  should be at least 0.6 (Nunnally and Bernstein, 1994). All factors were found having alpha value  $\geq 0.7$ , which concluded that the scales developed were found to have expected reliability. Measures were found to have high degree of Criterion validity when taken together. The coefficient found were 0.864 for Critical Factors and 0.939 for Performance Measures. Construct validity was required to measure the extent to which the items in a scale all measure the same construct. The item score for item to scale correlations were used to determine if an item belongs to the belongs to same scale or other scale as assigned., or if it should be eliminated. If an item did not

correlate highly with any of the scales, it was eliminated. Nunnally (1978), Eigen value should be  $\geq 1$  for construct validity. SPSS was used to do all the analysis part.

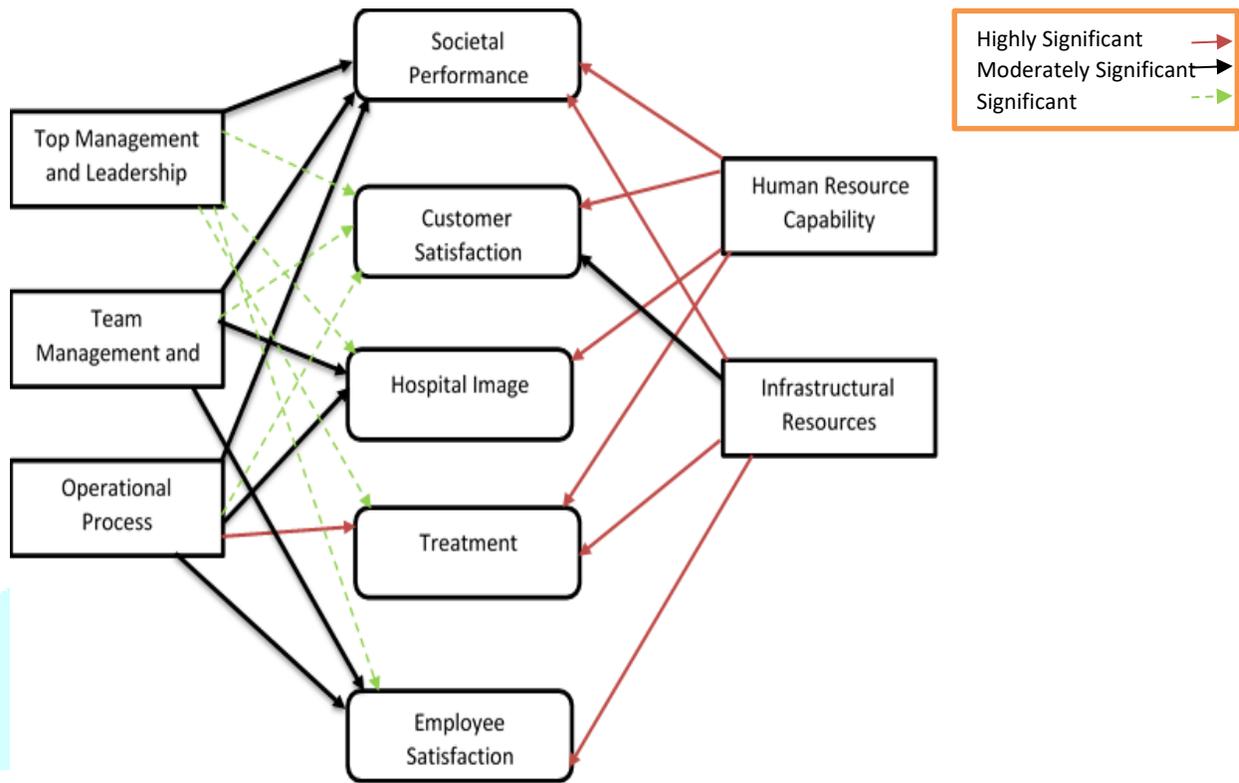


Figure 1: Significance CSFs and PMs: A structural Model

Table 1: Relational data for significance of model for CSFs and PMs

| CSF \ PM                     | intercept | Top Management & Leadership | Team Management and Culture | Operational Process | Human Resource capability | Infrastructural Resources | Gross Importance | PM Ranking      |
|------------------------------|-----------|-----------------------------|-----------------------------|---------------------|---------------------------|---------------------------|------------------|-----------------|
| <b>Societal Performance</b>  | -2.465    | +0.178                      | +0.128                      | +0.148              | +0.446                    | +0.582                    | 1.482            | 1 <sup>st</sup> |
| <b>Customer satisfaction</b> | -0.475    | +0.070                      | +0.042                      | +0.078              | +0.717                    | +0.179                    | 1.016            | 5 <sup>th</sup> |
| <b>Hospital Image</b>        | -1.347    | +0.099                      | +0.137                      | +0.110              | +0.519                    | +0.386                    | 1.152            | 4 <sup>th</sup> |
| <b>Treatment</b>             | -2.237    | +0.075                      | +0.151                      | +0.260              | +0.526                    | +0.394                    | 1.331            | 2 <sup>nd</sup> |
| <b>Employee Satisfaction</b> | -1.383    | +0.066                      | +0.107                      | +0.183              | +0.457                    | +0.422                    | 1.169            | 3 <sup>rd</sup> |

|                  |  |                 |                 |                 |                 |                 |
|------------------|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Gross Importance |  | 0.488           | 0.565           | 0.779           | 2.665           | 1.963           |
| CSF Ranking      |  | 5 <sup>th</sup> | 4 <sup>th</sup> | 3 <sup>rd</sup> | 1 <sup>st</sup> | 2 <sup>nd</sup> |

**Table2:** Critical factors and their physical significance

| Sr. no. | Critical factors for Service Quality Improvement | Explanation of Critical Factors   |
|---------|--|---|
| 1.      | Top Management and Leadership                    | Allocation of budget, best of the class technology & process, Adequate diagnostic facility, Safety and comfort measures.  |
| 2.      | Team Management and Culture                      | Cross-functional team, Competent, trained and experienced team, complementary skill, Stakeholders need assessment, change ready and adaptable workforce, Patient focus. |
| 3.      | Operation and Clinical Process                   | Cleanliness and comfort, Hygienic food supply, Availability of required medicine, privacy and confidentiality, Pre and post advice, Progress monitoring                 |
| 4.      | Human Resource capability                        | Attending - seminars, conferences, Resources in Library, Standard operating procedure, Cross functional team, Use of Quality tools, Appraisal system,                   |
| 5.      | Infrastructural Resources                        | Display - signboard, information kiosk, Credibility of service administration, Visible safety rules and regulations, Collaboration with stakeholder                     |

**Table 3:** Performance measures: Physical significance

| Sr. No. | Performance Measures for Service Quality Improvement | Explanation of Performance Measures  |
|---------|--|--|
| 1.      | Societal performance                                 | During stay at hospital – cleanliness of room, 24 Hour pharmacy, Handrails in aisles, ramp designed for wheel chair  |
| 2.      | Customer satisfaction                                | Sense of being in safe hand, Problem solving, Treatment and outcomes, Right time spent by doctor with patient, Doctor explaining medical condition, Reduced down time  |
| 3.      | Hospital Image                                       | Prompt simple and clear admission procedure, Effective house-keeping & Laundry service, Clean Lobby & ward, Facility for patient attendant, Ethical principle across the hospital  |
| 4.      | Treatment  | Preoperative advice by doctors, Ease of getting diagnostic test, Reduced medicine administration errors, Fruitful treatment  |
| 5.      | Employee satisfaction                                | Trained and qualified staff, Competent paramedical & support staff, Applying new methods and techniques, Increased efficiency of Hospital, Competency and skill of doctors, Increased safety standard & procedure, Updated knowledge of technology & process |

#### 4. ANALYSIS AND RESULTS

The total Variance of Component 1 accounted for 31.031 percent of the total 100 percent of 29 critical items taken simultaneously. Similarly, component three and component four contributed to 6.35 and 3.09 percent of 100%. The authors had taken 5 factors which constituted 77.19 percent of the total hundred percent cumulatively. This was performed based on literature review and standard acceptance of Scree plot. Scree plot suggested that those components which cumulatively constitute 50 percent of the total can be taken as the remaining other components do not have significant contribution towards the study and may be discarded. However, the authors chose to represent the component, which included 24 items out of 29 items under consideration. The same theory applied for Performance measure also. Analysis showed that the first four components were considered for study, constituting 27 out of 60 items, which accounted to 67.515 percent of the total 100 percent of all 60 items taken together. The Factor matrices taken were uni-factorial and were having Eigen values greater than one. That indicated that all the scales taken in the study in the form of questionnaire had construct validity.

The five critical factors of Service Quality measures and the five measures of performance in a hospital unit had criterion-related validity. The criterion-related validity of the combined set of five measures of Service Quality management was evaluated by examining the multiple correlation coefficients for critical success factors and performance measures. The multiple correlation coefficient of the Service Quality performance measure and the five measures of quality management was 0.9 and 0.8 for five Performance measures indicating that both of them have a high degree of criterion-related validity when taken together.

Figure 1 clearly defined the relationship between Critical factors and Measures of Performance. All the critical factors and measures of Performance having  $P < 0.05$  were considered to have strong relationship. Those factors between  $P \geq 0.05$  to 0.4 were considered to have high significant and  $P \geq 0.05$  to 0.3 moderately significant and  $P \geq 0.05$  and  $P \leq 0.05$  to 0.3 significant in the model.

## 6. CONCLUSION

Policy and decision makers in any hospital environment to assess the status of Service Quality Management. This paper will not only allow the active stakeholders of hospital to understand patient's needs and requirements about the services and its quality but will encourage them to implement practices they thought to be unimportant for running their business. The patients and their family will understand the difficulties faced by the hospital in fulfilling their expectations. The established significance level of model factors on implementation will improve customer satisfaction. The initial results concerning the measures were not as encouraging as gestation period normally is 6 to 12 months. To corroborate the results for further improvement and to increase the customer base hospital need to do a great deal of further research in Service areas.

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