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Evaluation of Critical Success Factors for Indian Healthcare Industry

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Abstract

This paper aims at evaluation of Critical Success Factors (CSF) and their attributes in Indian healthcare. Various problems of health care industry through analysis of factors and its attributes using factor analysis, correlation and other framework parameters has been done. It was found that Human Resource Capability, Infrastructural Resources were the most significant CSFs apart from Operational process, Team management and culture. Surprisingly findings revealed that factors namely Top Management and Leadership were least significant. As there is no clear framework for excellence in healthcare, where stakeholders are an integral part of complete service, developed CSF and its connectivity to attributes may help to resolve the service level issues of Indian Hospital.

Keywords: Healthcare, Hospital, Critical Success Factors (CSFs), Patient expectation, Service Quality

JEL Classification: D74, E39, I18, I30

Paper Classification: Research Paper

Introduction

Service level expectations from around the globe have put enormous pressure on Service industries. The expectations of the stakeholders have constrained the service provider to address competitive trends and service related issues. This is equally true for Indian hospitality sector as well. Hospitality sector includes healthcare industry and it has provided an opportunity in raising the service standards of hospitals. In the health care industry, hospitals provide the same type of services, but differ in perceived and expected quality of services (Cheng and Tang, 2000).

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.

Challenges in Indian Healthcare Industry

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 %, spending about 4-5% of its GDP on healthcare (World Bank). Expectations of people are increasing day by day, creating opportunities for private players to provide the healthcare services. However, lack of understanding of the factors responsible for excellence and dearth of patients 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 forces hospital managers to integrate and improve organizational dimension, technological calibration and environmental (Hung et al., 2015). It is essential that the organisational culture encourages and support teamwork and cross-functional evaluation of performance to help employee and organisation (Chow-Chua and Goh, 2002). As quality and service is not guaranteed in the Indian Healthcare, so is the case with other countries including USA. This clearly signifies that there are gaps in the process of healthcare system. A balance in the service and care can only be managed by filling the gaps in the process and level of system of healthcare.

Literature Review

Scenario has changed from merely treatment in hospital to quality treatment as service expectations and technological advancement have changed the expectations of patient and their family. Padma et al. (2014) has put basic factor using Kano's model of customer satisfaction, patient will be dissatisfied if not fulfilled but not satisfied if fulfilled. Unspoken need factor cause satisfaction if their presence is high and lead to dissatisfaction if it is low which is directly connected to patients need and want. Exciter factor leads to delighted patient, but if absent do not lead to dissatisfaction. 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) put patient care through better medical, nursing and paramedical in service using cross-functional approach. Drotz et al. (2014) suggested support from Leadership in decision making through decentralization of authority, sharing of power, and active participation. Goh et al. (2013) put safety of patient as the teamwork culture of the organization. Mosadeghrad (2013) 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) suggested, hospitals should manage to retain their staff to prevent additional training cost for new employees and loss of intellectual. Sabry (2014) 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) emphasized on physical infrastructure such as bed, equipment, tackling emergency services. Talib et al. (2015) suggested scaling up growing demand of physical infrastructure and human resources to compete with international standards.

Critical Success Factors (CSF)

Table 1: Critical success factors

Critical factors Author	Leadership and Financial Resource Management	Team Management	Culture	Treatment	Training and Human Resource	Infrastructure Facility and Social image
Antony and Kumar (2012)	X		X	X		
Brandrud et al. (2011)	X				X	X
Chakrabarty and Tan (2007)			X	X	X	
Chow-Chua and Goh (2002)	X		X	X	X	
Desai et al. (2012)	X		X		X	X
Dilber et al. (2005)	X			X		
Drotz and Poksinska (2014)	X	X	X		X	
Garg and Agarwal (2014)	X				X	X
Goh et al. (2013)		X		X		X
Handayani et al. (2014)	X			X		
Hariharan et al. (2004)		X		X		X
Indounas and Arvaniti (2015)	X	X		X	X	
Kanji and Moura (2003)	X		X		X	
Koumaditis and Themistocleous (2013)	X		X			X
Mosadeghrad (2013)	X		X		X	
Noori (2015)			X		X	
Padma et al. (2014)				X		X
Paidi and Iliopoulou (2014)	X				X	
Sabry (2014)	X	X			X	X
Stock et al. (2007)			X		X	
Talib et al. (2011)		X		X	X	
Yusof and Aspinwall (2000)	X				X	
Zargun and Al-Ashaab	X				X	

(Source: Authors)

Critical Success Factor(CSF) and its Importance

Industries need a frame work of CSFs which can be used for solving performance related problems. Most studies focused only on one aspect - such as Bed utilization, Operation theater usage utilization, Medication error reduction etc.

Author has tried to fill following gap:

Evaluate all the critical success factors for overall performance improvement of the healthcare industry. Conceptual model of significant relationship have not been yet integrated. Approximate generalized field data based models are not reported in global as well as in Indian context. Unified Framework for Healthcare is still missing. Integrate various attribute's dimension towards development of comprehensive framework for sustainable development for Indian Healthcare industry.

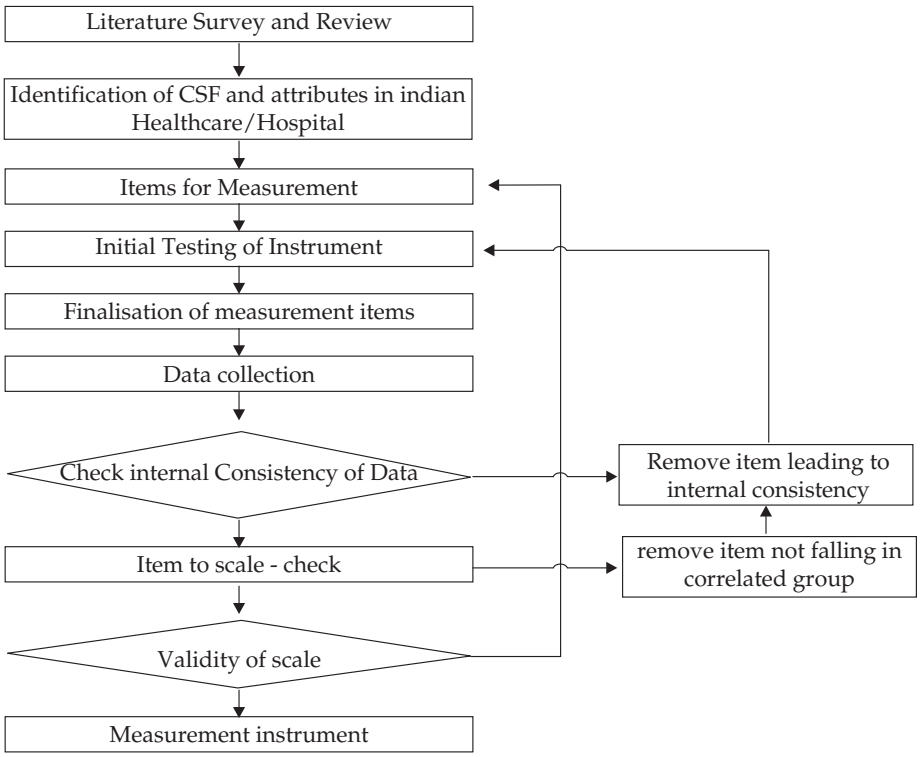
Research Process

Measuring instrument was developed for Indian hospital - Patients, Doctors, Nursing staff, Support staff, and Management were the prime focus of the study. The service quality practices

adopted by the hospitals, doctors, support staff and perceived by the patients and their families were studied. The gap between perceived and expected service quality was analyzed. To develop an instrument for measurement - hospitals with minimum 50 beds were taken into consideration. The doctors, nurses, paramedical staff, support staff, management and patients were interviewed personally. Expectations of patients discharged from hospital and their concerns and experiences recorded. The strong and weak factor relation model proposed by Shrivastava (2006) is considered.

The objective of the research is to correlate Service Quality Critical factors. This correlation was checked after the constructs were found reliable and valid. Twenty-nine healthcare attribute requirements for effective Service Quality practices and five constructs from forty-three hospitals were generated. Categorization process resulted in an instrument strongly grounded through literature. The twenty-nine requirements were termed as independent variables as an effort factor for service quality. Flow chart for this research model is presented in Figure 1.

Figure 1: Research Process: Independent variable scanning for measurement instrument



The independent variables are ``service quality improvement approaches'' and ``productivity improvement approaches''. The independent variables such as Adequate test and diagnostic facility, Safety and comfort measures, Competent, Trained and experienced team, Patient focused and customer driven, Progress monitoring, Fair & transparent Appraisal system, Maintaining of patient privacy and confidentiality, Credibility of service administration, Visible safety rules & regulations are some of the outcomes derived from those independent variables. All the attributes with their CSFs are presented in Table 6.

Factor analysis was carried out to check the content reliability and validity as given in Table 2 and Table 3 and communalities of attributes and its correlation is given in Table 4 and Table 5. Internal consistency of variable data was estimated using reliability coefficient such as Cronbach's

alpha. Nunnally (1978) suggested that a Cronbach's alpha value ≥ 0.7 suggests good internal consistency. The overall Cronbach's alpha for independent variable was found to be 0.864, which indicated that the developed instrument was reliable. The KMO represents sample adequacy for factor analysis having eigen value ≥ 1; was found to be 0.690 to 0.754, which is above the minimum standard of ≥ 0.5 supporting the appropriateness of factor analysis to explore the listed attributes. The Bartlett's test of sphericity was highly significant ($p < 0.000$) significance value of Bartlett's test is 0.000, rejecting the null hypothesis that the important twenty-four attributes are uncorrelated in the population. This indicates sufficient number of samples for factor analysis (Kim and Mueller, 1978).

Table 2: Overall Reliability of all Independent variables

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.863	.864	29

Table 3: Extracted factors and reliability

S. No.	Name of Input Factors	No. of Items	Items removed	Cronbach α	KMO	Total variance explained by these factors
1.	Top Management and Leadership	04	Nil	0.911	0.738	2.160
2.	Team Management & Culture	09	05	0.793	0.696	2.010
3.	Operation & Clinical Process	06	Nil	0.813	0.754	2.198
4.	Human Resource capability	06	Nil	0.807	0.733	2.138
5.	Infrastructural Resources	04	Nil	0.809	0.690	1.832

Table 4: Communalities of Factor attributes

	CSFs	Attribute:	Initial	Extraction
Factor - 1	Top Management and Leadership	1. Provisioning and allocation of budget for resources	1.000	.858
		2. Tapping best of the class technology & process	1.000	.919
		3. Adequate test / diagnostic facility	1.000	.957
		4. Safety & comfort measures	1.000	.969
Factor - 2	Team Management and Culture	5. Active cross functional team	1.000	.966
		6. Competent, trained & experienced team	1.000	.973
		7. Developing complementary skill	1.000	.962
		8. Stakeholders need & assessment	1.000	.979
		9. Workforce that is change ready and adaptable	1.000	.847
		10. Patient focused and customer driven	1.000	.874
		11. Quality improvement is everybody's responsibility not merely particular unit/department	1.000	.956
		12. Alertness to eliminate wastes and variations in processes	1.000	.864
		13. Organization image alignment with do's and don'ts by employee	1.000	.898
Factor - 3	Operation and Clinical Process	14. Cleanliness & comfort	1.000	.984
		15. Hygienic food supply	1.000	.986
		16. Availability of required medicine	1.000	.904
		17. Pre and post advice	1.000	.742
		18. Progress monitoring	1.000	.940
		19. Facilitating for attending, organizing training / seminars / conferences on related software / forum / platform	1.000	.986

Factor - 4	Human Resource Capability	20. Journal / Book / Current trends availability in Library	1.000	.982
		21. Standard operating procedure (SOP) and certified personnel / laboratory affirms confidence	1.000	.997
		22. Periodic meeting / discussion with cross functional team (To minimize defect)	1.000	.854
		23. Basic selection criteria - knowledge about Quality tools & techniques	1.000	.952
		24. Fair & transparent Appraisal system	1.000	.942
		25. Maintaining of patient privacy and confidentiality	1.000	.917
Factor - 5	Infrastructur-al Resources	26. Collaboration with stakeholder	1.000	.961
		27. Credibility of service administration	1.000	.977
		28. Visible safety rules & regulations	1.000	.855
		29. Display, signboard, information kiosk	1.000	.866

Table 5: Correlation of attributes

Attributes	Factor-1	Factor-2	Factor-3	Factor-4	Factor-5
1. Provisioning and allocation of budget for resources	.724**	.259**	.338**	.169**	.211**
2. Tapping best of the class technology & process	.737**	.311**	.320**	.249**	.078
3. Adequate test / diagnostic facility	.766**	.385**	.317**	.195**	.201**
4. Safety & comfort measures	.711**	.354**	.223**	.197**	.208**
5. Active cross functional team	.399**	.639**	.185**	.208**	.134**
6. Competent, trained & experienced team	.339**	.623**	.174**	.286**	.253**
7. Developing complementary skill	.225**	.610**	.120*	.233**	.084
8. Stakeholders need & assessment	.148**	.605**	.124*	.099	.040
9. Workforce that is change ready and adaptable	.301**	.659**	.341**	.363**	.264**
10. Patient focused and customer driven	.330**	.634**	.378**	.215**	.136**
11. Quality improvement is everybody's responsibility not merely particular unit/department	.312**	.627**	.359**	.331**	.143**
12. Alertness to eliminate wastes and variations in processes	.149**	.492**	.329**	.273**	.096
13. Organization image alignment with do's and do not by employee	.201**	.469**	.395**	.195**	.198**
14. Cleanliness & comfort	.247**	.396**	.605**	.249**	.123*
15. Hygienic food supply	.155**	.298**	.589**	.287**	.247**
16. Availability of required medicine / drugs	.286**	.215**	.672**	.260**	.155**
17. Maintaining of patient privacy and confidentiality	.394**	.224**	.603**	.283**	.228**
18. Pre and post advice	.256**	.293**	.704**	.346**	.194**
19. Progress monitoring	.237**	.242**	.653**	.366**	.208**
20. Facilitating for attending seminar / workshop	.356**	.238**	.400**	.593**	.239**
21. Journal / Book / Current trends availability in Library	.060	.302**	.221**	.582**	.207**
22. Standard operating procedure (SOP) and certified personnel / laboratory affirms confidence	.077	.291**	.291**	.591**	.223**
23. Periodic meeting / discussion with cross functional team (To minimize defect)	.247**	.212**	.283**	.618**	.363**
24. Basic selection criteria - knowledge about Quality tools & techniques	.104*	.219**	.259**	.606**	.320**
25. Fair & transparent Appraisal system	.113*	.196**	.213**	.584**	.331**
26. Display, signboard, information kiosk	.036	.079	.198**	.322**	.658**

27. Collaboration with stakeholder	.212**	.190**	.140**	.350**	.691**
28. Credibility of service administration	.133**	.181**	.206**	.299**	.697**
29. Visible safety rules & regulations	.262**	.227**	.275**	.294**	.657**

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*
___ Underlined value is highly correlated

Table 6: Critical factors and their significance

Sr. no.	Critical factors for Service Quality Improvement	Explanation of Critical Factors
1.	Top Management and Leadership	Business goal, commitment, participation and involvement, competitive infrastructure, roadmap and business strategy, organizational and infrastructural dimension - technological, organizational and environmental, leadership and resource with the quality culture, employee and their job characteristics perspective.
2.	Team Management and Culture	Participation in decision making, new service development along with market value creation, cross functionality for better medical, nursing, patient safety and paramedical services towards zero defect; decentralization of authority. 50 % of the variation takes place just due to cultural incoherence, acknowledging errors without blame, discussion about errors, statistical analysis of error and data, induction and training programs, thinking towards waste elimination as a part of culture; overcome resistance and educate senior managers, employees, and customers; continuous improvement and meeting the ever-changing demands, behaving with patients, families, local companies
3.	Operational Process	Business need defined by customer, focus may be only on laboratory or facility, effective and hygienic food and environment management; confidence, treatment cost, patient focus, complaint resolution; value for the money spent, people, process, policy and technology to meet expectation, increased service level, customer retention and claim redressal system, focusing on managing process and not just the technical medical practice factors, waste in the process and impact on customer, waiting for a procedure, waiting for paper work, transporting of goods without purpose, unwanted movement of employee, processing unwanted steps, unwanted test.
4.	Human Resource Capability	Fundamental tools and techniques, quality initiative and involvement mandatory for promotion consideration, willingness to change, work in multidisciplinary environment, increases sense of job security, retention of staff and intellectual loss and additional training cost, certification as well as implementation, significant correlation with quality of the service, positive group culture and participation, multifunctional staff, autonomy and responsibility, time flexibility, cross training - better process improvement and control, creativity and innovations – performance and rewards.
5.	Infrastructural Resources	Cross-functional team, leadership behavior in staff, sustainable systems for continuous quality improvement, physical infrastructure such as bed, equipment, tackling emergency services; technological resources to overcome the problems; recreation facilities, eco-friendly campus, bank facility in the campus, hygiene and maintenance, residential campus, cooperative store facility, adequate space provision, safety indicator gap, communication system, medical records management, engineering, accident and emergency, supply chain management, collaboration and teamwork to focus on safety, quality of physical infrastructure, maintain equipment to standard.

Analysis and Results

This explains the total variance. Component 1 accounted for 31.031 per cent of the total 100 per cent of 29 critical items taken simultaneously. Similarly component 3 and component 5 contributed to 6.35 and 3.09 per cent of 100%. The authors had taken 5 factors which constituted 77.69 per cent of the total hundred per cent cumulatively. This was done on the basis of literature review and acceptance of Scree plot for such type of study. Scree plot suggested that those components which cumulatively constitute 50 per cent 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 go up to 80 % representation of the components which included 24 items out of 29 items under consideration.

Emergent Implications

This study is found to be important to Hospital Administrator and Management, and Operational Process Team. All the learning outcomes of the study are focused on the measures of organizational effort towards excellence.

Hospital Administrator and Management

Top and Middle Hospital Administrator should show their commitment towards service quality practices and take decisions judiciously for motivating other associated staff by encouraging them to participate in service quality initiative. They need to integrate Service Quality improvement practices into all business functions within the hospital.

Operation (Doctors, Nurse, Paramedics)

The practitioners need to demark the level of improving the service quality in their areas to fulfil the service gaps and improve upon those dimensions that contribute to service quality management. The operation team should understand and realize market segments, customer preferences, customer needs and develop resembling solutions to bring flexibility in service delivery process. They need to measure service processes performance in physical terms (time, cost, profits) and identify components and processes that contribute to variations. Variations are inevitable but be reduced, minimized, or removed through teamwork and culture along with the desired training.

Conclusion

Policy and decision makers in any hospital assess the status of service quality management. This paper will allow the active stakeholders of hospital to understand patient's needs and requirements, services and its quality, and encourage them to implement practices they thought to be unimportant. Both internal and external stakeholders will benefit by implementing these critical success factors.

In this analysis a sample size of 382 valid responses were taken into consideration after analyzing the survey data of 587 respondents. 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 by increasing the sample size of respondents. The authors hope that this paper will help companies in better understanding of service quality management and improvement.

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