EVALUATION OF PERFORMANCE MEASURE FACTORS FOR INDIAN HEALTHCARE INDUSTRY

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Abstract:

This Paper aims at evaluation of Performance Measures (PMs) and its attributes in Indian healthcare. Various problems of healthcare industry through analysis of factors and its attributes, factor analysis, correlation and other framework parameters has been done. It was found that societal performance, Hospital Image, Treatment were the most significant PMs apart from Customer satisfaction, and Employee satisfaction. As there is no clear framework for excellence in healthcare, where stakeholders are an integral part of complete service, developed PMs and its connectivity to attributes may help to resolve the service level issues of Indian Hospital.

Keywords: Healthcare; Hospital; Performance Measure; Patient Expectation; Quality Expectation; Service Level.

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1. 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, almost all the hospitals usually provide the same type of services, but mainly differ in 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.
2. 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. Expectations of people are increasing day by day, creating an environment 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 organisation (Chow-Chua and Goh, 2002).

3. Literature Review

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.
4. The Research Process

Since the measuring instrument was developed for Indian hospital, Patients, Doctors, Nursing 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 measurement instrument that can be used in service operations of Hospitals, hospitals 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 recorded. The model proposed by Shrivastava (2006) was taken into consideration for strong and weak factor relation. The purpose of this research was to correlate the Service Quality Critical factors. This correlation was checked after the constructs were both found to be Reliable and valid. Sixty healthcares 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 sixty requirements were termed as dependent variables as a performance factor for service quality. Flow chart for this research model is presented in Figure 1.

The dependent variables are "service quality improvement approaches" and "productivity improvement approaches". The dependent variables such as cleanliness of room, Treatment and outcomes, Preoperative advice by doctors, Competent paramedical & support staff, patient privacy, service administration, Reduced medicine administration errors, Visible safety rules, Facility for patient attendant, Sense of being in safe hand& regulations are some of the outcome derived from those dependent variables. All the attributes with their PMs are presented in Table 5.

Factor analysis was carried out to check the content reliability and validity as given in Table 1 and Table 2 and communalities of attributes and its correlation is given in Table 3 and Table 4. Internal consistency 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 0.939, which indicated that the developed instrument was reliable. The KMO represents factors having eigen value ≥ 1 was found to be 0.636 to 0.777, which is above the minimum standard of ≥ 0.5, which indicated sample adequacy for factor analysis, and 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-seven attributes are uncorrelated in the population. This indicates sufficient number of samples for factor analysis (Kim and Mueller, 1978).
Figure 1: Research process: Independent variable questionnaires scanning for measurement instrument

Table 1: Overall Reliability of all Independent variables

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|---------------------------------------------|------------|
| 0.937            | 0.939                                       | 60         |

Table 2: Extracted factors and reliability

| S. No. | Name of Output Factors | No. of Items | Items removed | Cronbach α | KMO   | Total variance explained by these factors |
|--------|------------------------|--------------|---------------|------------|-------|------------------------------------------|
| 1.     | Societal               | 14           | 10            | 0.803      | 0.738 | 3.160                                    |
| 2.     | Customer               | 14           | 08            | 0.826      | 0.696 | 3.010                                    |
| 3.     | Hospital Image         | 11           | 06            | 0.801      | 0.754 | 2.598                                    |
| 4.     | Treatment              | 08           | 03            | 0.798      | 0.733 | 2.138                                    |
| 5.     | Employee               | 13           | 06            | 0.861      | 0.690 | 2.832                                    |
### Table 3: Communalities of Factor attributes

| PMs                      | Attribute:                          | Initial | Extraction |
|--------------------------|-------------------------------------|---------|------------|
| Societal performance     | 1. Customer Inclination             | 1.000   | .858       |
|                          | 2. Linked theory & Practice         | 1.000   | .919       |
|                          | 3. Error free service, treatment    | 1.000   | .957       |
|                          | 4. Service on demand with minimal effort & time | 1.000   | .969       |
|                          | 5. Increased Market value of Hospital | 1.000   | .997       |
|                          | 6. Recruitment & Retention of talent | 1.000   | .854       |
|                          | 7. Minimum throughput time          | 1.000   | .952       |
|                          | 8. Structured authority             | 1.000   | .956       |
|                          | 9. 24 Hour pharmacy                | 1.000   | .864       |
|                          | 10. Return of unused drug / medicine| 1.000   | .898       |
|                          | 11. During stay at hospital – promptness of staff | 1.000   | .984       |
|                          | 12. During stay at hospital – cleanliness of room | 1.000   | .986       |
|                          | 13. Handrails in aisles, ramp designed for wheel chair | 1.000   | .904       |
|                          | 14. Uninterrupted medical supplies service level | 1.000   | .982       |
| Customer satisfaction    | 15. Sense of being in safe hand     | 1.000   | .997       |
|                          | 16. Reduced down time               | 1.000   | .854       |
|                          | 17. Reduced upkeep cost             | 1.000   | .952       |
|                          | 18. Increased Operation flexibility  | 1.000   | .942       |
|                          | 19. Better alignment with task      | 1.000   | .917       |
|                          | 20. Problem solving capability      | 1.000   | .961       |
|                          | 21. Handling of unforeseen / unexpected condition | 1.000   | .977       |
|                          | 22. Friendly doctor’s staff         | 1.000   | .962       |
|                          | 23. Explanation about treatment and outcomes by doctor | 1.000   | .979       |
|                          | 24. Doctors explaining things in a way you can understand | 1.000   | .847       |
|                          | 25. Knowledge of doctor             | 1.000   | .874       |
|                          | 26. Right time spent by doctor with you | 1.000   | .956       |
|                          | 27. Answering your question by doctor | 1.000   | .864       |
|                          | 28. Doctor explaining medical condition to you | 1.000   | .898       |
| Hospital Image           | 29. Prompt simple and clear admission procedure | 1.000   | .984       |
|                          | 30. Reduced invoicing error         | 1.000   | .854       |
|                          | 31. Reduced patient complaint       | 1.000   | .952       |
|                          | 32. Effective house-keeping & Laundry service | 1.000   | .917       |
|                          | 33. Clean Lobby & ward              | 1.000   | .961       |
|                          | 34. Clear signboard with instruction & guidelines | 1.000   | .977       |
|                          | 35. Overall ambience, hygiene, facility & safety | 1.000   | .977       |
|                          | 36. Facility for patient attendant   | 1.000   | .855       |
|                          | 37. Fair medical treatment          | 1.000   | .854       |
|                          | 38. Facilitating the benefit received from supplier / government | 1.000   | .952       |
|                          | 39. Ethical principle across the organization / segments of society | 1.000   | .956       |
### Table 4: Correlation of attributes

| Attributes                                                                 | Factor - 1 | Factor - 2 | Factor - 3 | Factor - 4 | Factor - 5 |
|---------------------------------------------------------------------------|------------|------------|------------|------------|------------|
| 9. 24 Hour pharmacy                                                       | .670**     | .439**     | .419**     | .360**     | .255**     |
| 11. During stay at hospital – promptness of staff attending call on demand| .734**     | .339       | .397**     | .340       | .276**     |
| 12. During stay at hospital – cleanliness of room                         | .801**     | .377**     | .419**     | .346**     | .270**     |
| 13. Handrails in aisles, ramp designed for wheel chair                    | .726**     | .456**     | .465**     | .376**     | .205**     |
| 15. Sense of being in safe hand                                           | .393       | .541**     | .433**     | .318**     | .194**     |
| 16. Reduced down time                                                      | .287**     | .498**     | .324**     | .425**     | .283**     |
| 20. Problem solving capability                                            | .378**     | .485**     | .261**     | .412**     | .183**     |
| 23. Explanation about treatment and outcomes by doctor                    | .225**     | .630**     | .308**     | .241**     | .241**     |
| 26. Right time spent by doctor with you                                   | .256**     | .567**     | .303**     | .266**     | .147**     |
| 28. Doctor explaining medical condition to you                            | .244**     | .517**     | .339**     | .108       | .153**     |
| 29. Prompt simple and 4 admission procedure                               | .325**     | .426**     | .551**     | .318**     | .197**     |
| 32. Effective house-keeping & Laundry service                              | .395**     | .267**     | .466**     | .236**     | .196**     |
| 33. Clean Lobby & ward                                                     | .422**     | .404**     | .576**     | .292**     | .170**     |
| 36. Facility for patient attendant                                         | .281**     | .216**     | .556**     | .207**     | .165**     |
Table 5: Critical factors and their significance

| Sr. no. | Critical factors for Service Quality Improvement | Explanation of Critical Factors |
|---------|------------------------------------------------|--------------------------------|
| 1       | Societal performance | Structured authority, Uninterrupted medical supplies, Minimum throughput time, Linked theory and Practice, Retention of talent, Return of unused medicine, Promptness of staff, Error free treatment, 24 Hour pharmacy |
| 2       | Customer satisfaction | Problem solving capability, Friendly doctor’s staff, Right time spent by doctor, Doctor explaining medical condition, Reduced upkeep cost, Doctor answering query – easy to understand, Handling of unexpected condition, Alignment with task, Sense of being in safe, Treatment and outcomes, 50 % of the variation takes place just due to cultural incoherence, reporting errors without blame, open discussion about errors, statistical analysis of error data, |
| 3       | Hospital Image | Simple and clear admission procedure, Reduced patient complaint, Clean Lobby and ward, Reduced invoicing error, Effective house-keeping & Laundry service, Facility for patient attendant, Fair medical treatment, Overall ambience, hygiene, facility & safety, Ethical principle, Clear display with instruction & guidelines |
| 4       | Treatment | Preoperative advice by doctors, Reduced medication delays, Post-operative care, Clear information regarding rules and procedure, Fruitful treatment, Reduced medicine administration errors |
| 5       | Employee satisfaction | Trained and qualified staff, Use of Quality tools, Teamwork by doctors and nursing staff, Applying new methods and techniques, Increased safety standard & procedure, Concurrent approach to problem resolution, Updated knowledge of technology |
5. Analysis and Results

This explains the total Variance. Component 1 accounted for 32.311 percent of the total 100 percent of 60 performance items taken simultaneously. Similarly, component 3 and component 5 contributed to 6.85 and 3.39 percent of 100%. The authors had taken 5 factors which constituted 78.63 percent of the total hundred percent cumulatively. This was done on the basis of literature review and worldwide acceptance of Scree plot for such type of study. 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 components which included 27 items out of 60 items under consideration.

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 performance quality but will encourage them to implement practices they thought to be unimportant for running their business. If all the Service Quality performance attributes are considered by the hospital for implementation to improve customer satisfaction – service quality in terms of performance will get stability. 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 the increase the customer base hospital need to do a great deal of further research in Service areas. Sample size should be higher. The authors hope that this paper will help companies in better understanding of Service Quality management and improvement.

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