

Application of MBNQA for service quality management and performance in healthcare organizations

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Abstract

The aim of this research is to examine the relationship between service quality management dimensions (quality management and patient service quality) and their impact on performance of the healthcare organizations. The organizations that deliver service must broaden their examination of quality from the conventional organization-oriented perspective to a dual, organization – customer perspective. The quantitative methodology was employed to test model of service quality management and performance through an integrated perspective. The MBNQA (Malcolm Baldrige National Quality Award) criteria and grounded theory for patient service quality was adopted to measure the internal and external service quality of healthcare organizations. Further, the study aligned the internal and external service quality to obtain the holistic view of service quality management and performance in healthcare organizations from the perspective of internal and external customers. The outcome of the study indicated that the healthcare organizations had a silver line performance based on MBNQA criteria. Overall, the study reinforced service quality management and performance with the application of MBNQA criteria in healthcare organizations.

Keywords: MBNQA (Malcolm Baldrige National Quality Award) criteria, service quality, performance, and healthcare organization

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1. Introduction

Global health is the health of populations in a global context and transcends the perspectives and concerns of Individual nations (Brown et al. 2006). Globalization and liberalisation policies have significantly changed the healthcare scenario of India. In the recent years, there is an increasing need for quality performance in healthcare organizations (Kunal et al.2005). The Indian healthcare industry is worth Rs. 8, 20,000 million today with global revenues of approximately US \$ 2.8 trillion. The healthcare industry is world's largest industry and India is emerging as a major player because of its high population (D.M.Pestonjee et al.2005). The Union Budget 2002-2003 conferred infrastructure status on the healthcare industry under Section 10(23G) of the Income Tax Act. This provides the opportunity for the hospitals to raise long-term capital. As hospitals in India are not only growing in number, but also in size, complexity, and the types of the services provided, there is growing need for service quality. The concept of service quality in healthcare organizations needs to be explored in the context of changing quality dimensions. There is a need to identify their scope in service quality research with the changing issues of dimensionality, to adopt suitable dimensions for performance improvement and further it emphasizes the need for a holistic framework for measuring performance in healthcare organizations. This issue is significant because of concurrent view amongst various researchers in service management that there are both hard and soft issues reflecting, the lack of strategic thinking and goal clarity, necessitating a measurement system that focuses on application of a comprehensive measurement system in service organizations especially in healthcare (D'Souza Sunil and Sequeira A.H, 2010a). Social and economic changes are also demanding for high healthcare service quality. Organisations are beginning to recognise that quality is need for survival. Services are not meeting expectations because they are falling short of their potential to improve quality and performance outcomes. Organizations that deliver service must

broaden their examination of quality from the conventional organization-oriented perspective to a dual, organization – customer perspective.

With increasing awareness, the patients, as consumers expect quality in healthcare services. The Indian healthcare providers are also significant players in the international market making India a preferred 'health and medical tourism destination.' With new terms such as health tourism, healthcare outsourcing, and medical back office support being bandied about, given right mix of government push and private sector initiative, India could emerge as a cost-effective healthcare service provider in Asia and indeed to the rest of the world. The changes such as mature markets, alternatives of delivery systems, competitive health plans, powerful coalitions, increasing knowledgeable consumers and technology are demanding from service providers and patients a better understanding of service quality. The productivity of the healthcare organization also depends on strategic blend of hospital information system, alliances, partnerships, telemedicine and networking, are shared, pooled and integrated to provide quality healthcare services (D'Souza and Sequeira, 2008). Policy makers and public have a legitimate interest in wide range of aspects of performance, such as efficiency, the quality of the healthcare process, accessibility, clinical outcomes and responsiveness (Institute of Medicine, 2001). There is also increasing pressure from competitors, governments and regulatory bodies to constantly improve performance, quality, safety and access and drive organizational excellence (Microsoft, 2008). Also, the industry being service driven, many of the current performance management tools and methods which work well in other industries may not be directly applicable to the healthcare industry. Performance management in health systems becomes more difficult due to several factors including the lack of effective methods for enhancing performance, lack of leadership, accountability and line management as well as poor strategic planning. An appropriate model for managing performance in the healthcare industry should be flexible, adaptable and responsive to changes in the healthcare industry. There is a need for strategic determinants to improve service quality and performance, and to develop as performance excellence strategies. These strategies will promote continuous performance improvement in quantity, quality and equity of service provision.

2. Review of Related Literature

The principal methods of measuring hospital performance are regulatory inspection, public satisfaction surveys, third-party assessment and statistical indicators (Shaw, 2003). There are growing demands to ensure transparency, control and reduce variations in clinical practice (Groene et al. 2008). Without maintaining a standard level of care, the reputation of the hospital can be in jeopardy (Hibbard et al. 2005). Gauging performance can allow hospital governing boards to recognize areas of improvement (Griffith et al. 2002). Dashboard metrics and report cards have emerged as viable options for evaluation of healthcare programmes and managerial practices (Woodward et al. 2004). Indicators need to be translated into generalizable, standardized, interpretable and useable information for clinicians or service managers in the form of performance measurement tools (Willis et al. 2008). Several performance management tools for hospitals have been created to assist in this process (Ruiz and Simon, 2004). Quality management had significant impact on the approach to management in Western economies since its promotion concept in US in 1980s (Andersen et al. 2004). In 2001, more than 800,000 copies of Malcolm Baldrige National Quality Award criteria (MBNQA)¹ were distributed in the USA and the British Quality Foundation estimates that more than 20,000 organisations across Europe are using the European Foundation for quality management (EFQM) model and that the number is rising (Andersen et al. 2004). Balance Score Card (BSC) involves all tiers of the organization whereas using the quality management system may result in less emphasis at higher organization levels (Ovretveit and Al Serouri, 2006).

Quality Management (QM) theory has developed from three sources, contributions from quality gurus (Deming, 1982; Juran, 1988), formal assessment processes (EFQM, MBNQA, and Deming prize), and measurement studies (Saraph et al. 1989). QM theory has identified several QM dimensions that may be used to measure the QM levels in the context of performance. Such dimensions have been documented and analysed empirically in measurement studies, as well as in studies that explored the relationship between QM and performance. The document analysis identified that there was a changing role of quality dimensions of MBNQA from 1988 to 2008 in approximately 5-years intervals that is 1988, 1992, 1997, 2003 and 2008 of the reports of US Department of Commerce National Institute of Standards and Technology (D'Souza and Sequeira, 2010b). It is evident from the studies that most of the QM dimensions have described as: (i) People Management (involvement and training); (ii) Information and Analysis (quality data, measurement, process control, feedback and benchmarking); (iii) Customer Focus (customer relationships); (iv) Leadership (top management commitment); (v) Process Management (service delivery and improvement); (vi) Supplier Management (relational practices associated with suppliers); (vii) Planning (definition, communication and review of objectives and plans); and (viii) Product Design (departments involvement in design reviews, clarity of specifications and emphasis on quality). Therefore, it has too many dimensions to be fitted and certainly very difficult to approach the measurement of the performance based on issues of dimensionality (Table 1).

¹ Name after former U. S. secretary of commerce, the late Malcolm Baldrige

Table 1. Brief Summary of QM Dimensions

QM dimension	Anderson et al. (1995)	Flynn et al. (1995)	Powell (1995)	Dow et al. (1999)	Samson and Terziovski (1999)	Curkovic et al. (2000)	Rahman (2001)	Kaynak (2003)	Terziovski et al. (2003)	Kayanak and Hartley (2005)	Rahman and Bullock (2005)	Sila and Ebrahimpour (2005)	Prajogo and Sohal (2006)	Ozden and Birsen (2006)	Keng et al. (2007)
People management	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Information and analysis	x	x	x	x	x	x	x	x	x	x	x	x	x		x
Customer focus	x	x	x		x	x	x		x	x	x	x	x	x	x
Leadership	x	x	x		x		x	x		x		x	x	x	x
Process Management	x	x	x		x		x	x		x		x	x		
Supplier management		x	x	x		x		x		x	x	x			
Planning				x	x		x	x			x	x	x		
Product design		x					x	x		x					

A review of past empirical studies on Organizational performance indicates that there are variations in measuring performance of organisations (Monge et al. 2006). Different variables used for measuring Organizational performance have been identified from the literature as shown in Table 2.

Table 2. Performance Measures Proposed by Key Researchers

Variables	Measure	Key Researchers
Satisfaction level Business results	Organizational performance	Lin et al.(2005)
Quality performance Innovation performance	Organizational performance	Prajogo and Sohal (2004)
Organizational effectiveness Financial results Market results	Performance	Sila(2007)
Financial performance Operational performance Product quality	Organizational performance	Lakhali et al.(2006)

The MBNQA has been accepted widely as service excellence standard, measured along the lines of leadership, strategic planning, customer and market focus, informational analysis, human resources, process management like those in education and healthcare institutions (Chow and Goh, 2000). The Information system is the newest dimension among the MBNQA criteria (US DoCNBS, 2003). The Information system performance was assessed in terms of management relevant data and information. The results intended for the quality performance improvement in relation to Measurement, Analysis and Knowledge Management in healthcare organizations (D'Souza Sunil and Sequeira A.H, 2011). The process management dimension is re named as operations focus to address the special focus on operational efficiency of organisation (US DoCNBS, 2011).

However, there is a need of applying the International recognized organizational excellence standard (MBNQA) in the context of healthcare organizations in India. The MBNQA criteria provide a system perspective to achieve the organizational performance excellence and to overcome the issues of healthcare quality measures. The first six dimensions of MBNQA are quality management includes leadership; strategic planning; customer focus; measurement, analysis, and knowledge management; workforce focus; and process management. The seventh dimension is results or the performance which includes healthcare outcomes, customer -focused outcomes, financial and market outcomes, workforce –focused outcomes, process effectiveness outcomes, and leadership outcomes (US DoCNBS, 2008).

Table. 3 MBNQA Criteria -2009-2010

Sl. No.	Category (variables)	Category points
1	Leadership	120
2	Strategic planning	85
3	Customer focus	85
4	Measurement, analysis, and knowledge management	90
5	Workforce focus	85
6	Process management	85
7	Results (Performance outcomes)	450
	Total points	1,000

Source: US Department of Commerce National Institute of Standards and Technology

The high quality healthcare which is expected to maximise patient welfare, after one has taken into account balancing expected gains and losses that accompany the process of care in all aspects (Donabedian,1980). The quality in a healthcare organization is three dimensional: patient quality is what patients say they want; professional quality is what professional think patients need (outcome and process); and management quality is the fewest resources to give patients what they want and need, without waste, errors or delay, and within the policy and legal regulation(Overetveit,2000). Therefore, Patient perceived quality is the overall service quality of healthcare organization. There is a need of interlinking internal measure of service quality and external measure of service quality (Li, 1997). Focusing on one aspect of an organisation's performance fails to provide a systemic view of the performance of a healthcare organization. Monitoring and evaluation gives meaning to the accountability of relationships between clients, policy makers and providers (M. Pilani et al.2007). Work to develop sensitive and easily measurable indicators for monitoring changes within each health system building block is ongoing (WHO, 2009). Such tools are necessary if systems are capable of achieving the effective and universal coverage at sufficient quality and safety necessary for improved health and health equity, responsiveness, risk protection and efficiency (WHO, 2009). The core value of the MBNQA is consistent with organisation development and management, as it offers the relationship between quality management and performance. There is a research gap that the MBNQA criteria need to be used in assessing quality management and performance in Indian healthcare organizations. The MBNQA criteria are proposed to be the foundation of Quality management in healthcare organizations, studied in medical college hospitals to determine if the relationship proposed by the MBNQA criteria exists in the market place. There is no published empirical evidence that the performance relationship proposed by the MBNQA criteria exists in healthcare organisations with levels of quality performance in India. Excellent service quality generates a competitive advantage for service organisations, but firms must implement a comprehensive system of quality management if they are to develop effective and reliable service quality (Yang Ching, 2006). Measuring service quality is multidimensional and there is a need to integrate the Quality Management dimensions (QMDs) of MBNQA (internal service quality) and Patient Service Quality dimensions (PSQDs) (external service quality) and their impact on performance.

Research questions

1. Is there any relationship between quality management dimensions of MBNQA and performance?
2. Is there any relationship between patient service quality and performance?
3. How to evaluate the performance of the healthcare organizations?

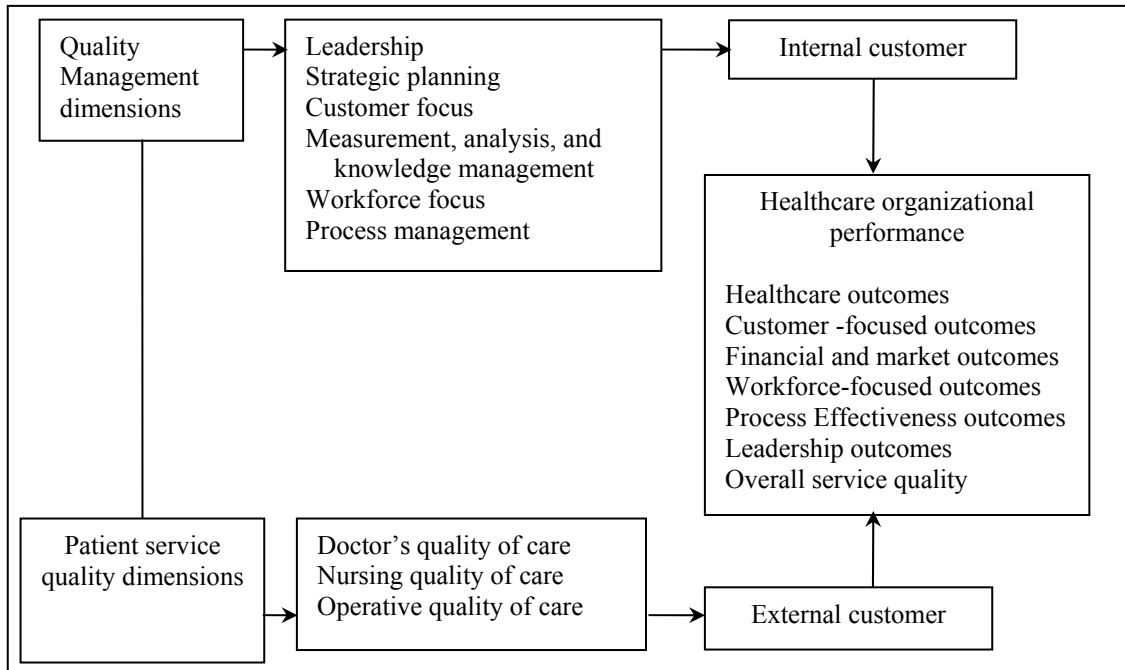


Figure 1. The Research Framework: Service Quality dimensions and Performance in Healthcare organizations

3. Research Methodology

The case study design used both deductive and inductive approaches. The deductive approach used self-administered questionnaire for MBNQA framework and patient perceived quality. Inductive approach conducted the unit analysis of healthcare organizations and grounded theory for patient service quality. The case study design is focused on the study of service quality dimensions and performance in healthcare organizations from internal and external customer through integrated perspective.

3.1 Population and Sampling

In order to achieve the objectives of the study, the hospitals affiliated to medical colleges of southern India were considered as the population of this study. The population consisted of 76 medical college hospitals (healthcare organizations) and the sample survey was derived from the database of healthcare organizations prepared based on official report of Medical Council of India in 2009, and it was found majority of medical colleges hospitals(38 %) were concentrated in southern India. One of the healthcare organizations was selected for the unit analysis to obtain an overall glimpse of administration, operations, standards and practices as it is uniform under the Medical Council of India. To obtain clear representation of samples from southern India, healthcare organizations of Karnataka, Kerala, Andhra Pradesh and Tamil Nadu were purposively selected based on inclusion and exclusion criteria for this study. The study was designed with cooperation from 12 healthcare organizations. Among the 12 participating healthcare organizations, 7 were private (58.33 %), 2 were public (16.66 %), and 3 were charitable (25 %) based on their ownership.

Inclusion criteria includes large healthcare organization more than 500 beds, quality certified, multi-specialty, minimum five years of existence, emergency department, should have a divisional / state representation. Exclusion criteria includes small healthcare organization less than 500 beds, single specialty, super specialty, and less than five years of existence. Purposive sampling technique was used taking into consideration the respondent's availability, willingness to share information and location of healthcare organizations. The pilot study results were also used to project the approximate sample size. By using purposive sampling technique 130 administrative executives and 1200 patients were selected. The influence of sample size on the variability of factor loadings is critical as the magnitude of factor loadings is used as a criterion to determine which variables are substantially related to a given factor and thus should be included in the interpretation of a factor (Comrey and Lee, 1973).

3.2 Measures and Reliability

In order to obtain content validity, this research followed the recommended procedures of Cooper and Schindler (2001) through identifying the existing scales from the literature and conducting interviews with panel of experts (including academicians and practitioners from the industry), asking them to give their comments on the research tools used. The expert team members for the content validity consisted of hospital administrators, senior doctors, senior nurses, senior paramedical staff, and professors in hospital administration and business administration. The instrument developed for this study comprised nine independent variables

and two dependent variables. The instrument developed with a five-point Likert scale (1 – strongly disagree and 5 – strongly agree). Prior to the full survey, a pilot study was administered to 20 managers of one of the healthcare organizations of South India. The goal of the pilot study was to examine the content validity of the questionnaire and getting feedback concerning technical issues associated with the questionnaire including its structure and length, clarity of the statements and terminologies used, and its layout and presentation. A total of 12 responses were received, and none of the respondents indicated serious difficulties in completing the questionnaire pertaining to the clarity of the content and time for completing the questionnaire. Independent variable measures were leadership; strategic planning; customer focus; measurement, analysis, and knowledge management (MAK); workforce focus; process management; and dependent variable measures were includes healthcare outcomes, customer - focused outcomes, financial and market outcomes, workforce –focused outcomes, process effectiveness outcomes, and leadership outcomes for MBNQA dimensions. Independent variable measures of patient perceived quality includes doctors care of quality, nursing care of quality, and operative care of quality and dependent variable measure is overall service quality. The reliability analysis through calculating the Cronbach's Alpha revealed that the values surpassed the threshold of 0.7 as suggested by Nunnally (1978). A total of 150 scale items were used to measure the constructs in the research framework. The grounded theory was developed for patient service quality and the unit analysis of healthcare organizations was also conducted. In conformity with the ethical requirements of healthcare organizations, formal consents for conducting research were obtained. Descriptive and inferential statistics was applied using SPSS (Statistical Package for the Social Sciences).

4. Results and Discussions

The reliability was obtained by computing Cronbach Alpha that measures the internal consistency of the items. Owing to multidimensionality of Service Quality management, Cronbach Alpha was computed separately and it was ranged from 0.7 to 0.9, indicating higher level of internal consistency.

Table 4. Reliability Analysis- Service Quality dimensions and Performance

Dimensions	No. of Items	Cronbach Alpha
Leadership	18	0.849
Strategic planning	10	0.951
Customer focus	14	0.831
Measurement, Analysis, and Knowledge management	17	0.916
Workforce focus	22	0.951
Process management	16	0.943
Doctor quality of care	10	0.807
Nursing quality of care	10	0.689
Operative quality of care	10	0.690
Results (performance outcomes)	18	0.882
overall service quality	5	0.683

4.1 Is there any relationship between quality management dimensions of MBNQA and performance?

To address this research question, correlation analysis is presented in the Table 5, indicated the significant relationship between quality management dimensions and performance of MBNQA model ($p < 0.001$). The very high significant correlation was found between 'strategic planning' ($r = 0.766$, $P < 0.001$), 'process management' ($r = 0.765$, $P < 0.001$) with the 'performance'. The correlation ranked highest for 'process management,' second for 'strategic planning,' third for 'workforce focus,' fourth for 'measurement, analysis and knowledge management,' fifth for 'leadership,' and sixth for 'customer focus on performance.' There was also an inter-group correlation between MBNQA dimensions and MBNQA dimensions were significantly correlated with each other ($p < 0.001$) (an Exhaustive list of these items found in Appendix 1).

Table 5. Pearson Correlation Matrix of MBNQA Dimensions

		Leadership	Strategic planning	Customer focus	Measurement, analysis and knowledge management	Work-force focus	Process management
Performance	r	0.593	0.766	0.479	0.638	0.671	0.765
	p	0.001	0.001	0.001	0.001	0.001	0.001
Leadership	r		0.665	0.604	0.735	0.659	0.659
	p		0.001	0.001	0.001	0.001	0.001
Strategic planning	r			0.503	0.671	0.697	0.753
	p			0.001	0.001	0.001	0.001
Customer focus	r				0.780	0.657	0.604
	p				0.001	0.001	0.001
Measurement, analysis & knowledge management	r					0.847	8.140
	p					0.001	0.001
Workforce focus	r						0.811
	p						0.001

4.2 Is there any relationship between patient service quality and performance?

To address this research question, grounded theory was developed for patient service quality. Patient service quality was open coded as, doctors' quality of care,' nursing quality of care,' and 'operative quality of care.' The highest positive correlation found in the operational quality of care on performance ($r = 0.329$, $p = 0.000$). The nursing quality of care and doctor quality of care had lowest positive correlation on performance ($r = 0.194$, $p = 0.000$; $r = 0.203$, $p = 0.000$). There was also a significant inter group correlation between patient service quality factors and performance ($p = 0.000$) and patient service quality factors significantly influenced the performance (Appendix II).

4.3 How to evaluate the performance of the healthcare organizations?

There were a significant number of healthcare organizations that had a silver line performance based on MBNQA points (83.33 %). Among the participant healthcare organizations, HCO5 had highest (664.8 points) MBNQA points and HCO6 had the lowest (442 points). Total MBNQA points of the healthcare organizations strongly imply the need of adopting the MBNQA dimensions.

Table 6. Summary of Performance Evaluation

Range	Performance Level	Healthcare Organizations (HCOs)	Total Number	%
1000-750	Golden	None	0	0.00
750-500	Silver	HCO1, HCO2, HCO5, HCO9, HCO10, HCO12, HCO3, HCO7, HCO8, HCO11	10	83.33
>500	Bronze	HCO4, HCO6	2	16.67

4.4 Factor analysis results of MBNQA Dimensions

The factor analysis was applied to analyse quality management dimensions of MBNQA with varimax rotation. The 6 factors were identified for leadership: (i) Service Leadership, (ii) Departmental Quality Management Leadership, (iii) Governance and Social Responsibility, (iv) Top management Commitment to Quality Improvement, (v) Participative Leadership, (vi) Corporate Social Responsibility. Leadership had significant correlation with the Performance (H_1 : $t = 8.330$, $p < 0.001$, $r = 0.593$). The 1 factor was identified for Strategic planning i.e. Strategic deployment. Strategic planning had significant correlation with Performance (H_2 : $t = 13.48$, $p < 0.001$, $r = 0.766$). The 5 factors were identified for Customer Focus: (i) Customer Feed Back, (ii) Customer Orientation, (iii) Customer patronization, (iv) Voice of Customer and (v) Benchmarking. Customer focus had significant correlation with Performance (H_3 : $t = 6.38$, $p < 0.001$, $r = 0.479$). The 3 factors were identified for Measurement, Analysis, and Knowledge Management: (i) Technology and Performance System, (ii) Daily Information Analysis and (iii) Integration of Data Base Management. Measurement, analysis and knowledge management had significant correlation with

Performance (H_4 : $t = 9.02$, $p < 0.001$, $r = 0.638$). The 5 factors were identified for Workforce focus: (i) Empowerment, (ii) Human Resource Policy, (iii) Employee Involvement, (iv) Training and Development, and Working Environment. Workforce focus had significant correlation with the Performance, (H_5 : $t = 9.9$, $p < 0.001$, $r = 0.671$). The 2 factors were identified for Process management: (i) Service Delivery and Control, and (ii) Customer Participation in Service Delivery. Process management had significant correlation with the Performance (H_6 : $t = 13.43$, $p < 0.001$, $r = 0.659$). The factor analysis emphasized that the quality management dimensions of MBNQA were important and found to be significant with the performance.

4.5 Performance/Results

The document analysis of healthcare organizations was conducted based on 'results dimension' of MBNQA presented in Table 7.

Table 7. Healthcare Organizations –Performance: March, 2009

Average number of beds	1071
Average Annual Turnover	1900.08 million
Average Out Patient Admissions	0.29 million
Average In Patient Admissions	0.07 million
Average Radio Diagnosis	2416
Average General Surgeries	2220
Average number Delivery Cases	1595
General Mortality rate	4.15 (%)
Average number Foreign Patients	86
Average Employee turnover	12.41 (%)
Number of resident doctors	183
Average number of Administrative staff	185
Average Occupancy rate	73 (%)
Average Campus Size	70.48 (Acres)
Average number years in service	47
Average number Employees	2500

4.6 Model of MBNQA Dimensions

With regard to the MBNQA dimensions, strategic planning had a significantly very high strong positive relationship ($\beta = 0.766$ for H_2) than process management ($\beta = 0.765$ for H_6), workforce ($\beta = 0.661$ for H_5), measurement, analysis, and knowledge management ($\beta = 0.624$ for H_4), leadership ($\beta = 0.593$ for H_1), and customer focus ($\beta = 0.491$, $P = 0.000$ for H_3) on performance (Figure 2).

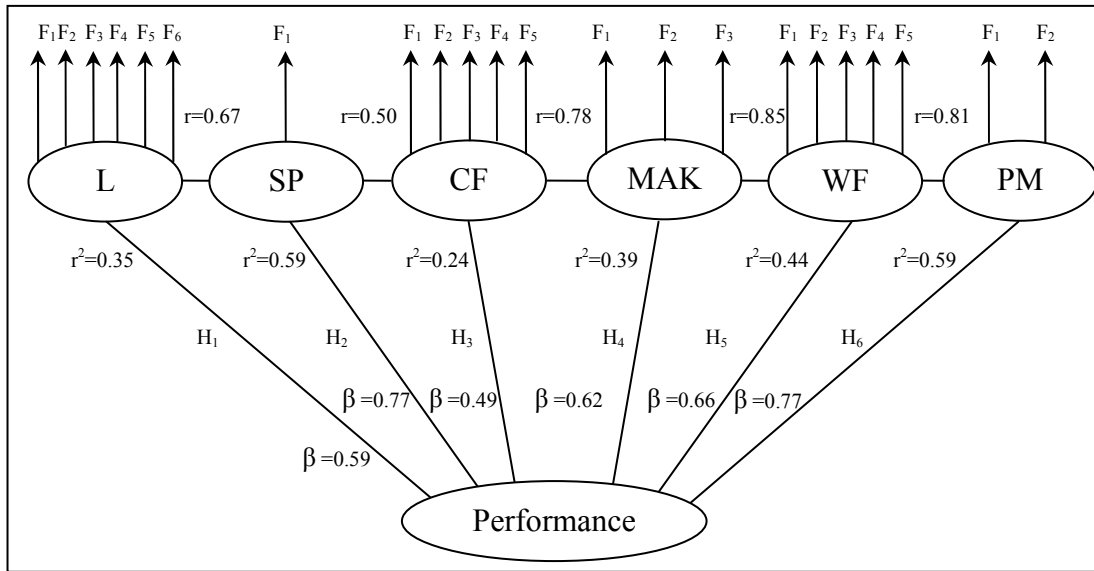


Figure 2. Measurement Model of MBNQA Dimensions

Note: L=Leadership, SP=Strategic planning, CF = Customer focus, MAK=Measurement analysis and knowledge management, WF= Workforce focus, PM= Process Management. β =regression coefficient, r = Pearson Correlation coefficient, Significant at $P=0.000$

4.7 Model of Patient Service Quality

The operative quality of care had significantly high strong positive relationship ($\beta=0.279$ for H_9) on performance than doctor quality of care ($\beta=0.065$ for H_7), nursing quality of care ($\beta=0.053$ for H_8) (Figure 3).

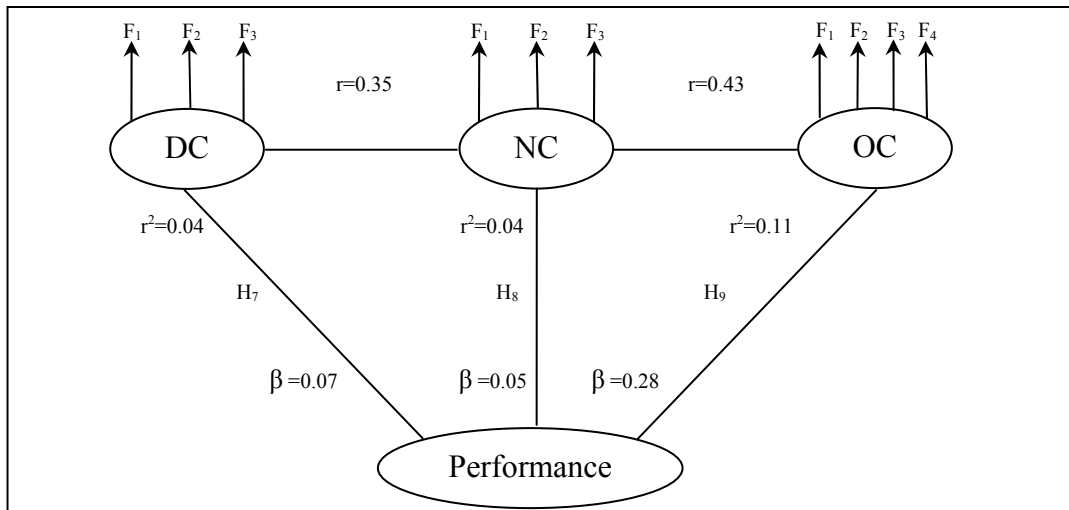


Figure 3. Measurement model of Patient Service Quality

Note: DC- Doctor quality of care, NC- Nursing quality of care, OC- Operational quality of care. β =regression coefficient, r = Pearson correlation coefficient, Significant at $P=0.000$

4.8 Service Quality management and Performance in Healthcare organizations

QM dimensions (leadership, strategic planning, customer focus, measurement, analysis, and knowledge management, workforce focus, and process management) yielded 58.5 % explanatory power on performance. Patient service quality (doctor quality of care, nursing quality of care and operative quality of care) yielded 11.2 % explanatory power on performance (Table 8). The hypotheses H_{qm} and H_{ps} were statically significant ($P<0.001$). The service quality dimensions influenced the performance of the healthcare organizations (Table 9).

Table 8. Model Summary – Service Quality dimensions and Performance

Model	R	R Square	Adjusted R Square	Std. Error of the estimate	Beta (β)
Quality Management	0.767	0.589	0.585	0.36156	0.767
Patient Service Quality	0.339	0.115	0.112	0.68814	0.279

Table 9. Hypotheses: Service Quality dimensions and Performance

Hypothesis	Relationship	r	B	p	Supported
H _{qm}	Quality Management → performance	0.593	0.767	0.001	Yes
H _{ps}	Patient Service Quality → performance	0.479	0.279	0.001	Yes

Note: r= Pearson Correlation, β = regression coefficient, p level of significance at $p < 0.001$

In the measurement of service quality management and performance, 150 indicator variables were used from the two constructs. The quality management dimensions ($\beta = 0.767$) and patient service quality ($\beta = 0.279$) strengthened the relationship on performance. The hypotheses H_{qm} and H_{ps} were supported and statically significant ($P < 0.01$). The Patient Service Quality model explained the variance was smaller than the model MBNQA. This indicates that the MBNQA criteria had high explanatory power in service quality management and performance of healthcare organizations. The study aligned the internal service quality and external service quality to obtain the holistic view of service quality management and performance in healthcare organizations from the perspective of internal and external customer (Figure 4).

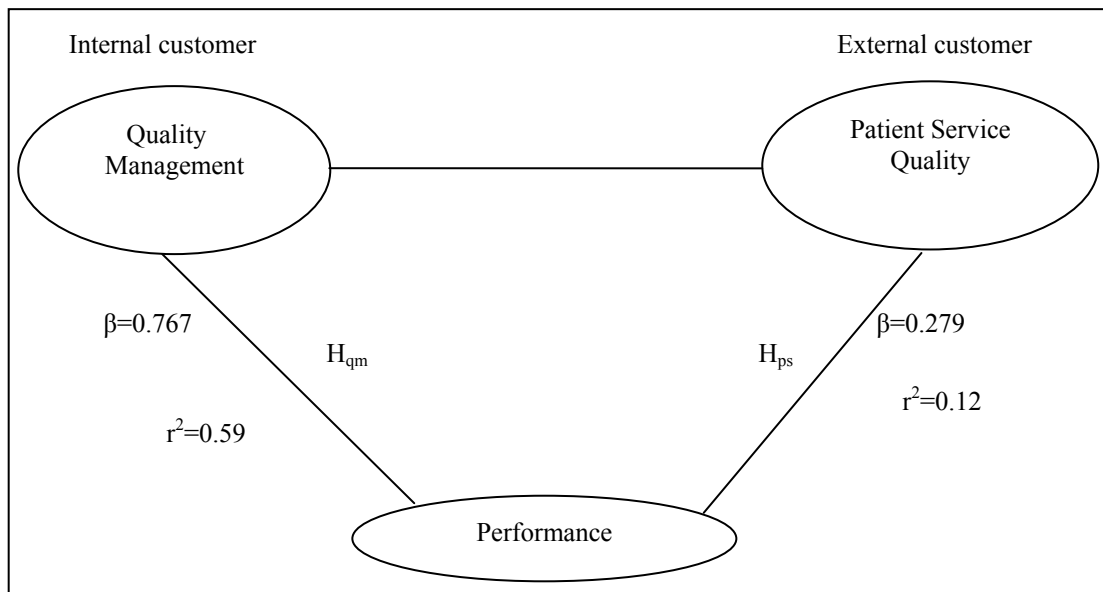


Figure 4. Model of Service Quality management and Performance in Healthcare organizations

5. Limitation and Directions for Future Study

The study was limited to selected healthcare organizations of Southern India. The results pertain to medical college hospitals and findings are not generalizable to all types of healthcare organizations. The theoretical model can be further examined in other service organizations including education, bank, insurance, hotel etc. Additional research is needed to extend our understanding of the constructs used in this research, by using different ways to investigate them. Future research is to explore the role of

leadership; strategic planning; customer focus; measurement, analysis, and knowledge management; workforce focus; and process management separately or in combination in various service settings may be considered.

6. Conclusions

The theoretical model examined the influence of quality management dimensions and patient service quality dimensions on performance. The MBNQA dimensions were found to be very useful in evaluation of service quality management and performance in healthcare organizations. The study identified that the healthcare organization had silver line performance based on MBNQA criteria. This research work aligned the internal service quality and external service quality to obtain the holistic view of service quality management and performance in healthcare organizations. The core of MBNQA is about quality and the appearance of MBNQA criteria has changed since inception from quality concept to organizational excellence. Although Quality Council of India (QCI) and Confederation of Indian Industry (CII) began their quality journeys in the 1990s there is a lot to achieve in the Indian context. MBNQA criteria uncovered here will establish a path to meet that challenge. This study could guide the management to align consumers and employees behavior towards the practice of active management of service quality and performance, to set a benchmarking themselves and with other healthcare organizations and most importantly, linking together the elements of strategy, particularly the workforce focus, the patient focus and performance outcomes in powerful and sensible ways. This study can be the starting point of regular strategic planning process within the healthcare organization and ensure continuous quality improvement. The future research work can be focused on to identify core sets of quality measures for standardized reporting by all sectors of the healthcare industry, an establishment of framework for quality measurement and reporting. Overall, this study is a motivation to healthcare organizations to embrace MBNQA criteria and improve their performance with respect to service quality.

Appendix I: List of items for measuring performance excellence in healthcare organization.

Leadership

We have a tradition of visionary and innovative leadership
 Our actions create a sustainable, high-performing healthcare organization
 There is high degree of acceptance of responsibility for quality by department heads
 Degree to which top management considers quality improvement as a way to increase profits
 We stay true to the core values while changing and improving of quality
 We place patients first
 We use performance feedback to improve our quality care
 We create an environment for empowerment, agility and learning
 We have cordial relationship and collaboration with administrative /operational level
 We are committed to recognize and reward the contribution by the members of workforce
 We have a code of conduct for workforce in the organization
 We actively participate in social responsibilities
 We integrate social responsibility into performance improvements efforts
 Our leadership focused on the well-being of the community
 We are prepared for community emergencies
 Leadership collaborates with others to solve basic community problems
 We dedicate fiscal and human resources to improve the community's quality of life
 We provide services for those who cannot pay

Strategic Planning

We have a comprehensive short- term and long –term goals
 Our short- term and long –term goals are aligned with customer's needs and healthcare market expectations
 Our short- term and long –term goals are well associated with competitive environment change
 Short- term and long –term goals are related with strengths and weakness
 We have set strategic objectives for our healthcare organization
 Business partners support our strategic plan
 Strategic decisions are evaluated with objective measures
 Our strategic objective include reducing waste
 We have deadline for achieving our strategic objectives
 Long –term strategies include projections of our services as compared to other healthcare organization

Customer Focus

We understand who is our customer
 We have a customer-oriented vision that is clearly defined and communicated to us
 We have a customer-oriented culture that embeds customer satisfaction throughout Organizational practices
 Our work unit actively seeks feedback from customers regarding our services

Important changes in the products, policies, procedures, new activities etc. are communicated clearly to the work group
We deal with our customer with high integrity and fairness
We Listen and learn from the customers
We act to the customer requirements
We have fostered the satisfaction and loyalty of the customers
The requirement of the customers are effectively disseminated through out the hospital
We have effective management process for solving customer's complaints
We have aggregated and analyzed the customer's complaints for the opportunities of improvement
We systemically and regularly measure the extent of customer satisfaction
We compare the customer satisfaction information with competitors and similar other providers

Measurement, Analysis and Knowledge Management

We regularly check the hardware to make sure they are reliable and meet current healthcare needs
We regularly check the software to make sure they are reliable and meet current healthcare needs
We have a comprehensive system to align measures of daily operations and hospital performance
Inter organization coordination is achieved using electronic links
Our information systems are standardized across the departments
Our systems support front line employees
Our performance analysis is aligned with senior leader's strategic planning
We communicate the analysis results to work in team/ group at the functional level operations
Our data analysis shows improvement in cycle times (reducing length of stay)
We ensure the needed data and information available to the staff, suppliers, and customers, as appropriate
We regularly communicate and share the knowledge/ skill through seminar or on site information
We ensure the data and information match current healthcare needs
We ensure the data and information integrity and accuracy
We effectively use comparative data and information to analyze the performance
We use the results to act as the basis for improvement and benchmarking
Patient preferences are analyzed when design new and revised patient services
We have a comprehensive system to gather and integrate information for decisions making

Workforce Focus

Sufficient effort is made to get the opinions and thinking of people who work here
We are free to discuss work-related issues with my immediate manager/supervisor
We feel comfortable to communicating openly with senior management when the need arose
We resolve complaints on first contact whenever possible and take the steps necessary to solve customer problems.
We avoid transferring the customer from one employee to another to get a problem resolved
We have given the authority to fix problems on the spot
We are satisfied with our involvement in decisions that affect our work
We have access to the information what we need to serve our customer
Our hospital does an effective job of developing employees at all levels
New employees receive adequate training for their jobs
We are satisfied with the training that we receive for our present job
We have sufficient information about training and educational opportunities available at our Hospital
The training made available to me helps me do a better job
We are given the opportunity to improve our skills in our Hospital
We organize work and job flexibility
We work together by cooperation and team work
We have a well developed staff performance management system to reward high performance
We have comprehensive system to motivate staff, and help them attain career development
The process of recruitment, hiring and retaining of new staff are well evaluated by human resource department
Communication and follow-through on promises was bad
There are a regular meetings and workshops
We have conducive working environment

Process Management

We have established effective service delivery system
We obtain feedback on support services from patients
We incorporate changing customer and market requirement and new technology into related process
We address the quality of healthcare in design processes
We ensure efficiency and effectiveness in service process

We have customer participation in the service process
We have a standardized and documented operating procedure to support daily operations
Support services from hospital were sufficient to manage the practice
We have effective methods to assess performance to improve our service delivery process.
We have given the clarity of work or process instructions
The way jobs and work flow are organized in my work unit is effective
We have enough time to get the job done well
Job makes good use of my skills and abilities
We have given the appropriate authority needed to our job
We have sufficient staff to handle the normal workload in our work unit at the required level of service
We use IT-enabled transaction in our service delivery

Performance Outcomes (Results)

The number of admissions is increased in recent years
Revisit rate to the emergency department is increased
Patient length of stay is decreased
Customer satisfaction has shown improvement
The waiting line has reduced
The number of customer complaints has decreased
Our financial results have been improving
Total income increased
Total expenditure decreased
The number of employees participating in quality activities has increased
Employee turnover decreased
Employee's satisfaction increased
Number of surgeries increased
Occupancy rate increased
The number of healthcare products increased
Employees know the vision, mission and business objectives
There is strong impact of staff involvement in quality management and improvement activities
Social responsibilities schemes increased

Appendix II: List of items for measuring patient service quality in healthcare organization

Doctors quality of care

Doctors are friendly
Doctor answer your queries satisfactorily
Doctors are always helpful and supportive
Doctors always listen to what you had to say
They explain clearly about the treatment
They also treat your families and friends nicely
They communicate with nurses very well
They communicate with supportive staff very well
They are always ready to clear your doubts
They are always available on time

Nursing quality of care

Nurses give sufficient care to you
Nurses are always helpful and supportive
They are always ready to listen to what you had to say
Nurses are friendly
They reply your queries very satisfactorily
They treat your relatives and friends very nicely
They explain clearly about the technicality of the treatment
They communicate with supportive staff very well
They communicate with doctors very well
They are available at the time of need

Operative quality of care

Admission process is simple

Billing system is satisfactory
 Proper queue management is followed
 Internal atmospheric environment is attractive
 Blood bank service is good
 Laboratory facilities are very good
 Surgery operations schedule is well planned
 Bed sheets /linens are changed daily
 There is always conducive interaction with the frontline staff
 Housekeeping services and canteen facilities are good

Overall service Quality

Your expectations are fully met with regard to doctors
 Your expectations are fully met with regard to Nurses
 Overall administration is good
 Overall cleanliness maintained
 You are very satisfied with the hospital

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