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Improvements in Private Hospital Efficiency Via Total Quality Management

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Abstract

The healthcare sector is seeing rapid growth. Patients not only go from nearby communities, but often travel from other nations to receive care. The city is serviced by a number of large, for-profit hospitals. Corporate Hospitals' administration is so committed to providing excellent care that they have a dedicated quality assurance unit. One of the ways qualities is maintained is through the use of Total Quality Management Practices. To determine if Total Quality Management Practices have an impact on the organizational performance of hospitals, this study was undertaken in five city corporate hospitals. Using a stratified random sample approach, responses were gathered from hospital personnel including nurses, physicians, support workers, and administrators. Total quality management approaches were proven to have a beneficial effect on hospital efficiency.

I.   Introduction

The healthcare sector is ripe with opportunity. It's one of the world's top earners, bringing in an estimated $2.8 trillion a year. The healthcare business now employs over four million people and accounts for five percent of the country's gross domestic product. The Investment Commission reports that during the past four years, the industry as a whole has grown by 12%. According to CII-McKinsey projections (Venkat Ramana, 2012), the industry will account for 7% of GDP and provide employment for over 2.5 million people. Patients, the Healthcare industry's customers, have become more quality-conscious in recent years, and hospital administrators have come to realize that providing high-quality treatment is essential to remaining competitive in both the domestic and global markets.

Increases in consumer knowledge, disposable money, and media-induced quality consciousness have all contributed to a more rapid rise in the demand for premium medical care. These guidelines have played an important role in advancing the healthcare industry and earning Accreditation (Venkat Ramana, 2012).

Government and non-government organizations alike use accreditation standards to ensure continuous quality enhancement. Hospital administration will apply to accreditation authorities once or twice yearly to demonstrate to the public that the institution is committed to and capable of providing consistently high-quality care. They may also prove to their clientele that the Hospital's services are legitimate by displaying the appropriate certification.

At present, hospitals may only receive certification from the National certification Board for Health (NABH). Almost all corporate hospitals have quality departments and hold accreditation from the National Accreditation Board for Health.

In the healthcare industry, Total Quality Management has developed as a significant instrument for providing high-quality treatment to patients. While their initial use was in the industrial sector, they have now found widespread usage in other sectors, most notably the service sectors of healthcare and education.

According to Poornima M. Charantimath (2013), Total Quality Management (TQM) is a management strategy that aims to achieve and sustain long-term firm performance through motivating employee ratings and involvement, meeting customer needs and expectations, giving due consideration to community morals and ethics, and conforming to government regulations.

The present research uses a prize framework called MBNQA to identify the most important TQM Dimensions. The Malcolm Baldrige National Quality prize (MBNQA) Model is an annual prize presented by the National Institute of Standards and Technology (NIST) to honor outstanding performance in the industrial and service sectors (including Healthcare).

The Malcolm Baldrige National Quality Award (MBNQA) Model recognizes the following Total Quality Management (TQM) Practices and establishes a connection between them and organizational performance (NIST, 2018).
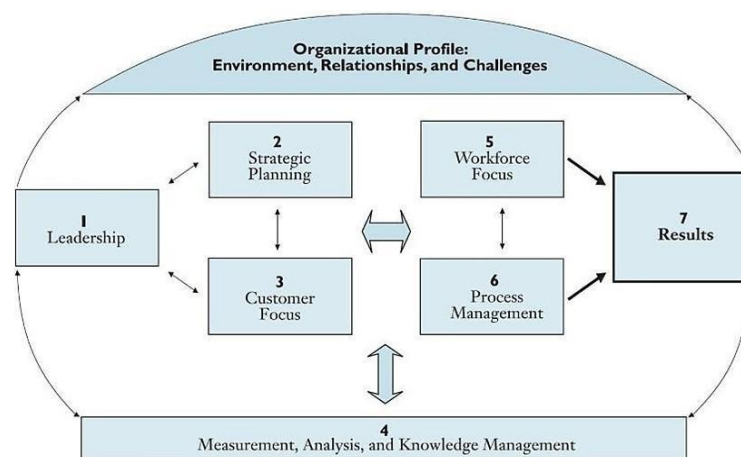

Fig.1: MBNQA (Malcolm Baldrige National Quality Award Model)
SOURCE: Total Quality Management by K. Shridhara Bhat (2011) Himalaya Publishing House

The TQM Practices highlighted by MBNQA can be listed as:
*   Leadership
*   Strategic Planning
*   Customer Focus
*   Measurement, Analysis and KnowledgeManagement.
*   Workforce Focus
*   Operations Management (Processes)

A growing body of academic literature supports the idea that TQM procedures may be used to boost hospitals' efficiency and effectiveness. This study was done to learn if TQM methods had any effect on hospital efficiency. The purpose of this research is to determine whether or not the TQM dimensions highlighted by the MBNQA model have any impact on the efficiency of five randomly chosen private hospitals.

Research Question
The Study's research question is as follows: Do the TQM Dimensions have an effect on the performance of five different private hospitals?

Research Objective

The goal of this study is to determine whether or not the five tenets of TQM have any effect on the overall efficiency of healthcare institutions.

Review of Literature

It wasn't until the late eighteenth century that Total Quality Management in hospitals was ever brought up for discussion (Goldstein &Schweikhart, 2002).

The Malcolm Baldrige National Quality Award (MBNQA) Model was used by the vast majority of studies studying TQM in the healthcare sector (Manjunath Usha, 2007).

After surveying 31 hospitals throughout the United States, Lin and Clousing (1995) found that majority adhere to TQM and enhance the hospital's main performance categories as a result.

TQM procedures were linked to improved organizational performance in research conducted by Wilson and Collier (2000) in American hospitals.

Meyer and Collier (2001) used data from two hundred and twenty US hospitals to confirm the linkages in Malcolm structure and draw the conclusion that the Baldrige standards had statistically significant causal relationships.

The MBNQA criteria for medical institutions of TQM and performance of these Hospitals were analyzed by Goldstein &Schweikhart (2002), who collected data from two hundred and twenty American Healthcare facilities.

R. Rohini (2006) conducted research utilizing the SERVQUAL and MBNQA Model at Karnataka's hospitals to determine whether or not TQM practices had an effect on the efficiency of these facilities.

Quality improvement (QI) adoption in 1,784 hospitals was studied by Alexander, Weiner, and Griffith (2006), who looked at how it affected business outcomes. Based on the findings, it appears that QI (Quality Improvement) has a measurable impact on the overall functioning of healthcare institutions and their operations.

Manjunath Usha (2007) conducted comprehensive research to assess the efficacy of TQM practices in influencing hospital performance.

In 2011, Fereshteh Farzianpour et al., using the Malcolm framework, assessed the effectiveness of a medical school that had federated with an Iranian University of Medical Sciences. Dual queries, one based on the process category and the other on the outcome category, were used to evaluate the implementation. The study's findings suggested that the Malcolm framework is the most effective tool available for assessing the quality of Iranian medical facilities.

ApinanAueaungkul (2013) gathered the opinions of respondents from 84 Thai hospitals and 43 Thai universities. The study analyzed the extent to which hospitals and universities have adopted TQM, highlighted the most important elements for success, and compiled information to shed light on how Thai cultural norms have affected the spread of TQM. He also defended the superiority of the Malcolm structure in improving healthcare facilities' efficiency.

In order to assess the correlation between the seven categories of the Malcolm structure and the outcomes of 254 Korean medical institutions, Sang M. Lee, Don Hee Lee, and David L. Olson (2013) conducted an extensive investigation. The researchers used an array of quantitative techniques to test their hypotheses in light of data from 254 hospitals. The study's findings showed a close connection between the various healthcare process components and the hospital's overall Malcolm structure.

The purpose of the study by Salaheldin Ismail Salaheldin (2015) was to investigate the role of enhancement on the Dimensions of complete quality management execution in Jordanian hospitals.

Hospitals in Nairobi were the focus of co-relational survey study conducted by Beatrice Dinda et al. in 2016. The study's findings emphasized the significance of exemplary processes (data analysis, process

administration, and senior management encouragement) in determining a company's success. In corporate Nairobian medical facilities, methods for maintaining excellence were shown to be excellent markers of accomplishment. The effectiveness of the hospital increased after implementing the procedures of excellence.

The current investigation also seeks to establish a connection between overall quality management techniques and hospital performance, building on the findings of earlier studies.

II.   Research   Methodology

Sources of Data Collection (primary)

The primary data was gathered by administering a tried-and-true structured questionnaire to the hospital's administration, doctors, nurses, and support personnel, in which they were asked about their thoughts on various aspects of TQM and hospital execution. The collected information is of a continuous form.

Questionnaire

The hospital staff's opinions on each TQM practice were collected using a tried-and-true structured questionnaire developed by Manjunath (2007), with a 5-point likert scale ranging from Strongly Agree to Strongly Disagree, and a 5-point likert scale ranging from Very Low to Very High for Organizational Performance. All of the TQM Dimensions of the MBNQA Criteria have been tried and true in Manjunath's (2007) previous iteration of the questionnaire.

Sources of Secondary Data

Journal articles, theses, books, and websites were consulted for the study's secondary data collection. Multiple research projects were found in the secondary data pool that demonstrated how TQM procedures correlate with the success of healthcare businesses.

The data acquired is tested analytically, and the study has a descriptive focus.

Population

Obied Hospital, Almoasat Hospital, Almashari Hospital, Care Hospital, and Sanad Hospital, five of the city's for-profit hospitals, were selected. There is a total of 3,445, across all five hospitals, working there.

Sampling Unit

There are a total of 346 employees throughout administration, medicine, nursing, and support in five corporate hospitals. Krejcie and Morgan's table is supported by the sample size. Krejcie and Morgan's (1970) paper "Determining Sample Size for Research Activities" included a chart to help researchers estimate how many people to include in their study. Therefore, the data from this investigation is consistent with the table developed by Krejcie and Morgan.

Sampling Method

The method of Stratified Random Sampling was implemented. There are four main types of employees at a hospital: administrators, medical professionals, caregivers, and others.Ten percent of the workforce is selected at random from each level. All the basic data measured on a continuous scale, with the assumption that the values all lie at the same distance from one another.

Sampling Frame Hypothesis

The hypothesis of the study is follows:

- H_{01}: There is no statistically significant influence of TQM Dimensions on Hospital's Performance.
- H_1: There is a statistically significant influence of TQM Dimensions on Hospital's Performance.

Data Analysis and Interpretation

Five private hospitals' performance in relation to TQM dimensions has been analyzed using simple linear regression.

Table 1: Sampling Frame

Hospital	Doctors	Nurses	Administrative Staff	Supporting Staff	Total
Obied	5	10	5	25	45
Almoasat	6	12	5	27	50
CARE	8	17	5	40	70
Almashari	8	20	6	47	81
Sanad	9	16	6	69	100

Overall total no of employees selected = 346.

By treating each procedure individually as an independent variable and by using Organizational Performance as a dependent variable, we can examine the effect that each TQM Dimension has on Hospital Performance. Research Hypothesis Testing and the Role of Independent Variables MBNQA model TQM practices were considered to be independent factors.
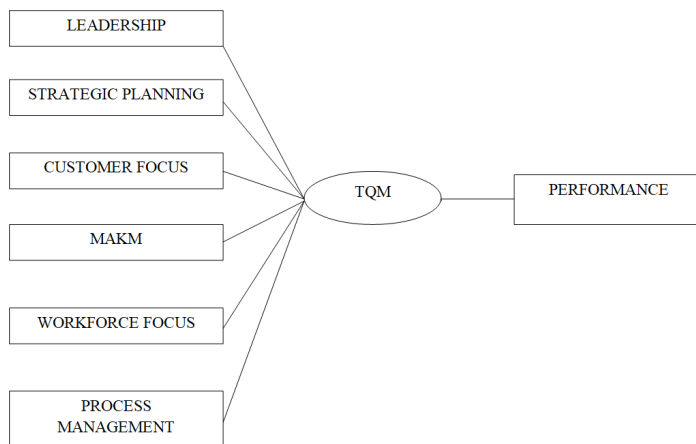

Fig. 2: Conceptual Model of the study

Dependent Variable

The effectiveness of the hospital was used as a measure of the dependent variable. The conceptual framework for the study is depicted in the image above, where TQM procedures serve as independent variables and hospital performance serves as a dependent variable.

Statistical Analysis

Analyzing the Effects of Hospital Leadership on Patient Outcomes Using a Linear Regression Model

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1		0.614	0.377	0.375	3.20303

Table 3: Anova Table

Model	Sum of Squares	df	Mean Square	F	Sig

1Regression	2136.916	1	2136.916	208.289	0.000
Residual	3529.234	344	10.259		

Table 4: Coefficients Table

Model	UnstdCoeff B	StdCoeff Beta	t	Sig
Constant	12.141		7.449	0.000
Leadership	0.918	0.614	14.432	0.000

Dependent Variable: Organizational Performance Independent Variable: Leadership

R, the regression correlation coefficient, is calculated by comparing the Pearson correlation between the predicted scores generated by the regression model and the true values of the dependent variable. R, in this model, is a measure of the strength of the linear relationship between these two variables, and its value, which can vary from 0 to 1, can indicate the goodness of the model fit. Table 2 displays a R Square value of 0.377, which translates to a 37% increase or decrease in the ability to forecast future Performance based on current Leadership and Coefficient. The Regression is supported by Table 4. Leadership's coefficient measures how much an increase or decrease in occupational stress affects the dependent variable, organizational performance. Increasing Leadership by one unit has a 0.918 multiplicative effect on performance. A beta value of 0.614 shows that for every one-standard-deviation shift in the independent variable Leadership, Organizational Performance shifts by 0.382-standard-deviations.

Analyzing the Effects of Strategic Planning on Hospital Performance Using a Linear Regression Model

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.471	0.222	0.220	3.57957

Table 6: Anova Table

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1258.371	1	1258.371	98.208	0.000
Residual	4407.779	344	12.813		

Similar to how Table 5 provides a R Square (regression) value of 0.222, indicating that a 22% shift in Performance can be anticipated by Strategic Planning, Table 7 demonstrates that a Regression Coefficient of 0.484 can be calculated using Strategic Planning as the independent variable.

Table 7: Coefficients Table

Model	UnstdCoeff B	StdCoeff Beta	t	Sig
Constant	19.200		11.571	0.000
Strategic Planning	0.484	0.471	9.910	0.000

Dependent Variable: Organizational Performance Independent Variable: Strategic Planning

Analyzing the Impact of Patient-Centered Care on Hospital Efficiency Using a Simple Linear Regression

Model: Table 8 displays an R2 (regression) value of 0.070, indicating that there is some predictability in Performance based on Customer Focus, while table 10 displays a Regression Coefficient for Customer Focus of 0.445.

Hospital performance as affected by Measurement, Analysis, and Knowledge Management: A Simple Linear Regression Study.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.264	0.070	0.067	3.91443

Table 9: Anova Table

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	395.120	1	395.120	25.786	0.000
Residual	5271.030	344	15.323		

Table 10: Coefficients Table

Model	Unstd Coeff B	Std Coeff Beta	t	Sig
R Constant	26.042		13.847	0.000
Customer Focus	0.445	0.264	5.078	0.000

Dependent Variable: Organizational Performance Independent Variable: Customer Focus

Table 11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.434	0.189	0.186	3.65598

Table 12: Anova Table

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1068.192	1	1068.192	79.918	0.000
Residual	4597.959	344	13.366		

Table 13: Coefficients Table

Model	Unstd Coeff B	Std Coeff Beta	t	Sig
Constant	15.915		7.224	0.000
MAKM	0.521	0.434	8.940	0.000

Dependent Variable: Organizational Performance

Independent Variable: Measurement, Analysis and KnowledgeManagement

Measurement, analysis, and knowledge management yield a R Square (regression) value of 0.189, as shown in

Table 11. This indicates that it is possible to forecast some variance in organizational performance using this method. The Regression Coefficient, as shown in Table 13, is 0.521. Analyzing the Effects of Employee Attention on Hospital Efficiency Using Linear Regression The R Square (regression) value of 0.230 shown in Table 14 indicates that 23% of the variance in Organizational Performance can be anticipated by concentrating on the performance of the workforce. The 0.361 Regression Coefficient is shown to us in Table 16.

Process Management's Impact on Hospital Efficiency and Effectiveness Assessed Using a Linear Regression Model

Table 14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.479	0.230	0.228	3.56154

Regression		1302.650	1	1302.650	102.695	0.000
Residual		4363.500	344	12.685		

Table 16: Coefficients Table

Model	Unstd Coeff B	Std Coeff Beta	t	Sig
Constant	17.973		10.311	0.000

Table 15: Anova Table

Model	Sum of Squares	df	Mean Square	F	Sig
Workforce Focus	0.361		0.479	10.134	0.000

Dependent Variable: Organizational Performance

Independent Variable: Workforce Focus

Measurement, analysis, and knowledge management yield a R Square (regression) value of 0.189, as shown in Table 11. This indicates that it is possible to forecast some variance in organizational performance using this method. The Regression Coefficient, as shown in Table 13, is 0.521. Analyzing the Effects of Employee Attention on Hospital Efficiency Using Linear Regression The R Square (regression) value of 0.230 shown in Table 14 indicates that 23% of the variance in Organizational Performance can be anticipated by concentrating on the performance of the workforce. The 0.361 Regression Coefficient is shown to us in Table 16.

Process Management's Impact on Hospital Efficiency and Effectiveness Assessed Using a Linear Regression Model

Table 17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of them Estimate
1		0.607	0.369	0.367	3.22500

Table 18: Anova Table

Model	Sum of Squares	df	Mean Square	F	Sig

Regression	2088.331	1	2088.331	200.789	0.000
Residual	3577.819	344	10.401		

Table 19: Coefficients Table

Model	Unstd Coeff B	Std Coeff Beta	t	Sig
Constant	9.723	5.314	0.000	
Process Management	1.006	0.607	14.170	0.000

Dependent Variable: Organizational Performance Independent Variable: Process Management

Based on the results shown above, we infer that TQM Dimensions do, in fact, have a beneficial impact on the performance of the five Corporate Hospitals.

Consequently, we reject the null hypothesis in favor of the alternative hypothesis, which states that TQM dimensions have a significant impact on hospitals' performance.

Findings

Using basic linear regression analysis tables, we can conclude that all TQM practices positively impacted Hospital performance. Each TQM Dimension was shown to have a positive correlation with performance, as shown in the tables of coefficients. As a result, TQM practices may be seen as a powerful instrument for enhancing the effectiveness of the chosen private hospitals.

Constraints

The study's findings may not be generalized to the whole healthcare system in the country due to two factors: (1) the study's narrow emphasis on TQM implementation in a subset of corporate hospitals and (2) the study's exclusion of public hospitals.

III. Conclusion

The purpose of this research was to determine if TQM Dimensions had a positive effect on hospital performance. Total Quality Management dimensions have been linked to improved healthcare organization performance in prior research. This led researchers to conclude that a correlation between TQM's dimensions and hospital output should be tested. Regression analysis was used to determine whether or not the independent variable, TQM dimensions, had any effect on the dependent variable, performance. Regression analysis statistics confirmed the favorable impact. Consistent with prior research, our findings suggest a link between the two variables of interest.

We conclude that TQM practices are an excellent instrument for enhancing hospital organizational performance and recommend their implementation. However, the study's findings are restricted to those in a subset of hospitals. Future research might expand to examine the city's public hospitals to see if TQM is being implemented there and, if so, whether or not it is effectively boosting the hospitals' organizational performance.

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Conflict of Interest

The author does not have any conflict of interestwith anyone.

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