Measuring the Implementation of Total Quality Management: Ibn Al-Haytham Hospital Case Study

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Abstract

This study attempted to examine the extent to which Ibn Al-Haytham Hospital in Jordan, as a case study, implemented TQM constructs. The study also aimed at investigating if there were significant differences in the respondents` perception on TQM implementation due to demographic variables (gender, age, education, and years of experience). For this purpose, a questionnaire was developed and distributed to (250) employees. Number of (194) questionnaires were returned which comprises 77.6% of the target sample.

The results indicated that Ibn Al-Haytham Hospital in Jordan is currently attaining a relatively above average level of TQM implementation. The results also showed that there were no significant differences in the respondents` perception on TQM implementation due to gender or age. At the same time, the study results showed that there were significant differences in the respondents` perception on TQM implementation due to education level or years of experience.

The study made some recommendations regarding TQM implementation that would assist management of hospitals to increase their organizational performance and effectiveness.

Keywords: Total Quality Management, Quality, Hospitals, Jordan

1. Introduction

The concept of Total Quality Management (TQM) was introduced in the seventies and eighties of the twentieth century by P.B. Crosby, W. Edwards Deming, Joseph Juran and Kaoru Ishikawa. Crosby (1979) defined steps for quality improvement, including the zero-defect philosophy. Deming (1982) proposed his 14 principles to improve quality in organizations while Juran (1986) pointed out the importance of both technical and managerial aspects of TQM. Ishikawa (1985) emphasized the importance of quality circles as a method to achieve continual improvement.

TQM is widely known as one of the most important philosophies for increasing organizational effectiveness and competitive advantage. Badri et al (1995) states that quality management is a key factor in gaining competitive advantage.

The principles and contents of TQM philosophy would increase a firm`s commitment to quality and if they are applied correctly enhances the firms` competitive position. This is because the TQM principles support the business practices of cost reduction, enhanced productivity, and improved quality of the products/outputs (Sharma and Kodali, 2008). TQM, as a management philosophy, seeks continual improvement in the quality of performance of all processes in organizations. In the 1990s and later, TQM has been adopted and implemented by a lot of organizations all over the world. According to Kanji (1990), this development is considered the second industrial revolution.

While the TQM philosophy has its roots in manufacturing and industry, it is based on many techniques which could easily be transferred to the healthcare setting (Ziaul Haq, 1996) such as check sheets, histograms, significance tests, and other statistical methods.

In Jordan, the service sector dominates the Jordanian economy accumulating around 70% of GDP. Hospitals, who are one of the major contributors to the service sector, have redirected their philosophy through the implementation of TQM. However, a review of TQM literature in Jordan indicated that many studies have been conducted on the implementation of TQM in service sector in Jordan, but less study have been conducted in private hospitals.

Hospitals are undergoing dramatic changes in establishing health care systems and in implementing new managerial approaches such as TQM. Although, theoretically, the use of TQM practices is an important part of improvements in business performance, in reality a considerable number of organizations have fallen short in implementing their quality programmes (Rad, 2006)..

This study aimed at examining the extent to which Ibn Al-Haytham Hospital in Jordan implemented TQM. The study also aimed at investigating if there were significant differences in the respondents` perception on TQM implementation due to demographic variables (gender, age, education, and years of experience).

2. Literature Review

As discussed earlier, TQM has evolved through the works of Crosby, Deming, Juran and other quality scientists. TQM has been defined in a number of different ways by a number of different people. Besterfield (2004, p. 24) defined TQM as both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. It is the application of quantitative methods and human resources to improve all the processes within an organization and exceed customer needs now and in the future. The TQM indicates a concern for quality in the broadest senses that refers to quality of products, services, people, processes, and environments (Goetsch and Davis, 2010, p. 7).

TQM can be effectively used as an organization-wide change technique in helping an organization improve its efficiency in production, create a change of culture, introduce teamwork, gain management commitment to quality and to achieve other business improvements (Sulivan-Taylor, Bridgette, 1996). In fact, implementation of TQM can produce a lot of benefits, such as, lower rates of mistakes, better quality of products, and higher customer satisfaction levels. Antony et al (2002) states that the successful implementation of TQM will result in improved employee involvement, improved communication, increased productivity, improved quality and less rework, improved customer satisfaction, reduced costs of poor quality, and improved competitive advantage.

Implementation of TQM requires utilizing and employing many issues relating to inputs, processes, and outputs. Evaluation of the level of implementation in this concern involves defining some critical success factors, which there is no common agreement among researchers about. Salaheldin (2009) viewed the critical success factors as those things that must go right in order to ensure the successful implementation of TQM.

One of the earlier studies that analyzed TQM critical success factors was done by Sarraph et al (1989) who identified eight critical factors: top management leadership, role of quality department, training, product design, supplier quality management, process management, quality data reporting, and employee relations. Ciampa (1992) identified seven factors critical to quality process: influence, responsibility/authority, innovativeness, desire to change, satisfaction, teamwork, and common vision/benchmarking. In 2002, Antony et al found that the critical success factors of TQM implementation are: training and education, quality data reporting, management commitment, customer satisfaction orientation, role of the quality department, communication to improve quality, and continuous improvement.

Anyhow, various critical success factors are proposed by different writers due to their different qualification background and work experience. This study will focus on the following TQM constructs: customer focus, employee involvement, management commitment, teamwork, continuous improvement, training, and organizational culture.

3. Research Hypotheses

In order to achieve the research objectives, the following main hypotheses and their sub-hypotheses are developed for testing:

Ho1: Ibn Al-Haytham Hospital in Jordan does not implement the TQM constructs.

Ho1.1: Ibn Al-Haytham Hospital in Jordan does not focus on its customers.

Ho1.2: Ibn Al-Haytham Hospital in Jordan does not adopt employee involvement.

Ho1.3: The management of Ibn Al-Haytham Hospital in Jordan is not committed to TQM.

Ho1.4: Ibn Al-Haytham Hospital in Jordan does not adopt teamwork.

Ho1.5: Ibn Al-Haytham Hospital in Jordan does not have continuous improvement projects.

Ho1.6: Ibn Al-Haytham Hospital in Jordan does not adopt teamwork.

Ho1.7: The employees of Ibn Al-Haytham Hospital in Jordan do not share common quality culture.

Ho2: There are no significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to demographic variables (gender, age, education, and years of experience).

Ho2.1: There are no significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to their gender.

Ho2.2: There are no significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to their age.

Ho2.3: There are no significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to education.

Ho2.4: There are no significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to years of experience.

4. Methodology and Procedure

4.1 Population and Sample

The site for the present study was Ibn Al-Haytham Hospital, which employed 600 full time employees. Ibn Al-Haytham Hospital is considered one of the most leading medical institutions in Jordan and the region. It provides wide range of services and medication, including eye surgery, otolaryngology, among others. The hospital can receive up to 200 patients, and fully equipped with 38 advanced outpatient clinics, covering almost all medical services. (www.ammancity.gov.jo). Ibn Al-Haytham vision is to be the pioneer in providing a distinguished medical care and up-to-date educational services through a unique healthcare institute in the region, while its mission is to reach the highest level of excellence in providing the best, most distinguished and integrated, yet cost-effective, medical care possible, in a non-threatening, safe atmosphere, well-developed and equipped facility, staffed with highly qualified personnel, reaching for the highest possible level of customer satisfaction and beyond.

The survey questionnaire was distributed randomly to 250 employees, where 194 responses were received, representing a response rate of 77.6%. All received responses were considered statistically usable.

4.2 Research Instrument

The authors made an extensive review of literature on TQM in books, journals, and other sources such as internets and dissertations. For the purpose of the study discussed in this paper, a questionnaire was developed by the authors depending on the literature and referring to (Badri et al, 1995), (Ahmadi and Helms, 1995), (Ziaul Huq, 1996), and (Thiagarajan and Zairi, 1998). The questionnaire was distributed on a sample of patients where the respondents were asked to rate each of the quality critical factors as to their level of importance to a successful implementation of quality management processes in their organizations. The data have been gathered by using a five-point Likert-type scale, ranging from 1 (strongly disagree) to 3 (neutral) to 5 (strongly agree), was used to measure the research variables.

The questionnaire covered two parts. The first part focused on demographic variables such as, gender, age, education, and years of experience, while the second part dealt with TQM implementation and included 33 statements covering the seven constructs of the study: customer focus, employee involvement, management commitment, teamwork, continuous improvement, training, and organizational culture.

For the purpose of construct validity, four experts were approached and consulted with the questionnaire, and their remarks were considered. Data were evaluated for normal distribution, and the skewness for the constructs ranged, as shown on table (1), between (.003) and (.967), which indicated that the data were normally distributed. Cronbach`s Alpha coefficients were calculated for all TQM constructs and shown also on table (1). The values of Cronbach`s Alpha shown can be considered satisfactory and confirm the reliability of the instrument.

5. Results and Discussions

Based on the literature of the study and the statistical analysis made, specific results related to each of the study variables were drawn. This study examined, firstly, the extent to which Ibn Al-Haytham Hospital in Jordan, as a

case study, implemented TQM constructs and secondly, it investigated if there were significant differences in the respondents` perception on TQM implementation due to demographic variables (gender, age, education, and years of experience).

The sample included (194) employees, almost (62.4%) of them were male and (37.6%) were female. As can be seen from table (2), most of the sample participants (35.1%) were aged between 20 and 29 years old. Furthermore, the majority of participants (47.9%) were holding Bachelor degree, and almost (32.5%) of them had a long experience ranging from (7-9) years.

The mean score of TQM implementation in Ibn Al-Haytham Hospital, as shown on table (3) was (3.808) with a standard deviation (.411). Table showed that the lowest mean was for Training (3.622) with a standard deviation (.603) while the highest mean was for employee involvement (4.107) with a standard deviation (.670).

The first main null hypothesis (Ho1) and its sub-hypotheses (Ho1.1 to Ho1.7) were tested using one- sample t test. The criteria for accepting the null hypothesis is if the calculated t value is less than tabulated t value (1.962). As shown on table (3) and since the calculated t value for all TQM constructs (27.392) is greater than the tabulated t value, the null hypothesis (Ho1) is rejected and the alternative hypothesis is substantiated, which means that Ibn Al-Haytham Hospital in Jordan implements all the TQM constructs. The value of t significance (.000) which is smaller than the t significance level of the study (.05) supports the decision of researchers in rejecting the null hypothesis.

Also according to table (3), since the calculated t value for each TQM construct, ranging from 14.366 for training to 23.001 for employee involvement, is greater than the tabulated t value, the null hypothesis for each construct (from Ho1.1 to Ho1.7) will be rejected and the alternative hypothesis is substantiated, which means that Ibn Al-Haytham Hospital in Jordan implements each TQM construct. The value of t significance for each construct (.000) supports the researchers` decision of rejecting all those null hypotheses.

The study results in table (4) show that there are no significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to their gender since the calculated t value (.212) is smaller than the tabulated t value. The value of t significance for gender factor (.833) supports the researchers` decision of rejecting the null hypothesis (Ho2.1). At the same time, the study results in table (4) also show that there are no significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to their age, since the calculated f value (.931) is smaller than the tabulated f value. The value of f significance for age factor (.447) supports the researchers` decision of rejecting the null hypothesis (Ho2.2).

Furthermore, table (4) show that there are significant differences in the respondents` perception of TQM implementation in Ibn Al-Haytham Hospital in Jordan due to their education or experience, since the calculated f value (3.081 and 4.580) for education and experience consecutively, are smaller than the tabulated f value. The value of f significance for education and experience factors (.017 and .001) consecutively supports the researchers` decision of rejecting the null hypotheses (Ho2.3 and Ho2.4). This decision is consistent with the logic that the more educated or experienced an employee became, the better would be his/her perception of TQM implementation.

6. Conclusions and Recommendations

This study showed that Ibn Al-Haytham Hospital in Jordan is currently attaining a relatively above average level of TQM implementation. There were many limitations in this study that have to be noted. This study has been conducted on Ibn Al-Haytham Hospital in Jordan which means that the ability for generalization of results is limited. The results suggest that future studies are to be carried out for other service organizations such as universities, insurance companies, and hotels. This study also, has not taken into consideration the effect of TQM constructs on other variables such as organizational performance and effectiveness. Further research may include examining the effect of TQM constructs on these factors.

Based upon the results of this study, the researchers recommend that employee empowerment should be significantly increased in hospitals in Jordan. In connection to that there should be more extensive quality training provided to employees.

Management of these hospitals should change the corporate culture towards patient medical care and individual employees must be encouraged to work as teams and focus on patients and study their needs and requirements. At the same time management should welcome risk taking and provide the suitable innovation atmosphere so as to enhance continuous improvement.

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Table 1. Skewness and Cronbach`s Alpha for TQM Constructs

S.N.	Construct	Skewness	Alpha
1	Customer Focus	-.170	.665
2	Employee Involvement	-.967	.692
3	Management Commitment	-.631	.852
4	Teamwork	-.003	.732
5	Continuous Improvement	-.781	.718
6	Training	-.492	.794
7	Organizational Culture	-.417	.801
8	All Constructs	-.890	.902

Table 2. Respondents Demographics

Demographics		Frequency	Percent
Gender	Male	121	62.4
	Female	73	37.6
Age	Less than 20 years	36	18.6
	20-29 years	68	35.1
	30-39 years	38	19.6
	40-49 yeas	35	18.0
	50 years and above	17	8.8
Education	Secondary School	4	2.1
	High School	34	17.5
	Diploma	53	27.3
	Bachelor	93	47.9
	Higher Studies	10	5.2
Experience	1 - 3 Years	8	4.1
	4 - 6 Years	54	27.8
	7 - 9 Yeas	63	32.5
	10 - 12 Years	48	24.7
	More than 12 Years	21	10.8
	Total	194	100

Table 3. One-sample t-test

Construct	Mean	Standard Deviation	T Value	Sig. (2-tailed)
Customer Focus	3.737	.504	20.369	.000
Employee Involvement	4.107	.670	23.001	.000
Management Commitment	4.054	.667	22.004	.000
Teamwork	3.767	.618	17.275	.000
Continuous Improvement	3.826	.574	20.028	.000
Training	3.622	.603	14.366	.000
Organizational Culture	3.638	.597	14.896	.000
All Constructs	3.808	.411	27.392	.000

Table 4. The Effect of Demographic Factors

Factors	Test type	Value	Sig.
Gender	Independent Sample t-test	t=.212	.833
Age	ANOVA	f= .931	.447
Education	ANOVA	f= 3.081	.017
Years of Experience	ANOVA	f= 4.580	.001