International Journal of Operations & Production Management

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Received 30 April 2013
Revised 8 January 2014
29 January 2014
Accepted 29 January 2014

Abstract

Purpose – The purpose of this paper is to examine the extent of total quality management (TQM) practices implemented in Palestinian hospitals and their relationship to organizational performance using the Malcolm Baldrige National Quality Award criteria.

Design/methodology/approach – A survey of 51 hospitals operating in the West Bank of Palestine was conducted in order to test the validity and reliability of TQM constructs and their relationship to organizational performance.

Findings – The results showed that TQM constructs used in this study are positively related to hospital performance and for the most part the relationship was significant; they were capable of explaining a significant portion of variance in performance. Three elements were found to be strongly significant predictors of performance- people management, process management, and information and analysis.

Research limitations/implications – Although hospitals operating in the Gaza Strip were excluded from the study, this research promotes critical management practices that help channeling organization resources into areas aimed at improving quality and performance.

Practical implications – The study showed that there are certain areas where administrators or managers need to focus on should they aspire for better performance. The constructs used in this study can be used to assess the implementation of quality practices and highlight areas for movement.

Originality/value – This paper provided practitioners, administrators, and academics with a fresh perspective on quality management practices and their impact on organizational performance. It also served as a foundation for future initiatives and programs aimed at improving quality in hospitals.

Keywords Performance measurement, Quality management, Operational performance

Paper type Research paper

1. Introduction

The relationship between total quality management (TQM) and organizational performance is a recurrent theme in several branches of management, including operations management, and it is of interest to both academic scholars and practicing managers. TQM has gained wide popularity around the world due to the interrelationships and impact of various factors and practices on key business results, especially in developed countries (Calvo-Mora *et al.*, 2014; Chavez *et al.*, 2013; Evans and Lindsay, 1995; Dean and Bowen, 1994; Garvin, 1991). In this respect, substantial progress has been achieved in countries like USA, Germany, Japan, and the UK of Britain, just to name a few (e.g. in the USA the turn around that took place decades ago had astonishing improvements at different levels such as productivity, product quality, inventory management, operational processes, and others (Brown, 2013)). Under the banner of TQM, efforts were directed at

International Journal of Operations & Production Management
Vol. 34 No. 12, 2014
pp. 1487-1505

0144-3577
DOI 10.1108/IJOPM-04-2013-0210

improving leadership, workforce management, customer focus, use of information and analysis, process management, and strategic planning (Laohavichien *et al.*, 2011; Samson and Terziovski, 1999). On the other hand, traditional quality control practices in developing countries, with their focus on craftsmanship, may not be effective and efficient enough for contemporary service quality systems (Lau *et al.*, 2004).

The impact of TQM practices (leadership, strategic planning, people management, customer oriented, information and analysis, and process management) on organizational performance is not straightforward (Vecchi and Brennan, 2011), although there are several organizations that have experienced positive revitalizations and improved performance based on TQM; very few organizations have been able to ignore the TQM domains and still thrive. Nevertheless, there have been many situations in which, despite the successful implementation of TQM, operational performance improvement could not be achieved. It is quite clear that the performance improvements resulting from implementing the TQM elements listed above are indeed not ubiquitous and are mixed in nature.

The quest of a Palestinian state continues to be an arduous process immersed in challenges that continue to endure the dire consequences resulting from the ongoing occupation. Paramount to these challenges is an improved healthcare system, which is currently characterized by incoherency and inadequacy (Barghouthi and Lennock, 1997; Massad *et al.*, 2011), thus calling for more concentrated efforts in key areas to ensure the sector's future viability. Over the past few years, a number of organizations, primarily the Palestinian Ministry of Health (PMoH), have undertaken several initiatives to enhance the healthcare sector and the services thereof, with quality improvement being the focal point of these initiatives. On the other hand, very limited number of studies was conducted to assess the relationship between quality management practices in Palestinian healthcare organizations and performance. This study reports on a recent survey of the current state of quality management implementation and practices in the occupied Palestinian territories (oPt) using the Malcolm Baldrige National Quality Award (MBNQA) criteria for healthcare institutions. In addition, the study provides a contribution to the literature through the analysis of TQM practices and performance in healthcare institutions. Conclusions are drawn on the explanatory and predictive power of the TQM elements. The following research questions are empirically examined in this study:

RQ1. To what extent are TQM elements implemented in Palestinian hospitals?

RQ2. Are TQM elements reliable for measuring organizational performance and to what extent can they predict organizational performance?

Answering the above research questions will provide an assessment of management practices across Palestinian hospitals operating in the West Bank area, and contribute to a deeper understanding of the value of each of the elements of TQM. This could help practitioners in channeling their resources into areas that will have significant impact on hospital performance.

2. Literature review

Dating back to the 1970s and early 1980s, several organizations have adopted relatively new methods and programs aimed at improving their processes and productivity in face of the new challenges that were taking their horrendous toll in virtually every

industry and sector. Among these methods and programs was the introduction of the TQM system: a system that has attracted tremendous attention from practitioners and academics resulting in a plethora of literature. The revolution of quality was pioneered by W. Edwards Deming in late 1970s followed by significant contributions made by Crosby (1979) and Juran (1989).

Studies by Saraph *et al.* (1989) and Garvin (1983) were of the earliest to measure TQM practices across different industries and examine the relationship between TQM practices and organizational performance. A more recent study by Das *et al.* (2000) attempted to study the relationship between different programs of TQM systems and their effect on performance. These studies as well as others, for example Douglas and Judge (2001), Samson and Terziovski (1999), Adam *et al.* (1997), and Powell (1995) have produced inconsistent results which were mainly attributed to three research design-related differences:

(1) one dimension vs multiple dimensions when TQM is operationlized;

(2) variation in terms what constitutes organizational performance, e.g. financial and operational; and

(3) the type of analysis used in measuring the relationship, e.g. regressions or correlations.

There are, however, several more recent studies that focussed on studying the relationship between, for example soft and hard TQM factors and key business results (Calvo-Mora *et al.*, 2014), lean practices and organizational performance (Chavez *et al.*, 2013), leadership- among other factors- and quality management (Laohavichien *et al.*, 2011); all of which have indicated that a positive relationship exists. Another recent study by Boulter *et al.* (2013) indicated that a stronger performance is achieved by TQM-oriented award winning organizations.

Inspired by the seminal works of Deming (1986), Juran (1989), and Crosby (1979), several hospitals have adopted programs with such similar acronyms as TQM and continuous quality improvement with more emphasis on the latter because it encompasses all workers and eliminates the proposition that quality is only the job of managers (Huang *et al.*, 2002; Joseph, 1996). In this respect, both "internal marketing" and "relationship marketing" – at a more general level – concepts were considered critical for improving the quality of the services and for advancing the organization's mission and goals (Huang *et al.*, 2002). "Internal marketing" being a derivative concept with a focus on employees as well as customers, Lovelock (1992) argued that three management functions: marketing, operations, and human resources are intimately joined in what Lovelock has coined the "service trinity." In healthcare services delivery, this functional integration appears to be almost flawless. Studies by Huang *et al.* (2002) and Ladhari and Rigaux-Bricmont (2013) showed that physicians and administrators in hospitals with market orientation perception had a positive influence on hospital-patient relationship quality and patient loyalty. From a "relationship marketing" perspective, all efforts and actions made by the organization (e.g. hospitals) toward satisfying their service recipients and developing their employees will enhance the quality of the services rendered (Iliopoulos and Priporas, 2011).

A review of the literature indicated that most TQM factors, empirically examined in quality management literature, are comprised of more than one indicator, favoring the use of latent variable model (Sila and Ebrahimpour, (2005). This is quite similar to the logic in the MBNQA framework; each factor is measured by a group of indicators.

Indeed, there are sufficient differences among the indicators that merit the use of a latent variable model, for example Forza and Filippini (1998) and Kanji and Wallace (2000).

Despite the mixed results in assessing the relationship between TQM and organizational performance, TQM continued to be pursued by virtually all organizations (Vecchi and Brennan, 2011). Several quality awards and frameworks were established, for example the MBNQA which was established in 1987. This award, among others, was viewed as an advantageous way for categorizing the elements of TQM, hence for this reason combined with the universality of such awards this study adopts MBNQA as a guiding framework. A study by Bemowski and Stratton (1995) examined the usefulness of the MBNQA criteria; the study found that MBNQA criteria exceeded the users' expectations and it was used as source of information to accomplish business excellence. Another study by Easton (1993) provides a qualitative assessment of MBNQA in which he concluded that TQM in the USA is far from mature and that TQM approaches should continue to evolve and develop.

2.1 Healthcare in the oPt

Healthcare in the oPt continues to suffer from maladies: the ongoing occupation, inefficiencies in the healthcare system, corruption within governing bodies, lack of funding, and a shortage of specialists in many fields, etc. […] As a result, up to this point healthcare, as a system remains a failing enterprise in the oPt. According to Hamdan and Defever (2002) and Mataria *et al.* (2009), nearly a generation has passed and most attempts to improve the effectiveness and efficiency to create an equitable system have proven unattainable. There are over four million Palestinians living in the oPt, with approximately 40 percent of the population under the age of 15. In 2011, the Palestinian Central Bureau of Statistics (PCBS) reported that total health expenditure was 12.3 percent of Gross Domestic Product (GDP), averaging $307 per capita (Palestinian Central Bureau of Statistics, 2013). Therefore, despite an adult literacy rate of 92.4 percent, as of the year 2011the oPt suffer from an unemployment rate that hovers around 24 percent, 1.5 million Palestinians living below the poverty line of $3.10 per day, and a donor based economy with roughly 25 percent of GDP being comprised of direct foreign assistance, which created an atmosphere embedded with great difficulties that hinders the offering, accessibility, and ultimately quality of healthcare services.

The structure of the Palestinian healthcare system includes Primary Healthcare Centers (PHC), Secondary Healthcare Centers (i.e. Hospitals), and Tertiary Healthcare Providers. In 2011, the total number of PHCs was 748, an increase from 672 in 2010. The UNRWA operates 61 PHCs, whereas NGOs operate 206 PHCs, with the remaining PHCs under the administrative control of the PMoH (Palestinian Ministry of Health, 2011). According to the Palestinian Ministry of Health (2011) there are 81 hospitals operating in the oPt with a total number of beds numbering 5,414. Of the 81 hospitals, 51 are located in the West Bank. Table I illustrates the distribution of the total number of hospitals, including the number of beds according to the governorate in which they operate[1].

According to Giacaman *et al.* (2009) the Palestinian Authority (PA) continues to upgrade and expand its health system infrastructure through institutionalization, capacity building, and human resource development. Despite these efforts, Giacaman *et al.* (2009) further argue that patient referrals by the PMoH to countries such as Egypt, Jordan, and Israel, continue to highlight the lack of adequate quality in the healthcare services provided, as referenced in Figure 1 (number of patient referrals shows a sizable increase due to various deficiencies in Palestinian healthcare organizations). The lack of desired quality levels is due to restricted mobility, management, accountability, and

Governorate	Healthcare provider type								Total	
	Public		NGO		UNRWA		Private			
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
Bethlehem	2	299	4	241	0	0	2	27	8	567
Hebron	2	246	3	200	0	0	4	86	9	532
Jenin	1	123	1	10	0	0	1	37	3	170
Jericho	1	54	0	0	0	0	0	0	1	54
Jerusalem	0	0	6	515	0	0	3	52	9	567
Nablus	2	267	2	111	0	0	2	138	6	516
Qalqilia	1	56	0	0	1	63	1	17	3	136
Ramallah	1	164	2	63	0	0	5	91	8	318
Salfit	1	50	0	0	0	0	0	0	1	50
Tulkarm	1	108	2	45	0	0	0	0	3	153
Total	12	1,367	20	1,185	1	63	18	448	51	3,063

Table I.
Distribution of hospitals and beds according to administrative type and governorate in the West Bank

the presence of under-qualified healthcare providers, as well as weak institutional capacity for monitoring and assessment.

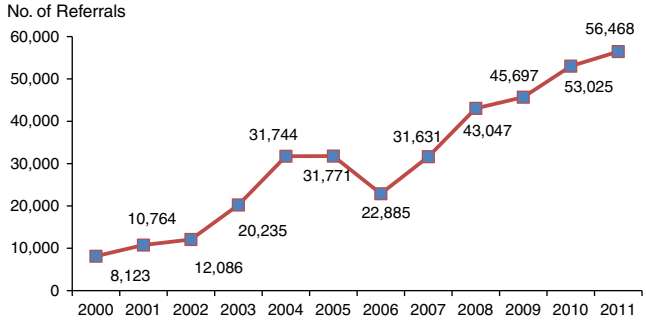
3. Theoretical framework

The underlying assumption for choosing the most appropriate theoretical framework in this study is governed by a holistic approach that captures the main elements of TQM. In this respect, the awards criteria were found to be the most comprehensive and universally acknowledged approach. The MBNQA, regarded as one of the most well known awards, is adopted as the guiding framework in this study allowing the empirical analysis thereafter to be categorized based on the main criteria of the MBNQA. There are several studies that have used the MBNQA, for example O'Rourke *et al.* (2001) and Lau *et al.* (2004) used the MBNQA award because of its international standard for performance excellence, and its ability to provide a comprehensive framework for both practitioners and administrators; it is capable of identifying organizational strengths and weaknesses, as well as key areas for improvement. Other studies have adopted MBNQA for its ability to correspond with the basic principles of TQM (Evans and Jack, 2003; Wilson and Collier, 2000; Ahire *et al.*, 1996; Black, 1993).

In this section, a brief presentation of the seven award criteria is provided through which the empirical analysis aims to validate these seven elements as constructs and assess the quality of management practices in the Palestinian hospitals:

(1) Leadership: against the backdrop of technological innovation, a growing knowledge workforce, and shifting social and demographic trends faced by organizations worldwide, few could argue that a major objective of management practices is leadership (Laohavichien *et al.*, 2011; Limerick and Cunnington, 1993; Kanter *et al.*, 1992; Bass, 1985). Leadership has the ultimate responsibility for setting the strategic direction and establishing systems that will facilitate high organizational performance. The leadership element has multiple dimensions: the creation of a unifying purpose, motivating change, managing the environment, and cultivating a participatory approach to improved performance.

(2) Human resource management: this particular element addresses the human resource effectiveness in the organization in terms of recruitment, training and development, communication, workforce safety, and satisfaction. Garavan (1993) argued that human resource has the most profound impact on organizational performance.



Source: Palestinian Central Bureau of Statistics (2011)

Figure 1.
Annual patient referrals from Palestinian hospitals

(3) Customer focus: how attentive the organization is to customer needs and expectations and how effective the organization is in terms of managing customer relationships. Becoming a customer oriented organization has become one of the major challenges facing organizations (Armstrong, 1999); tailoring and implementing strategies aimed at improving customer satisfaction should be at the heart of any organization.

(4) Strategic planning: according to David (2001) strategic planning is a skill which requires practice; organizations that most practice this skill have a higher chance of improving their performance. This element focusses on how the organizations go about formulating and implementing their plans with a focus on the customer and the workforce.

(5) Information and analysis: this element is concerned with the scope, management and use of data and information to maintain a customer focus, to drive quality excellence and to improve performance (National Institute of Standards and Technology, 1995). A case in point, several TQM techniques such as Pareto charts and cause and effect analysis are aimed at helping organizations to process information effectively.

(6) Process management: from an open system perspective, organizations are viewed as a number of subsystems that are integrated together to make a unified whole system (Doyle, 2000). This element of TQM is responsible for assessing how organizations designs and introduces their products and services; it looks at the entire supply chain. Deming (1986) viewed organizations as interlinked processes, and that improvement in these processes is the basis for performance improvement.

(7) Performance results: several indicators make up the turf for this element: quality performance, operational, and business performance, customer satisfaction, organizational growth, and employee satisfaction. A study by Elg *et al.* (2013) suggested that performance results and measurement may lead to improvement in healthcare organizations.

Figure 2 shows the seven elements of MBNQA and the interplay among these elements. This is in line with what Deming (1986) has stated with regards to the importance of integrating these various activities as well as linking them profoundly with results.

4. Methods

To answer the research questions, in the summer of 2012 upon obtaining an approval from the PMoH a survey was carried out by the researchers. The various factor analyses and other statistical calculations (correlations and regression) were conducted using the Statistical Package for the Social Sciences (SPSS) and Windows Excel. The sampling method used in this study was purposefully a convenience random sample of employees working in Palestinian hospitals.

Although, limited studies were conducted to address the issues relating to management practices in Palestinian hospitals, little attention was given to quality of medical treatment in very specific areas (Giacaman *et al.*, 2009; Mataria *et al.*, 2009; Schoenbaum, *et al.*, 2005). The largely unstudied hospitals, that comprise a large segment of the Palestinian healthcare sector remain unexplored and for which little is known about the quality of management practices in these hospitals; this fact merits further investigation.

Figure 2.
The seven elements of the MBNQA

Source: Adapted from National institute of Standards and Technology (1995)

4.1 Sample

The sample population is a random convenience sample drawn from hospital sites. All hospitals that participated in the study were registered hospitals with the PMoH as well as having a record with PCBS. For each hospital, the number of questionnaires to be distributed was determined using the total number of beds; a worldwide accepted indicator of hospital size (Magnussen, 1996). Although the researchers were given access to conduct the survey, the researchers were unable to get a list of all employees in many of the surveyed hospitals. Hence, the decision for a random convenience sample and to spend one day at each hospital to collect the required survey responses. Respondents from the respective hospitals were divided into four groups: physicians; nurses; technicians; and administrative staff. Out of 550 questionnaires that were distributed across 49 hospitals, 501 questionnaires were completed and returned.

4.2 Survey instrument

The survey instrument was a ten pages survey conducted in hospitals sites. The questionnaire was divided into eight sections, out of which seven sections had a total of 62 questions that were assigned to the seven MBNQA criteria. The eighth section was devoted entirely to collect information about the participant's background. All 62 questions used in the questionnaire were of a Likert scale nature, which corresponded with The Baldrige National Quality Program at the National Institute of Standards and Technology (2009-2010). The questions were slightly modified to fit the context of the study. The questionnaire was pilot tested in two hospitals, and subsequently revised.

4.3 Data management

Two distinct stages of data management and preparation were performed prior to conducting the main analysis.

4.3.1 Selection of questions. The selection of the questions to be included in the final data set was formulated in line with The Baldrige National Quality Program at the National Institute of Standards and Technology (2009-2010) and reaffirmed through a focus group and interviews with experts from the Faculty of Nursing and Applied

Health Professions at Birzeit University. Questions found irrelevant to and outside the scope of this study were discarded, e.g. questions on the extent of using medical technology are perhaps relevant to other studies but not to this investigation of TQM implementation. Hence, the use of 62 variables in the analysis which were found related to TQM and the seven elements thereof. In addition, the selection of questions corresponds to issues found in the literature (Powell, 1995; Flynn *et al.* (1994). The seven elements discussed in Section 3 were assigned the labels to facilitate the analysis there after (see Table III).

4.3.2 Management of incomplete responses. The second stage in the data management was the treatment of incomplete responses-a requirement of factor analysis is that all cells in the data set be complete. For the purpose of the analysis reported in this study, questionnaires with more than seven empty cells among the 62 variables were deleted from the data set. Accordingly, this approach yielded a total of 491 questionnaires of which 70 questionnaires had less than seven missing cells. Missing cells were replaced with the variable means (Sekaran and Bougie, 2009).

4.4 Validity and reliability

To make sure that this study is truly measuring what it set out to measure and to provide assurance that the findings reflect an accurate measure of the seven elements of MBNQA, information regarding validity and reliability is needed.

Validity in this study had two dimensions. First, content validity was achieved by comparing between the measurements items of each variable with an extensive review of literature and evaluation criteria of international quality awards; measures used in this study were capable of capturing TQM elements. Second, is construct validity which was achieved using the Principal components factor analysis (Jolliffe, 2005). As shown in Table III, all measurement items were factor analyzed producing only one item (SP7) with factor loading of little < 0.450. All factors' loading were acceptably good. A third dimension of validity in relation to criterion validity will be discussed in Section 6.

As for reliability, an internal consistency for the seven elements was estimated using the reliability coefficient Cronbach α ranging between 0.00 and 1.00. As shown in Table I an internal consistency was performed separately for each of the seven elements. The results show that all α values range between 0.674 and 0.888 indicating that all scale variables demonstrate an acceptable level of reliability. Cronbach's α for all the factors used in this study meet the acceptable value 0.6 (Sekaran and Bougie, 2009; Hair *et al.*, 2006; Kaiser, 1974).

5. Results

The following section provides a summary of the main findings of the analysis. Table II provides a summary description of the hospitals included in the study, and the characteristics of the respondents.

The present level of education of the respondents, as it appears in Table II, indicates that most professionals employed in Palestinian hospitals are highly educated. This was most evident in private sector hospitals, where 16.5 percent of the respondents were holders of graduate and post graduate academic degrees. Additionally, the vast majority of respondents were comprised of physicians and nurses (65 percent), followed by administrative employees (24.9 percent). The overall distribution of respondents according to gender was 44.3 percent females, whereas males represented the

Indicator	Public	Private	NGO	UNRWA
Organizational capacity				
Average number of beds	132	35	79	63
Average number of staff	273	109	214	118
Average number of departments	16	6	11	7
Average age of organization (years)	47	17	52	62
Distribution of respondents				
Respondents according to hospital type (%)	29	24	45	2
Gender				
Male (%)	59	51	55	64
Female (%)	41	49	45	36
Occupation				
Physicians (%)	22.2	17.4	20.8	18.2
Nurses (%)	43.1	49.6	43	45.5
Technicians (%)	7.6	12.4	10.4	9.1
Administrative (%)	27.1	20.7	25.8	27.3
Level of education				
PhD (%)	3.5	7.4	1.4	0
Master's (%)	11.1	9.1	10.8	9.1
Bachelor's (%)	61.8	51.2	61.7	45.5
Diploma/Other (%)	23.6	32.2	26.1	45.5

Table II.
Summary profile of participating organizations and respondents

remaining 54.7 percent. In terms of administrative types, the highest rate of responses came from NGO hospitals (45 percent), which is primarily due to two factors; the highest number of inadmissible questionnaires came from public hospitals; and the lack of cooperation from two hospitals (one public and one private).

As mentioned previously, this study used the MBNQA criteria as a framework to assess quality in Palestinian hospitals in the West Bank as well as to examine the relationship between TQM elements and performance. The seven MBNQA variables are leadership, strategic planning, patient and sector focus, information and analysis, human resource focus, process management, and performance results being the dependent variable. The results of the analysis are summarized in Table III, which shows the average score for each measurement item for the seven elements. It also shows the scale reliability for each section denoted α.

In addition, Table IV provides useful insights on the bivariate correlation of the six independent variable factors; it clearly shows that there is significant multicollinearity reflecting that organizations which are performing relatively well on some factors have a tendency to do well on other factors- one good thing leads to another. The results shown in Table IV are similar, even better, to those of Ahire *et al.* (1996) and Samson and Terziovski (1999) ranging between 0.542 and 0.732. This is somehow expected given the large number of observations which were over 500. It is worth noting that leadership and information and analysis had the lowest correlation coefficients with a 0.542 score.

Table V shows how reliable the latent variables (leadership, HRM, customer focus, strategic planning, information and analysis, and process management) are, using multiple-regression, in predicting organizational performance. This is in-line with Kanji and Wallace (2000) in which they used the Kanji business excellence model as a framework to create latent factors and test their impact on business results. In this case, the use of a latent variable model whereby factor loading of each indicator can be assessed, allows

I. Leadership		*Average score*
L1.	Senior management in your institution always emphasizes the importance of patient care	0.865
L2.	Senior management in your institution focusses on improving patients' care	0.837
L3.	Senior management in your institution is accessible to patients	0.830
L4.	Senior management does adapt its operational strategies to sector trends	0.635
L5.	The institution always employs ethical practices relative to the rest of the sector.	0.802
L6.	The institution anticipates public concerns about its products, services, and operations	0.786
L7.	The institution does participate enthusiastically in social or community services	0.658
L8.	Senior management actively seeks feedback	0.717
		Scale reliability $\alpha = 0.745$
II. Strategic planning		
SP1.	Our institution has clear, strategic objectives	0.778
SP2.	In defining our institution's strategic objectives, we are fully concerned about the various potential external factors such as sector trends and competition from other institutions in the sector, and the institution's capability	0.752
SP3.	In defining our institution's strategic objectives, we are fully concerned about the various potential internal factors such as the capacity and available resources	0.757
SP4.	Strategic objectives and plans are effectively communicated to all staff	0.676
SP5.	Every staff member in our institution is aware of our strategic objectives and the action plans to be accomplished	0.614
SP6.	Staff members in our institution are committed toward our strategic objectives and action plans	0.690
SP7.	Supplier capabilities to meet our quality requirements are essential when selecting our suppliers	0.433
SP8.	We integrate public responsibility into performance improvement efforts	0.756
SP9.	Our staff adheres to a formal code of ethics	0.812
SP10.	We lead the efforts to improve community services, such as education and/or environmental programs	0.659
		Scale reliability $\alpha = 0.824$
III. Patient and sector focus		
P1.	The institution identifies its target patients well	0.811
P2.	The institution addresses our patients' opinions and suggestions seriously	0.689
P3.	The institution analyzes and disseminates patients' needs in a timely manner	0.700
P4.	We as an institution have a well-established communication channel with our patients, allowing patients to seek help and information, and make complaints	0.772
P5.	The institution has an effective patient management system, which addresses patient complaints and problems in a timely manner	0.750
P6.	We as institution closely monitor other institutions' actions in the same sector	0.687

(*continued*)

Table III.
Factor structure and factor loadings

P7.	The institution is fully aware of sector trends	0.700
		Scale reliability $\alpha = 0.674$
IV. Information and analysis		
IA1.	The institution has an effective system to assess its operational performance	0.703
IA2.	The institution does have a clear, comprehensive appraisal system	0.645
IA3.	All staff understand the indicators linked to their performance well and take them seriously	0.708
IA4.	The institution adjusts its performance according to the changes in the environment	0.700
IA5.	Senior management adjusts the institution's policy and strategy by analyzing information and facts	0.674
		Scale reliability $\alpha = 0.689$
V. Human resource focus		
HR1.	The institution empowers its staff	0.671
HR2.	The institution has an effective appraisal system for recognizing and rewarding the staff for their efforts	0.627
HR3.	The institution encourages teamwork and team spirit	0.706
HR4.	Our management motivates staff and fully develops their potential	0.621
HR5.	The institution trains its staff in quality concepts	0.689
HR6.	The institution provides training and development for staff members	0.690
HR7.	The institution provides a safe and healthy work environment	0.732
HR8.	The institution provides staff with patient- focussed training	0.715
		Scale reliability $\alpha = 0.888$
VI. Process management		
PM1.	When designing processes, the institution carefully considers the following factors: quality, costs, productivity, new technology	0.782
PM2.	Before applying new procedures or delivery processes, the institution conducts comprehensive tests to assure quality	0.748
PM3.	The institution has appropriate management measures to control and improve delivery processes	0.716
PM4.	The institution continuously improves its delivery processes, to enhance the overall service quality development	0.744
PM5.	Process improvement initiatives are shared among departments	0.584
PM6.	Individual departments work to improve their processes	0.630
PM7.	The institution closely cooperates with its suppliers	0.717
PM8.	We evaluate services on the basis of efficiency, including cost and timeliness	0.718
PM9.	We evaluate services on the basis of effectiveness, including appropriateness and risk	0.698
PM10.	Work procedures and possible outcomes are explained in advance to patients	0.765
PM11.	Healthcare services are contingent according to patients' needs	0.784
		Scale reliability $\alpha = 0.812$
VII. Performance results		
PR1.	Patients are satisfied with our healthcare services	0.771
PR2.	Our institution is able to meet its financial obligations	0.667
PR3.	Our system of remuneration and benefits is satisfactory	0.559
PR4.	In general the staff is satisfied with their respective department	0.648

Table III.

(*continued*)

PR5.	Our healthcare services are expanding	0.719
PR6.	Overall service quality is improving steadily	0.740
PR7.	Our productivity is rising steadily	0.745
PR8.	Patient evaluations of our performance have been improving	0.743
PR9.	In our institution, the number of doctors is sufficient	0.635
PR10.	In our institution, the number of nurses is sufficient	0.622
PR11.	In our institution, the number of technicians is sufficient	0.644
PR12.	In our institution, the number of administrative employees is sufficient	0.746
PR13.	In our institution, the number of janitors is sufficient	0.650
	Scale reliability $\alpha = 0.885$	

Table III.

	F1 Leadership	F2 Strategic planning	F3 Patient focus	F4 Information and analysis	F5 People management	F6 Process management
F1	1.000					
F2	0.687*	1.000				
F3	0.619*	0.672*	1.000			
F4	0.542*	0.702*	0.626*	1.000		
F5	0.637*	0.732*	0.642*	0.709*	1.000	
F6	0.629*	0.718*	0.617*	0.639*	0.717*	1.000

Note: *Correlation is significant at the 0.01 level (one-tailed)

Table IV.
Correlation matrix of independent variable construct factor scores

Dependent Variable	*F7 Performance*			
Multiple R	0.744			
R^2	0.553			
Adjusted R^2	0.547			
SE	0.107			
Analysis of variance				
	df	Sum of squares	Mean square	
Regression	6	6.257	1.043	
Residual	438	5.055	0.012	
$F = 90.364$	Significant $F = 0.00$			
	Variables	β	T	Significant T
F1	Leadership	0.104	2.188	0.029
F2	Strategic planning	0.005	0.086	0.931
F3	Patient focus	0.090	1.937	0.053
F4	Information and analysis	0.116	2.295	0.022
F5	People management	0.240	4.313	0.000
F6	Process management	0.310	6.042	0.000

Table V.
Multiple regression analysis

the evaluation of the variables' relative significance for the successful implementation of that particular factor.

The model is build using the factor scores for each of the previously mentioned factors. The results in this table will help answering the second research question stated earlier and hence examine the relationship between quality management practices and organizational performance.

6. Discussion of findings

Generally, the results of the analysis in particular about validity and reliability of the seven elements of TQM are consistent and accurate in terms of what they set out to measure. The results also reflect a precise measure of the underlying variables (the seven elements of MBNQA) as well as that the results are credible. This is in line with studies made by Flynn *et al.* (1994) and Black and Proter (1996). For example, the selection of the measurement elements was conducted based on a thorough examination of the literature and major international quality awards to ensure content validity. Another perhaps more specific example to this study is "criterion validity" which was determined by examining the Mulitple *R* coefficient calculated for the six dependent variables and the independent variable performance; the score of 0.744 (Table V) indicate that the independent variables have a high degree of criterion validity when taken all together.

The overall average scores in Table III shows that Palestinian hospitals in the West Bank are operating at relatively acceptable performance levels. This is in accordance with the MBNQA scoring system, which indicates that these hospitals are relatively effective and somewhat responsive to the overall requirements of the MBNQA criteria. The scores also reflect that some organizational learning aimed at further improving the effectiveness and efficiency of overall performance is present. The results of the analysis were found to be quite similar to the results found in similar studies carried out by Manjunath *et al.* (2007) and Lau *et al.* (2004). It should be noted, however, that these scores were based on the direct responses of those employed by the participating organizations, rendering this effort a self-assessment process, as opposed to an external audit or evaluation, where the scores could possibly be lower (Lau *et al.*, 2004). In addition, the absence of a benchmarking mechanism entailing the use of comparative information about quality which should identify, document, and apply best practices further exacerbates the relatively high scores achieved (Baidoun, 2003).

The results of the regression (Table V) show that the independent variables with strong predicting power of performance are process management, people management, and information and analysis. These three variables are positively and strongly related to performance when compared with the other three variables which are positively correlated to performance but with less significance. Based on these results it is important to emphasize that this study is not suggesting that certain factors are more important than other factors, nor it is suggesting that the MBNQA criteria is not effective enough because some of the factors are strongly related to performance. However, the relative strengths and significance of the regression coefficients and the correlations between the six independent variables are indicative of the underlying differences between a good and bad performing organization. Hence, to answer the second research question, although the correlations among the six variables are relatively strong, the regression analysis sorted out the strong predictors from the weak ones of organizational performance. The implication of these results suggest that if administrators or managers of surveyed hospitals want to improve performance, they ought to focus more on people management, process management, and information and analysis; this should not be taken at face value which means that the other less significant factors should not be ignored. The results of this study are quite similar to those of Ahire *et al.* (1996) and Calvo-Mora *et al.* (2014) where they concluded that human resource management is the most closely related factor to performance. Also, Samson and Terziovski (1999) produced similar results and

concluded that human resource management as factor has a strong predicting power of performance. As for the R^2 which had a value of 0.553, it is indeed significant for which a substantial amount of the dependent variable – performance results – is explained.

All together, the findings in this study as well as other studies such as those of Samson and Terziovski (1999); Ahire *et al.* (1996); Black and Porter (1996) it can be concluded that the elements or factors that make up TQM are substantially good for any organization as long as they are implemented the right way. On the other hand, this study as well as other studies have one drawback in common; they do not accommodate the gap between the introduction of a new system or process and its impact on performance which most likely is to take place in the future.

7. Conclusion

This study reports on a recent survey of TQM practices in Palestinian hospitals and their relation to the performance in these hospitals. Two important findings have manifested themselves as a result of this study: first, Palestinian hospitals located in the West Bank are operating at relatively acceptable performance levels; second, the TQM factors that were used to predict performance are valid and reliable, and more so that three factors were found significantly related to performance, namely people management, process management, and information and analysis.

The fact that this is a relatively large study in terms of its comprehensive nature, well above one third of the performance factor variance is unexplained which is due to other factors that are beyond the scope of this current study. Nonetheless, hospitals as well as other organizations are encouraged to use TQM models for the benefits they can bring forward. This study sheds light on the three of the six factors that have strong influence on performance which suggests that organizations need to invest more in their people, processes, and the analysis of information.

The study reported here, despite the large scale of the study, suffers from limitations, and these contribute to several suggestions for future research. The sampling technique used in this study is far from perfect. Further empirical research could become better than the current study by attempting to obtain a list of employees working in hospitals (sample framework). A somewhat related limitation is due to the fact that this study was based on a self-assessment of quality by managers and practitioners in the studied organizations, which could have resulted in an inherent bias. Future studies may well examine the perceptions of patients of quality in these hospitals.

The research reported here is concerned with hospitals operating in West Bank, Palestine. The researchers were unable to account for the hospitals operating in the Gaza Strip for reasons that are beyond the scope of the study. Hence the results in this study are only generalizable to West Bank hospitals. In this respect, future research should focus on hospitals in the Gaza Strip which will allow for cross-regional analysis, and possibly a longitudinal study to detect for changes over time. In addition, future qualitative research will prove to be valuable. This will not only corroborate the findings of quantitative studies but could also shed light on additional systematic factors that will ultimately enhance the measuring strength of TQM elements. For instance, case studies can be very insightful which can also detail the impact of TQM elements, more specifically which elements have the strongest impact and how they are implemented.

Note

1. The West Bank of the oPt was the de facto focus of the study, due to the political and military restrictions on the Gaza Strip which limited the accessible areas for field work.

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