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Total quality management implementation in the healthcare industry: Findings from Libya

Mine HALIS[1*], Mohammed R. TWATI[2], Muhsin HALIS[3]

[1, 3] Kocaeli University, Faculty of Economics and Administrative Sciences. Turkey

[2] Kastamonu University, Faculty of Economics and Administrative Sciences. Turkey

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Correspondence:
mimhalis@gmail.com

ABSTRACT

The study researches the applied principles to achieve Total Quality Management (TQM) at healthcare institutions. Main elements elaborated in accordance with field specialists and international standards. These principles, elements, and the associated processes were reflected on the healthcare industry and the specific requirements of its operations, management, and customers. In order to apply the literature study into the field, a case study of the healthcare industry in Libya is adopted. The research method was to survey hospital staff from all levels and in several institutions about the basic principles of TQM at their workplace. The participants were also asked about the work methods, their awareness about the importance of TQM, the usage of modern technology by their institutions, utilization of resources, and the problems that may hinder the implementation of TQM the hospitals. The analysis of the survey indicated that the implementation of quality at Libyan hospitals is estimated at 33.6% with a significant lack of awareness about quality. A set of recommendation is then provided for hospital leadership for study and implementation.

Introduction

TQM term describes the attitude, culture, and organization of any association or company; that attempts to offer consumers with services and products which serve their needs. This culture demands a certain amount of quality in all the phases of the operations. Processes get done properly from the first time, combined with processes of eradicating defects from operations (Hashmi, 2010). Managers and quality practitioners have well accepted this approach as a change management quality method which plays a crucial function in management development. Various researchers have affirmed TQM as a strategy to enhance flexibility, productivity, effectiveness, and competitiveness of a business to satisfy customers' demands as the source of sustainable competitive advantage for business

organizations as a way of achieving excellence, building a right first-time attitude, acquiring efficient and dynamic business solutions, pleasing customers and suppliers, and beyond all as a method of intensifying organizational performance by a continuous increase in the activities of an organization (Claver-Cortés, Pereira-Moliner, José Tarí, & Molina-Azorín, 2008; The, Young, Arumugam, & Ooli, 2009).

Health Care Quality (HSQ) has recently established an area of specialization in developed countries. The likely reason for this development understands of the role of other healthcare professionals. At the same time, the role of those who are professional managers in health care is also important. As a result, HSQ is much more influential in terms of definitions and concepts, especially in developed countries. There are more HS organizations in the field of HSQ and there are more HSQ journals than ever before, signifying the increasing role and importance attached to quality improvement.

However, this situation is different in developing countries. In this respect, the world is divided into two different areas in terms of the development of health services. The study of common health indicators highlights this difference. In some developing countries, the overall health of human health is worse than in the old. The same applies to the concept of quality in health services. Developed countries may not be applicable to developing countries due to approaches, methods and rules for improving health care services, differences in health care systems, and some other structural factors. But the principles developed by developed countries can be examined, analysed and understood to adapt them to local conditions. This can help upgrade HSQ in the short time taken by developed countries.

The issue of the service quality has been given considerable importance in the 1980’s and 1990’s and has become the challenge that will face nations in the twenty-first century. The dimensions of quality are technical competence, accessibility, effectiveness, good relations, efficiency, continuity, safety and amenities, realization and development with a focus on Inspection to Quality Control, then to Quality Assurance, and finally to TQM.

TQM is a managerial philosophy and a key management issue since it is essential for efficiency and competitiveness. The term TQM would be used as a comprehensive and integrated managerial system that is committed to generate a working environment in hospitals, which achieve continuous improvement for the abilities and the skills of all employees and working systems. This improvement aims for a continuous improvement in all activities that lead to improved health services through all elements applications of TQM that are proper to the hospital.

The Medical service provision in the Libyan hospitals is considered a fundamental human right for all citizens. The government confirms the necessity to improve health services. At the same time, the demand for health services is ever-increasing due to the increase in population and growing life expectancy, pollution, and traffic accidents. However, the budget of the Ministry of Health (MOH) increased from 281.080.000 in 1995 to 5.378.076.000 in 2015. In addition, developments in medical technology and the methods of diagnosis (Hassan, 1993), and new diseases emergence have led to increased costs; annual budget of MOH per capita 892$.

In recent years, private hospitals have endeavoured to provide a high level of quality in their services as some companies and establishments demand high quality HS for their employees. The government also ratified the co-operative health insurance system for Libyan employees and their families in all companies and establishments regardless of the number of the employees. Therefore, MOH expect TQM to contribute to the continuous improvement of health services and to reduce costs through upgrading administrative efficiency and productivity in hospitals. Between the TQM and the HSQ applications, common goals arise; both seek for improving customer satisfaction and

productivity through decreasing costs (Talib, Rahman, & Qureshi, 2010). However, what are the implications of applying TQM on health services?

The Literature Review

TQM and service quality has been examined and reviewed for decades. Researchers have revealed that TQM is regarded as a product quality development and incorporates a prominent character of quality in the industry of service. Many researchers have demonstrated the connection between TQM and execution and performance of a company and the quality has bestowed great outcomes, see Flynn, Schroeder, and Sakakibara (1994), Ahire et al. (1996), and Samson and Terziovski (1999).

Free-of-charge health service services are widely available in Libya. Unfortunately, the Libyan medical service is characterized by the absence of common work standards for all staff to follow, a lack of qualified doctors and nurses, the presence of a mixture of staff nationalities (Arabic & non-Arabic speakers), a poor referral system from PHC, and the absence of quality champions to motivate improvement and staff participation in quality projects.

In Western health systems, patients' perceptions are increasingly seen as a key element in health service evaluation (Stanlszewska & Henderson, 2004). Although the Libyan health system closely resembles the Western model and is a collectivist system like the health system in the UK, the idea of eliciting patients' perceptions is not yet established. This remains a neglected area of research, since quality of health service is a recent initiative in Libya. Especially within the scope of the MOH, there is little experience of measuring patient perceptions in such settings and data in this field are limited.

The analysis suggests that there are two main reasons for the lack of interest in eliciting patients' perceptions in Libya. First, health service services in Libya are primarily seen as welfare services; these include all health service facilities – hospitals, and PHC centres. This fact, among other factors, may cause health service planners in Libya to marginalize patients' perceptions and only concentrate on government strategies. In this regard, it is concluded that in many developing countries, social science research may not be a popular endeavour for political reasons. As a result, health and social services are rendered to people without evaluating the successes or failures of services. The very few existing studies represent the point of view of health service administrators and health service professionals who are usually the respondents in these studies. This may give a slanted picture since these health administrations and professionals are employed by the government which is represented by the Ministry of Health. For this reason, all initiatives in Libya for improving services or expanding the defences are based on the government's own strategies and are not affected by patients or shared with patients. This is not the case in other countries where services are open to the private sector which makes them highly competitive and leads to concern about researching the TQM implementations (Hasin, Seeluangsawat, & Shareef, 2001).

The second main reason for the lack of interest is the fact that the impact of scientific research on developed countries' TQM implementations are far more influential than in developing countries including Libya. Moreover, few existing studies have been based upon other studies, particularly those derived from Western literature and their findings can be criticized on two fronts. First, most depict a high level of satisfaction that may be superficial and illusory. Second, they fail to capture aspects of health service that are really important to patients, because most satisfaction surveys are pre-designed by researchers who neglect issues which patients might wish to include in the survey design. Although a number of studies have been conducted in Libya (e.g. Al-Obaidi, Maddi, Al-Bargati, & El-Fallah, 2005) many of these, although helpful in looking at new issues in the Libyan TQM implementations (e.g. Top management commitment, Cultural change, Customer focus, Total involvement, Continuous Improvement, Training, and Teamwork), have either failed to capture the dynamic of pluralistic views on quality, or have focused on a higher level of health service such as

hospitals. Consequently, there are no national standards or instruments for measuring patient perceptions of health service facilities in Libya. It is therefore important for the TQM implementation to take advantage of the available experience in other developed countries and specialized organizations to create instruments that are acceptable, valid, and reliable in a cost-effective and timely manner.

In summary, thus far patient quality perceptions and satisfaction have gained widespread recognition as a measure of a quality and as quality indicators of the performance of TQM implementation (Newsome & Wright, 1999). Thompson and Sunol (1995) claimed that a real improvement in the quality of health service cannot take place unless patients are involved, and health service evaluation will not be satisfactory if it focuses only upon measures of clinical effectiveness and economic efficiency without including measures of patients' perceptions. Also, it has been argued that the identification of client priorities among different quality dimensions could lead to the increasingly efficient and effective allocation of limited health resources.

In the light of the previous studies, the relationship between TQM and Service Quality in health service industry is proved. Health services have a special condition among other services because of the nature of the high risks. This makes evaluating customer satisfaction and service quality in a health care more important and complex (Taner & Antony, 2006). To achieve success in getting excellence in service or service quality, hospitals should seek for "zero defections", retaining each customer to which the organization can provide service and profit from it (Reichheld & Sasser, 1990). Based on Lim and Tang (2000), "zero defections" expect constant exercises to improve the quality service delivery operation (cited in Rashid & Jusoff, 2008).

If it is executed and administrated efficiently, TQM scores a significant influence in developing competitiveness and delivering business perfection particularly service quality. In the hospital circumstances, the chief centre of administration was on the circumstances of clients. Oliver (1993) demonstrates that happiness and satisfaction have to be examined. This means that consumers may possess insights about the hospital's service quality without encountering the service (Johnston & Clark, 2005, as cited in Soltani, Lai, Van Der Meer, & Williams, 2008).

The Study

This research is important for the following reasons:

The importance of the health sector in the Libya, as health is a basic requirement of all citizens and expatriates in the country. The state's policy is to provide integrated health services and continuous improvement in these services. The importance of assuring the satisfaction of those who benefit from the health service and of the employees in Libyan hospitals due to the increasing levels of consciousness of the citizens and their expectations for an adequate level of quality. Moreover, employees are requesting more advanced scientific and management services. This increases the significance of TQM as a method to improve quality in health services and to safeguard the rights of both patient and employee.

The importance of reducing costs in Libyan hospitals which is increasing the significance of TQM and encouraging managers to apply it. A new method of management can assist the Libyan hospitals in reducing their costs (in terms of investment and operation) to enable them to face the increasing pressure on their budgets and to utilize resources efficiently.

The importance of pursuing rapid scientific progresses and developments in both medical and managerial fields is to constantly improve the quality of health services.

There is a scarcity of scientific studies and research on the subject of TQM in the health services in the Arab region in general, and in Libya in particular. This has contributed to encouraging the researcher to present a scientific, practicable, and special study in this field. The applied study of this

research that includes the hypotheses and the objectives of the research are considered as one of the first academic studies on quality management in Libyan hospitals, and therefore, the results and recommendations will contribute to the improvement of the quality management of the health services.

The theoretical framework of the relationship between variables is presented in Figure 1.

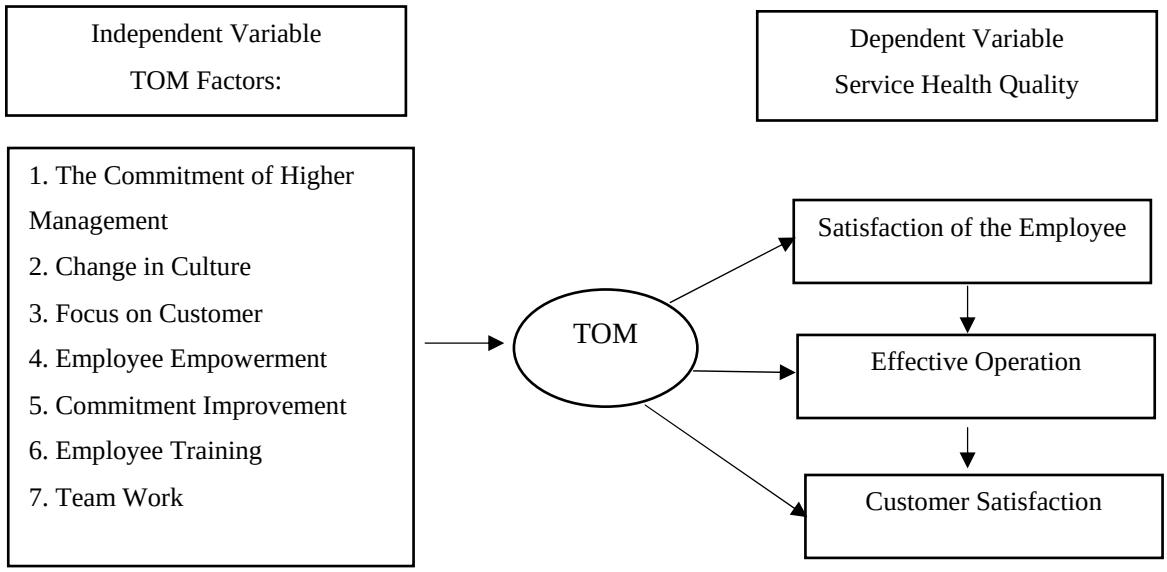

Figure 1. Theoretic model of research: source – researcher

The research design is the composition and structure that is regarded as extremely valuable to the collection of data and its examination and analysis. It also can be considered as the strategy and plan for accomplishing the goals and purposes of the research. Oppenheim (1992) stated that the research design term applies to a primary strategy or plan of research and the reasoning and process of thinking involved in it which can allow it to be plausible and credible to draw more overall and general outcomes and conclusions from the data and research. Kumar (2011) described research design as a procedural system that is utilized by the researcher to find the answers for the questions objectively, precisely, and affordably.

Saunders, Lewis, & Thornhill (2007) suggested that it is imperative to hold a bright and sharp research plan and strategy (design) of the way the researcher can work on finding the answers to questions and puzzles of the research. The strategy of the research must possess distinct and obvious goals and aims that are acquired from the questions asked in the research; moreover, it must recognize the sources of data that the researcher would use for the data collection. Sekaran (2003) stated that research design includes a set of intelligent and reasonable judgments: These are recognizing the study objective, either it is exploratory, hypothesis or descriptive; classifying the kind of examination; determining time horizon; determining sampling design; selecting data analysis; choosing the methods of the collection of the data; knowing the unit of analysis; determining the scope of the intervention of the researcher; recognizing the setting of the study; and determining the measurements.

Consequently, the decision of research design is based on the questions that the researcher asks, goals, and the philosophy of the research.

The study was conducted in five hospitals in Libya. The main sample is consisted of the employees in these hospitals who are doctors, managers, nurses, and administrative staff. Hospitals were categorized according to the number of employees. The number of hospitals in Libya is approximately

97. Hospitals in this study are divided into 3 groups according to the number of employees as 100 and less, 100-200, and 200 and more. The most suitable for the study is the group which includes 100-200 employees. This is because nearly 20 of the hospitals with 100 and less employees have low capacity, there is no quality certificate. Our goal is to find hospitals which have TQM practices and compare them according to the accreditation certificate. So we left hospitals with 100 and less employees out of the sample. On the other hand, when we look at the hospitals with 200 and more employees, we can see the well-equipped chain hospitals with more than one quality certificate. They are nearly 20 without their branches. The chain hospitals have many branches; it is difficult to make an equal comparison so hospitals, which have 200 and more employees, have remained outside of the sample.

In our study, specialized hospitals as dental and eye were also excluded from the sample. After the elimination of these hospitals, we identified nearly 18 hospitals with 100-200 employees and quality certificates. We can reach 7 of these 18 hospitals and performed a survey to the employees who are working in these hospitals. They asked to sign a confidentiality agreement so we were unable to give the name of these hospitals.

In order to study the TQM and Service Quality of hospitals, the questionnaires were personally administered at 20 hospitals in Libya. Surveys of the employees were collected by hand and doctors, nurses, managers and administrative staff were asked to fill the questionnaires. A concise introduction describing the objective of the research was provided by the researcher to the members. Furthermore, the promise of the confidentiality of the investigation was granted by discussing the academic objectives of the research.

The participants were asked to evaluate TQM and Service Quality of the hospitals. All the process lasted 4 months. Appendixes 1 and 2 include the copy of the questionnaire in two languages, namely English and Arabic. We gave out 200 questionnaires and 172 people answered the questions.

The factors related with the TQM and Service Quality of hospitals are developed based on the operational definitions in the literature. The questions are taken by the surveys that are conducted mentioned in the literature. By using 5 categories of Likert scale, different degrees of importance are presented to the respondents. The survey starts with a cover letter mentioning the importance of the issue and guaranteeing the privacy of the data collected from the hospitals.

The questions are grouped in two categories; first starting by the demographic variables, then moving on with the question about the variables. The questionnaire contains two sections. First part includes eight socio-demographic questions. At the second part, there are forty statements, which are 5-point Likert type, and close-ended questions. These points on the scale are “Strongly Disagree”, “Disagree”, “Uncertain”, “Agree”, and “Strongly Agree”.

To analyse the data, the Statistical Package for the Social Sciences (SPSS ver. 20) was used. Socio demographic variables were analysed using crosstab and chi-square test statistics by rating the level of effect the demographic features of the sample had on their responses and their distribution. Chi-square significance level is determined as 0.05 level, as it is a common usage in the questionnaires. In other words, it is analysed if there is a significant relationship or difference between variables at 0.05 significance level. To analyse the items of questionnaire, factor analysis is used.

Research Questions and Research Hypotheses

The statement of the study is; “Does the TQM system applications have a relationship with HSQ in Libya?”

This study will address the following research questions in Libya MOH hospitals:

- What are the standards and indicators in HSQ?
- What are the characteristic of systems of quality in health services?

- What is the connection between the pursued plans of quality management and the aims of advancing the HSQ?
- What are the reasons that motivate MOH hospitals to adopt the elements of TQM?
- Which quality determinants decide for the efficient implementation of TQM in the HS sector in Libya?
- What is the influence of the TQM determinants for enhancing the competitiveness of the HS division in Libya?
- What is the function of the environmental determinants in strengthening the implementation and maintaining of TQM in the Libyan context?
- What are the main difficulties that hinder the adoption of TQM in the HS sector in Libya?

The following research hypotheses guided the study:
H_1: TQM implementation significantly affects employee satisfaction.
H_2: TQM implementation significantly affects effective operation.
H_3: TQM implementation significantly affects customer satisfaction.

Method

This section identifies the chief and primary research methods utilized in this study to evaluate the area to which the health service sector in Libya employs TQM to accomplish that goal. The study couples two regularly applied research methods namely quantitative and qualitative method. These two methods are generally implemented to manage and gather data; specifically, a survey questionnaire and semi-structured interviews. In terms of the questionnaire, the research aims to study the application of TQM in the health-service sector in Libya. However, the interview method is principally adopted to illustrate descriptions that have surfaced from the application of a questionnaire. Both of the two methods are observed as corresponding to one another and the methods' strengths and weaknesses are analysed and taken into consideration.

The objectives of this research can be summarized as clarifying the concepts of quality from the patients and employees' perspective in Libya MOH hospitals; defining the characteristic of the existing system of quality in MOH hospitals in Libya; simplifying the definitions of TQM in health services in Jeddah MOH hospitals from the employees' perspective; clarifying the importance of applying the elements of TQM in MOH hospitals in Libya; evaluating the relationship between TQM and health service; and analyzing the implications of applying TQM on HS in Libya.

The hypotheses developed for TQM and HSQ are based on the variables which are the independent variable (TQM) which is composed of seven elements (highest management dedication, cultural change, focus on customers, complete engagement, continuous development, training, education and teamwork) management by fact, people based management, delight the customer and continuous improvement that affects service quality (employee satisfaction, effective operation, and customer satisfaction).

Results

Further to previewing the survey results, those results will be discussed in order to utilize the findings into understanding the current status of TQM in the healthcare industry in Libya, the specific issues that might be hindering its implementation and the areas where the TQM managers should be working on to increase the awareness and reinforce the execution of the quality management procedures.

We surveyed hospital staff in Libyan hospitals that included doctors, nurses, managers, and administrative staff. We distributed 75 surveys of which 53 participant agreed to take part in our study demonstrating their perception, knowledge, and opinion about the status of quality management in

their healthcare institutions. Further to collecting the surveys, SPSS 20 was used to analyse the data. This part of the study will preview the results of the performed survey and highlight the numbers and percentages of the responses. Although the survey copies were distributed equally to healthcare professionals in Libya, the responses that were received back did not result into an even distribution due to the tough political and security situation in the country. Table 1 demonstrates the distribution of correspondents according to their position in the industry where 17 managers, 122 doctors, 13 nurses, and 20 administrative staff have responded.

The Descriptive Statistics of Correspondents

Moreover, as part of any survey, it would be significant to present the survey demographic to ensure an even social distribution of correspondents that could observed mostly on the gender level while the age categories show most of the correspondents from the youth category. Table 1 illustrates the gender percentages, age categories of correspondents, and their marital status, respectively.

Table 1
The Descriptive Statistics of Correspondents (n=172)

		f			f
Gender	Man	99	Working Period in the Hospital	0 – 5 Years	81
	Women	73		6 – 10 Years	55
				11 – and more	36
Age Categories	> 27	21	Healthcare Professional	Manager	17
	28 – 35	90		Doctor	122
	36 – 43	49		Nurse	13
	44 <	12		Administrative Staff	20

It is an essential part of any social or scientific study that includes a survey to represent the demographics of its sample. Therefore, it can be noticed that we have a good distribution between the male participants and female participants with 42% and 58%, respectively. The results also showed that 52% of the sample fall in the age category of 28 to 35 years old. Likewise, 53% of our participants had 6 or more than 6 years of experience at their institutions that reinforces the case study knowledge level.

Findings about the Availability of TQM at Hospitals in Libya

With regards to the adoption of TQM standards at Libyan healthcare institutions, the results of the survey raise a concern about either the level of implementation or the level of awareness by the hospital employees or both at the same time as the 26.42% of the participants confirmed that there are no program implementing TQM in their hospitals and 49.06% stated that they do not know if there is such a program. Furthermore, of the 24.53% who stated that there is a program implementing TQM at their hospital, 69.23% said that the program was implemented less than 2 years ago which indicates that the TQM programs at the Libyan hospital is still a new concept and immature. Moreover, 96.23% of the total survey's participants stated that there are no TQM specialists available in their institution or they do not know about their availability, which also confirms the discussion point. Table 2 presents the TQM principals implementation.

Table 2
TQM Principles Implementation

TQM Principle	Disagreement	Not Aware	Agreement
Managers act as leader in achieving the quality.	32.1%	41.5%	26.4%
Managers involve employees in decision-making.	22.6%	26.4%	51%
Learning and skill development are implemented.	47.2%	13.2%	39.6%
Staff are trained for problem-solving techniques.	43.4%	20.8%	35.8%
Statistical data are used in all improvement processes.	28.3%	52.8%	18.9%
There are no communication problems between departments.	62.3%	9.4%	28.3%
Innovative ideas are encouraged for continuous improvement.	50.9%	3.8%	45.3%
Problems in the system are continuously determined and solved.	41.5%	43.4%	15.1%
Quality development teams organize periodical meetings.	22.6%	45.3%	32.1%
Pay attention to zero defects in all processes.	26.4%	32.1%	41.5%
Quality are improved by utilizing statistical techniques.	54.7%	24.5%	20.8%
Precautions about existing and potential quality problems are taken.	17%	34%	49%
All activities are done through customer (patient etc.) satisfaction.	66%	11.3%	22.7%
An attention is paid to the customer satisfaction.	45.3%	17%	37.7%
Strategic plans are revised according to the change in conditions.	26.4%	52.8%	20.8%
Special attention is paid to institutionalization and related works.	35.8%	30.2%	34%
Quality standards are always achieved.	28.3%	37.7%	34%
Quality standards are sufficient for performance improvement.	54.7%	24.5%	20.8%
Quality standards improve patient satisfaction.	37.7%	17%	45.3%
Employees' performance evaluation is based on the quality of work.	22.6%	22.6%	54.8%
There is a comprehensive system to provide professional services.	43.4%	24.5%	32.1%
The employee's quality perception is mature and sufficient.	56.6%	22.6%	20.8%
There are training programs in the field of TQM.	41.5%	41.5%	17%
There is an interest to know the patients' service expectation.	30.2%	24.5%	45.3%
There is an effective system for solving the patient's complaints.	47.2%	7.5%	45.3%
The management encourages the process of innovation and creativity.	47.2%	7.5%	45.3%
There is a good incentives system.	60.4%	11.3%	28.3%
Team work is implemented.	37.7%	3.8%	58.5%
TQM is used to motivate staff.	26.4%	56.6%	17%
The management encourages the participation of the employees.	60.4%	15.1%	24.5%

The survey participants were asked to indicate the implementation of TQM principles at their institution by answering to 30 points that details the different elements of quality management by agreeing, disagreeing or non-knowledge of each single point. Table 2, summarizes the results of this section of the survey in percentages of agreement, disagreement, and non-awareness for each statement. However, as some of the statements were positive while the other ones were negative, the percentages of agreement and disagreement of negative statements were interchanged in order to produce equivalent comparable results and be able to evaluate the average percentage of TQM implementation and awareness percentages at the healthcare institutions in Libya.

To create a reliable analysis for the data produced in Table 3 which shows the TQM principles categories and classification, it is necessary to divide the questioned TQM principles into main categories that will facilitate the analysis and the remedy measures for any issues which may arise. Therefore, the questioned TQM principles were divided into six main categories.

Table 3
TQM Principles Categories and Classification

Category	Classification Criteria		
	Disagreement Percentage	Unaware Percentage	Agreement Percentage
TQM Principles Implemented		Less than 20%	50% and Above
TQM Principles Implemented with High Unawareness		20% and above	40% and Above
TQM Principles not Implemented	50% and Above	Less than 20%	
TQM Principles not Implemented with High Unawareness	40% and Above	20% and above	
High Unawareness of TQM Principles		40% and above	
Disputed Areas	40% ±5 and Above	OR all Around 33% ± 5	40% ±5 and Above

Areas where TQM is Implemented

According to the survey results illustrated in regards to the implementation of the TQM principles in the Libyan healthcare institutions in Table 1, there is only one area that satisfies the criteria set in Table 2 where TQM principles are implemented which is related to the implementation of team work. This indicates that at most of the hospitals in Libya the team work value is one of the positive values that are used. However, being the only principle raises a concern regarding the overall implementation of TQM principles.

Areas where TQM is Implemented with High Unawareness

There are 6 areas where the survey shows a high level of implementation. However, five of those areas also indicate a high level of unawareness among the hospitals' staff which include the involvement of employees in the decision making process by the management; zero error in work methods and processes and the reporting of improvements on the matter; the investigation of the causes of errors and potential quality problems and the development of solutions to prevent recurrence; basing the employees' performance evaluation on the quality of their work; and interest patients' service expectation.

The high level of unawareness in these principles can be emerging from the lack of involvement of the institutions' staff in either the processes or the development of these processes. However, the high agreement rate may show that these principles are well publicized.

Areas where TQM is not Implemented

There are four areas that showed an absolute lack of implementation of TQM at the hospitals in Libya which involve implementing learning and skill development; eliminating communication problems between staff and departments; performing all activities through customer (patient) satisfaction; establishing a good incentives' system; the management encouragement of employees to participate in the decision making.

Areas where TQM is not Implemented with High Unawareness

These are one the most problematic areas that were discovered in our study as it combines two issues of not implementing the TQM principles and the unawareness of the hospitals' staff about these areas. These areas include training staff for problem-solving techniques; continuously determining and solving the problems in the system; improving efficiency and quality utilizing engineering techniques such as work time and work flow; acquiring sufficient quality standards for continuous performance

improvement; acquiring a comprehensive system to provide professional services in the hospital; developing the maturity and sufficiency of the employee's concept of quality to implement TQM; and providing training programs in the field of TQM.

The alerted issues on these principles come from both the lack of implementation and the lack of awareness among the institutions' staff regarding the importance of these principles.

Areas with High Lack of Awareness

These areas demonstrate the principles and elements that a big percentage of the survey participants had an issue recognizing them or expressing their opinions towards them due to their lack of knowledge about them or the unawareness of these elements statuses in their institutions. These elements are managers acting as leader in achieving the quality; benefiting from statistical data and performing continuous performance appraisals; forming quality improvement teams with representatives from each department and holding periodic meetings; establishing vision, mission, and task definitions and revising them according to the change in conditions to ensure the pro-activity of the future-oriented structure; and using TQM to motivate staff.

Most of these elements are related to leadership in TQM and human resources management. Therefore, the unawareness of the staff about these principles indicate the lack of leadership in many healthcare institutions in Libya and the need of the management to establish communication channels with their employees.

Conditional areas

These principles have achieved a near balance between the agreement and the disagreement of the survey participants which are summarized as the encouragement of innovative ideas and establishment of these ideas on the ground for continuous improvement; satisfaction of external customers (patient) and internal customer (employees) has to be closely monitored; implementation of institutionalization and its related works; achieving quality standards continuously; improving patient satisfaction by quality standards' implementation; establishing an effective system to solve patients' problems and complaints; and the encouragement of the process of innovation and creativity by the management.

The balance that is witnessed about the aforementioned elements comes mainly from the unstandardized practices in regards to their implementation. For instance, the agreement on a principle could be a result of good personal leadership in one institution while the disagreement could be the result of its absence in another one or another department in the same institution. Moreover, this also reinforces the argument about the shortfall in implementing TQM in the healthcare institutions in Libya.

Work Methods and Steps

In regards to the necessary measurements and strategies that should be implemented for the work methods and steps, the survey participants responded to four main measurements, namely simplification of procedures which had 81.1 % agreement percentage; exclusion of unproductive activities which had 62.3% agreement percentage; coordination of work which had 100% agreement percentage; and considering patients' satisfaction when determining the work methods and steps which had 92.5% agreement percentage.

These results emphasize the importance of two important strategies when developing the work methods and procedures that are the work coordination and the customer satisfaction as per the participants' opinions.

Awareness of Employees and Patients

The participants have fully agreed to all measures suggested by the researcher to increase the awareness of the hospital employees and patients. However, the measures can be ranked from the most to the least important by looking into the strength of the participant's agreement that includes raising awareness to the importance of quality (Strongly Agree, 83%); educating patients to alter their health related attitudes behaviour and styles (Strongly Agree 75.5%); and, raising awareness to the protection from diseases (Strongly Agree 64.2%).

These results indicate the starting point where the attention of the employees should be drawn which is the importance of the quality and its implications on them and the overall performance of their institutions.

Usage of Modern Technology

The participants were also asked to indicate the advancement of the healthcare elements at their hospitals in light with their opinion about the implementation of TQM. Table 4 illustrates the survey results in percentages related to the advancement of healthcare elements in Libyan hospitals.

Table 4
Advancement of Healthcare Elements in Libyan Hospitals

Healthcare Element	Disagreement	Uncertainty	Agreement
Medical devices	18.9%	9.4%	71.7%
Diagnosis	7.6%	22.6%	69.8%
Treatments	34%	35.8%	30.2%
Medicines	34%	7.5%	58.5%
Managerial systems	28.3%	34%	37.7%

The results in Table 4 shows the highest advancement in the medical devices while least advancement is shown in the treatment and the highest uncertainty element. For this reason, it can be said that modern technology is not used enough in the treatment. This again indicates the importance of the customer satisfaction factor and the issue that the Libyan hospitals face in that regards. Moreover, the survey shows a low rating and high uncertainty for the managerial systems that eventually include the TQM.

Optimal Utilization of Available Resources

The participants expressed their opinion about their institutions' utilization of the available resources including human, financial, time, and equipment resources as shown in percentages in Table 5.

Table 5
Optimal Utilization of Available Resources

Optimal Resources Utilization Areas	Disagreement	Not Aware	Agreement
The hospital's human resources is optimally utilized in the hospital.	28.3%	30.2%	41.5%
The hospital's financial resources are optimally utilized in the hospital.	47.2%	26.4%	26.4%
The hospital's equipment is optimally utilized in the hospital.	28.3%	41.5%	30.2%
The hospital's time is optimally utilized in the hospital.	56.6%	39.6%	3.8%

It is noticed that the survey participants are almost evenly divided among the categories and the resources' categories. However, it is important to note that the highest percentage of disagreement were for the financial and time resources which are one of the most important available resources in

any kind of institution. Following this, there are high percentages of unawareness in the equipment and time resources which suggests that no information is shared with the hospitals' staff about the utilization of such resources.

Quality Level Evaluation

Based on the participants' evaluation of the specific departments and their services at their hospital, we can notice disparity in the levels of bad and good ratings along with uncertainty levels at some aspects. This reflects the level of service at these departments and also the involvement and awareness of the hospital staff in implementing the TQM at their institutions. Table 6 exibits the good, bad, and uncertainty ratings (Quality Level) for the selected departments, services, and aspects at the healthcare institutions in Libya.

Table 6
Quality Evaluation Ratings

Departments Rating	Bad	Uncertain	Good
Employees Performance	35.8%	35.8%	28.3%
Good Relationship with The Patients	32.1%	17.0%	50.9%
Medical Devices	37.7%	28.3%	34.0%
Maintenance Department Services	49.1%	28.3%	22.6%
Medical Services	45.3%	3.8%	50.9%
Nursing Services	28.3%	7.5%	64.2%
Laboratory Services	20.8%	39.6%	39.6%
Radiology Department Services	17.0%	15.1%	67.9%
Emergency Department Services	15.1%	26.4%	58.5%
Pharmacy Department Services	20.8%	17.0%	62.3%
Social Services Department	45.3%	24.5%	30.2%
Hospital's Cleanliness	24.5%	58.5%	17.0%
Medical Records Department Services	13.2%	67.9%	18.9%
Services Of The Top Management	24.5%	45.3%	30.2%
Personnel Management Services	26.4%	32.1%	41.5%
Financial Management Services	47.2%	15.1%	37.7%
Public Relation Management Services	7.5%	52.8%	39.6%
Communication Department Services	11.3%	66.0%	22.6%

These results can be interpreted and perceived in several ways, but the focus of the discussion and analysis would be on the TQM perspectives which leads to the following results:

This rating exercise within the survey of the study demonstrate a tool that could be used by the healthcare facilities' management to ensure the satisfaction of the internal customers (Employees) and the external customers (Patients) which could be performed periodically according to the level of quality the institution would like to achieve; the bad ratings of the aforementioned aspects could come from several factors including the absence of management strategies, work methods or adequate communication with the rest of the institutions' departments and management. In addition, the good ratings of some aspects found by this survey could be a result of the intensive interest of the management about these aspects as some of time are profit related aspects or essential elements in the hospital functionality.

Moreover, the uncertainty found about the quality of some aspects can be mostly due to the lack of awareness and communication with the hospital's staff about them; having the medical services in

both good and bad highest ratings is a result of distributing the survey in several hospitals of Libya which can have big difference in the quality level of their provided medical services.

TQM Techniques

At this part of the survey, the participants were asked if certain TQM techniques were used at their hospitals to evaluate the staff familiarity and experience in them. However, the results showed a very high unfamiliarity with the TQM techniques at the Libyan hospitals. Table 7 demonstrates the percentages of staff who stated that the techniques were used or not used at their hospital while others expressed their unfamiliarity with them.

Table 7
Usage of TQM Techniques

TQM Techniques and Usage	Not Used	Unfamiliar	Used
Process Analysis	30.2%	60.4%	9.4%
Brain Storming	41.5%	52.8%	5.7%
Cause And Effect Diagram	41.5%	52.8%	5.7%
Quality Cost Analysis	17.0%	73.6%	9.4%
Quality Circles	30.2%	60.4%	9.4%
House Of Quality	30.2%	54.7%	15.1%
Patient Questionnaires	30.2%	66.0%	3.8%
Pareto Charts	34.0%	60.4%	5.7%
Process Charts	34.0%	60.4%	5.7%
Control Charts	34.0%	60.4%	5.7%
Statistical Techniques	7.5%	69.8%	22.6%

The results showed high percentages of unfamiliarity and not used TQM techniques which leads us to conclude that TQM is not implemented in a professional way and in accordance with the international standards. This also reflect a high level of unawareness that was discovered through the previous sections of the survey.

Table 8
Problems Hindering the Implementation of TQM

Problems	Disagreement	Not Aware	Agreement
Reduced Budget	32.1%	0.0%	67.9%
Inadequate of Staff Qualifications	34.0%	7.5%	58.5%
Lack Of TQM Awareness	9.4%	32.1%	58.5%
The Managerial System in the Hospital	13.2%	43.4%	43.4%
Top Management Does Not Support the TQM Program	9.4%	39.6%	50.9%
An Increase in the Number of Patients	9.4%	11.3%	79.2%
Poor Implementation of the TQM Programs	0.0%	24.5%	75.5%
Insufficient Quality Measurement	15.1%	15.1%	69.8%
Employee Resistance to Change	43.4%	15.1%	41.5%

TQM problems

In the last section of the survey, the participant was asked to evaluate the issues facing the establishment and implementation of the TQM standards and techniques at their hospitals that were selected by the researcher. Table 8 indicates the agreement, disagreement, and unawareness percentages of the TQM problems that hinder the TQM as evaluated by the participants of the survey.

From the results mentioned in Table 8, the following can be suggested in accordance with the survey participants' opinions: All problem items show high agreement of the participants on them without any confusion from the disagreement ratings except for the items related to the budget, staff qualification, and employees' resistance to change which could be the result of either the difference in opinion as the first two were involving the participants as part of the problem or the disparity of those problems between the hospitals in Libya.

Following this, the high rate of unawareness in the items related to TQM awareness, managerial systems, and support of top management illustrate the lack of communication between the management and the staff in regards to the quality standards and issues.

Discussion and Conclusion

In light of the theoretical study, literature review, and the results of the survey conducted in the Libyan hospital regarding the TQM establishment and implementation, a set of recommendations are suggested by the researcher for the case study to contribute to the development of quality management in Libyan healthcare institutions. The implementation of these recommendation will not only enhance the TQM level at the targeted hospitals but also these institutions can be taken as examples, once they reach to an acceptable and exceptional levels, for all institution in the country who realize the necessity of these standards as part of the worldwide movement for sustainable development. Therefore, the researcher's recommendations which are to be implemented in healthcare institutions suggest that the level of staff awareness should be increased concerning the principles and elements of TQM through organized and continuous trainings in quality standards and expectation, the involvement of them in the process of establishment and implementation, and establishing local and external publications that are concerned with the quality management standards.

Patients must be involved in the quality level determination through continuous customer evaluation surveys and activities that bridge the gap between the customers and the hospital's staff.

The top management strategies and approaches should be based on leadership principles and the top management should lead by example in implementing the quality standards, principles and elements.

Quality and quality management trainings for the managers and heads of departments should be prioritized to create the sense of leadership about the TQM and the importance of its implementation in the institution.

Continuous performance evaluation must be performed for all institution's managers and staff without exception that should be based on their quality of work and development each in their discipline. Moreover, the same concept should be implemented in the department level to evaluate the level of the service and close any issues that may arise regarding the quality standards implementation.

The TQM principles and standards should be established and implemented correctly through the international standards. Furthermore, ISO and JCI certification should be sought for all procedures, departments, and institution as a whole.

Employees of the institution should be involved in the decision making more often especially the decisions that are related to their departments in all aspects technically and administratively. Therefore, leadership that encourages employees' participation in decision making should be targeted to benefit from the hands-on experience that the employees in each department have in their disciplines.

Evolutions and inspections of the implementation of TQM status should be continuously performed by the top management on a periodic basis regardless of any situations and prior the inspection by the certifying parties. Moreover, constant and regular investigations must be carried out

to discover the errors and problems in all quality aspects in the institution, immediate corrective measures should be taken, and results should be publicized amongst the hospital staff.

Moreover, trainings and talent development must be implemented as a core program in the institution to ensure the continuity of the TQM implementation and a high level of the quality standards in all aspects and departments.

Positive, transparent, and continuous communication channels should be established between the top management and among the staff to facilitate the sharing of problems, risks, and lessons learned for a more efficient development strategy.

The staff trainings should focus on problem solving techniques to develop leadership on the department level and create more momentum towards the goals of TQM implementation.

Engineering techniques such as work time and workflow should be utilized that their implementation can be fast-tracked through acquiring the necessary technical experience from the developed countries in the field of quality management and adopting their developed systems.

The TQM establishment, implementation, and training should start at the senior management level to prepare the needed leadership for the necessary changes and quality improvement teams should be formed from representatives from all departments to ease the communication process and enable sharing the lessons learned and brainstorming processes between all departments.

Vision, mission, and task definitions must be established on the institutional and departmental levels and they should be continuously revised to accompany the changes in the industry and customer demands.

TQM must be used to motivate staff and a fair incentives system must be established to achieve it. Moreover, the achievements of quality standards should be continuously monitored and the contributors to major and minor achievement can be rewarded. Therefore, innovation and creativity must be encouraged by management in all levels.

In processes and work methods, coordination of work, simplification of procedure, and eliminating unproductive tasks must be a priority for development. Following this, staff and patients must be educated about the importance of quality in all levels and it is positive impacts on resources utilization efficiency.

A permanent committee should be formed to look into the usage and update of the institution's technology in all different aspects and the necessary resources should be allocated for this operation.

Besides, an internal auditing system must be established for all departments including technical, performance, and technical aspects. Nonetheless, an external auditing system by a reliable certifying party is required especially for the financial system to ensure the integrity of resources' utilization.

Furthermore, a continuous future planning strategy should be implemented to increase the institution capacity according to customer demands including budget planning to ensure the efficiency of resource utilization in all dimensions such as human, financial, tangible assets, and time.

Based our study and in accordance with the stages definition by Dale, Boaden, and Lascellas (1994), we can classify the Libyan hospital in regards with TQM to be at the "Drifters" stage moving to the "tool rushers" stage. From the performed survey, we can notice that the level of commitment is not at a high stage. However, the employees have the sense that quality is an important parameter to run their institute. Moreover, at the management stage, there is a lack of leadership for TQM establishment and implementation. The leadership mainly lack the professional and standardized knowledge about the subject that subsequently lead to many gaps in the implementation mechanism. The top management view the TQM as a program rather than a process of work enhancement that may eventually develop the overall performance of the institutions.

Applying the basic elements at the Libyan healthcare institutions, the following points can be concluded:

Cultural Change

The current quality culture at the Libyan hospitals requires a dramatic change to the view and attitude towards TQM. Although the sense of need for quality exists among the staff, the overall culture and attitude hinders any trials to implement the quality standards at the institution on an overall scale. This task is one of the most important tasks for leadership commence. However, it may take time to get the momentum needed to have a set vision and mission which requires strong leadership.

Customer Focus

This element is currently absent at the healthcare institutions in Libya. Being the most important part of TQM as it drives and customizes the business quality strategies to fit the purpose of the business, the Libyan hospitals need to focus their services, activities, and strategies to serve their customers as a priority. The earlier the top management realize the importance of this element, the closer and steadier they move towards implementing TQM.

Employee Empowerment

In order for the leadership to create the required momentum for quality, it is necessary to pass on their visions to the biggest number of their employees to have a common goal and mission. Therefore, empowering their employees by encouraging them to participate in decision making on all levels, share their opinion to serve the overall vision, and be innovative and creative in their approaches will open the communication channels which would go both ways, namely up to the management and down to the staff.

Continuous Improvement

As quality is defined to be a process rather than a program, the continuous questioning of the system plays a dominant role in its sustainability. The processes have always to be updated and simplified to serve its purpose and unproductive work has to be eliminated. Moreover, the best method to have a continuously improving system is to involve the customer and the staff in the process of development to iterate the steps and methods to their best forms.

Employee Training

The human assets are considered the most important in any institution; developing talent can be challenging and long process. Therefore, the Libyan healthcare institutions are required to develop their human assets continuously with technical and quality trainings that enriches their knowledge and leadership sense.

Teamwork

It is essential to have all the institution’s community members under the same vision but it is crucial to have the full contribution from all of them. The Libyan hospitals need to focus their work strategies on teams, discourage the individuality, and apply the same concept to incentives and rewards to be on the department and team level.

In accordance to the performed survey within this study, we estimate the overall establishment and implementation of TQM at the Libyan healthcare institutions to be at 33.6% with an unawareness rate of 25.8% that hinders further development. Implementing TQM at the hospitals in Libya is a challenging process. However, this study could be the starting point where leadership can diagnose the problems and provide the most effective treatment.

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