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Best Practices of Total Quality Management Implementation in Health Care Settings

FAISAL TALIB

Mechanical Engineering Section, University Polytechnic, Faculty of Engineering and Technology, Aligarh Muslim University, Aligarh, India

ZILLUR RAHMAN and MOHAMMED AZAM

Department of Management Studies, Indian Institute of Technology Roorkee, Roorkee, India

Due to the growing prominence of total quality management (TQM) in health care, the present study was conducted to identify the set of TQM practices for its successful implementation in healthcare institutions through a systematic review of literature. A research strategy was performed on the selected papers published between 1995 and 2009. An appropriate database was chosen and 15 peer-reviewed research papers were identified through a screening process and were finally reviewed for this study. Eight supporting TQM practices, such as top-management commitment, teamwork and participation, process management, customer focus and satisfaction, resource management, organization behavior and culture, continuous improvement, and training and education were identified as best practices for TQM implementation in any health care setting. The article concludes with a set of recommendations for the future researchers to discuss, develop, and work upon in order to achieve better precision and generalizations.

KEYWORDS health care institutions, total quality management, TQM implementation, TQM practices

Address correspondence to Faisal Talib, Assistant Professor, Mechanical Engineering Section, University Polytechnic, Faculty of Engineering and Technology, Aligarh Muslim University, Aligarh-202002, Uttar Pradesh, India. E-mail: ftalib77@yahoo.co.in

INTRODUCTION

The health care and medical services are growing immensely due to a high influx of the private sector, changing disease patterns, medical tourism, and demographic variations. Development of new and advanced techniques, increased awareness on patient's safety, intensity of competition in health care market, and new generation of purchasers and providers have forced the health care institutions to improve the efficiency and introduce a consumer culture in their institutions for effective cost and quality of care (Mosadegh Rad, 2005; Lee, Ng, & Zhang, 2002; Short, 1995). Quality of care is the vital issue for every health care institution and there is an immediate need for health care reforms in order to address and resolve the problems associated with quality of care, as well as patient preferences, safety, and choice (Koeck, 1997). Another critical issue is the consistently increasing operating costs of health care institutions. Rising health care expenditures have created serious financial burdens for the ex-chequer (government department in charge of national revenue or national treasury) in many countries like Canada, the United States, the United Kingdom, and Taiwan (Yang, 2003), and are facing a serious fall in business and a debt crisis. In such a situation, health care institutions need to re-examine their ways of doing business in order to decrease their operating costs while increasing quality and value in their delivery process.

To address the aforementioned issues a plethora of literature in health care were reviewed which showed implementation of different quality management practices and tools such as ISO9000, continuous quality improvement, health quality improvement circle, quality management systems, and others are important in this respect (Yang, 2003). However, one of the suggested approaches to resolve these issues more effectively and practically, and to bring better quality to health care institutions, is the adoption of total quality management (TQM) approach (Manjunath, 2007; Yang, 2003; Moody, Motwani, & Kumar, 1998; Short & Rahim, 1995; Kim & Johnson, 1994). TQM have now taken a central role in the health care quality management (McLaughlin & Simpson, 1999). By adapting the concepts of TQM, the health care institutions can transform their traditional quality improvement system to customer oriented system through a framework involving customer focus, process management, new tools and techniques, and teamwork (Klein, Motwani, & Cole, 1998). Within such an approach, health care institutions focus on creating physical, psychological, and social environment that is conducive to their patients and staff. Externally, they also concentrate on promoting the health and well-being of communities and on reducing costs (Ovretveit, 2000).

While the TQM concept and practices have been widely accepted in health care institutions, its sincere and systematic adoption is a must for its success. It is evident from the studies that adoption of TQM practices tends

to improve the health care institutions if implemented properly; otherwise it may result in TQM failure (Short, 1995; Claver & Molina, 2003). A number of studies, empirical as well as exploratory, have been carried out to explain the factors influencing TQM implementation, and are well documented (Wali, Deshmukh, & Gupta, 2003; Wayhan & Balderson, 2007; Nair, 2006; Sila, 2007). However, the studies on TQM practices in health care settings are rare. Therefore, a systematic review of identifying the various practices underlying the success of TQM implementation is the need of the hour, which may help in developing a base for future researchers and help health care managers in adopting the same.

The aim of the present study is to identify a set of TQM practices that are helpful and are applicable in health care setting for resolving their problems effectively. These practices are therefore, termed as *best TQM practices* in this study.

Further, the scope of this study offers a good background in arguing that these identified best TQM practices, if implemented properly and systematically, would provide a framework for quality improvement in health care institutions and thus, will result in delivering upgraded service quality and patient satisfaction with improved performance.

To achieve this objective, the article first addresses the literature on the development of TQM program in the health care environment. It then describes the methodology and lay down the objectives of the study. Next, the results of the study are presented in detail. The article concludes with providing of the brief discussion on the results of the study together with the direction for future research in this area.

LITERATURE REVIEW

TQM in Health Care Environment

The concept of TQM was first implemented in the manufacturing sector in early 1980s followed by the service sector and other sectors. In the recent years, many health care institutions have applied the principles and practices of TQM in order to solve most of the problems that they are currently facing (Chesanov, 1997; Counte, Glandon, Oleske, & Hill, 1995; Kim & Johnson, 1994). The reasons behind the wide acceptability of TQM in health care institutions are many, but before highlighting these reasons it is necessary to understand what TQM is in context to health care environment.

It is defined as:

> The satisfaction of patients, doctors, nurses, and suppliers (i.e., social shareholders) and other interested groups, achieved by implementing effective planning, programs, policies and strategies (i.e., hard issues),

> and human and all other assets (i.e., soft issues) efficiently and continually within a hospital context. (Arasli, 2002, p. 347)

Further, the TQM focuses on: customer (patient) satisfaction, continuous improvement, teamwork, process management, systemization, organization culture and structure, and lastly commitment from management and supportive leadership. Several studies have also emphasized that successful implementation of TQM can result in significantly superior outcomes in health care institutions (Short & Rahim, 1995; Yang, 2003; Counte et al., 1995), some of these outcomes are:

- Upgraded quality of service
- Improved health care quality and performance
- Patient satisfaction
- Reduced operating cost of health care institutions
- Employee satisfaction, and
- Patient safety

Therefore, health care institutions have started to implement it rigorously, even some of the hospitals associations and organizations have directed all its health care institutions to adopt TQM as early as possible. Some of the studies show the positive aspects of TQM movement for hospitals such as quality improvement, financial performance, competitive advantage, and employee commitment in various hospitals and nursing homes (Alexander, Weiner, & Griffith, 2006; Chesteen, Heigheim, Randall, & Wardell, 2005; Douglas & Judge. 2001).

A study conducted by Lee et al. (2007) concluded that for the successful implementation of TQM system in hospitals requires hospital control, developing an incorporated performance measurement system, and a broad approach for quality progress.

Horng and Huarng (2002), in their study based on survey of 76 hospitals in Taiwan, tested a multilevel model addressing the issue of TQM adoption. Results of the analyses indicated that the nature of the network relationship and prospector strategy, the two constructs out of five identified constructs, are positively and significantly related to the extent of TQM adoption. Further analysis shows that prospector strategy is related to TQM adoption for profit earning hospitals while network relationship is related to TQM adoption for nonprofit hospitals.

The study by Yasin and Alavi (1999) illustrated the use of market share model for achieving competitive advantage of TQM in health care and concluded that TQM contributes to increase in market share and organizational effectiveness.

Komashie, Mousavi, and Gore (2007) argued that though the theory of quality has a long history, but the supervision of quality and its control in

health care industry is not as highly developed as in manufacturing industry. They mentioned several reasons, such as kind of procedures and production involved, and dissimilarities between the two industries in terms of concerns for quality.

Chow-Chua and Goh (2000) concluded that continuous improvement and innovative approaches such as TQM have generated cost and time savings and helped to streamline work processes. They further concluded that large hospitals and public hospitals are more inclined to implement TQM approach while medium sized hospitals tend to use continuous improvement as a medium for quality improvement.

Other similar studies of interest based on TQM in the health care environment are those of Ovretveit (2000); Satia and Dohlie (1999); Brennan (1998); Nwabueze and Kanji (1997); and Aggarwal and Zairi (1997).

Moreover, implementing TQM principle and practices will not only mitigate the financial crisis of the health care institutions but will also help to overcome many critical problems which they are facing. It is also pertinent to understand that the pressure the health care institutions are facing might push them to implement TQM program to resolve the critical issues involved. Thus, TQM can become an alternative option for policy makers as well as for managers of health care institutions.

RESEARCH OBJECTIVE AND METHODOLOGY

The purpose of the study is to identify a set of best practices of TQM in health care setting that could be used by the researchers and practitioners of the health care institutions for its successful implementation. The methodology selected for this study was literature review of the published research papers on the current subject and area. To identify the appropriate published research papers for this study, a search strategy using the following expressions and phrases was conducted: "TQM strategy," "quality management," "Hospital guidelines and administration," "Health care organizations/institutions," "TQM framework and implementation," "TQM practices and problems," and "quality management system and practices." A comprehensive computer-aided search of papers in the ProQuest Advanced Search Database published from 1995 to 2009 was performed using these expressions and phrases. The results were further narrowed down with the keywords like "health care," "hospitals," "TQM," "QM," and "TQM practices." Not included were terms including "strategy," "guidelines," "administration," "problems," or "clinical methods." With a limitation on English language, full text, and scholarly peer-reviewed papers, the search resulted in 836 hits.

From these selected research papers, this study further searched for those papers which focused on factors and practices influencing TQM or

QM in health care organization and which were either empirical or review studies. The QM/TQM studies which are limited on describing one specific quality improvement action or using service quality approach/case based approach/articles/commentaries/projects were excluded. The titles and abstracts based on these criteria were reviewed and excluded 585 publications. A total of 251 abstract were further reviewed for the second criteria, which concerns the identification of TQM practices in the health care institutions. This resulted in the exclusion of 173 publications and the search now was left with 78 publications specifically describing the TQM or QM practices and their implementation process. These 78 selected publications were then retrieved for the full text documents to evaluate their methodology of study, approaches, and findings. The 78 fully retrieved papers were then further examined for their empirical and review studies thus, excluding 41 single case study papers, five projects papers and 17 papers on short articles and commentary. Only 11 empirical and four review studies were included for further review. Finally, a total of 15 research publications were reviewed. The systematic approach of present literature review is depicted in Figure 1. Data from these 15 studies were also extracted into a structured summary as shown in Table 1 where the objectives, methodology, approach, and main findings have been explained. All the TQM practices identified

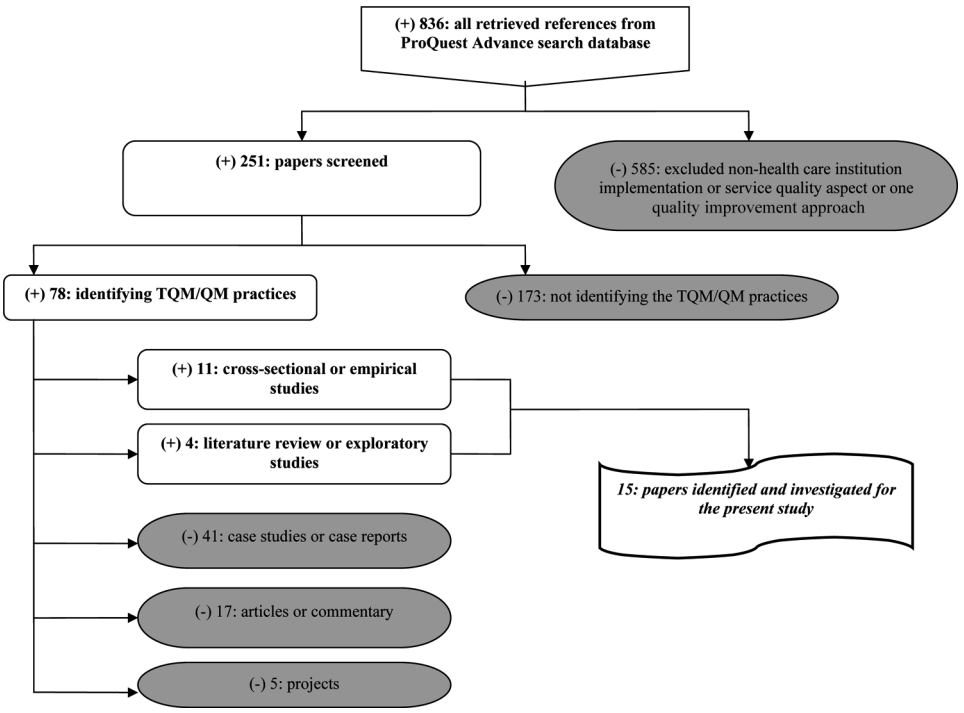

FIGURE 1 Systematic literature review. Process.

TABLE 1 Description of Objectives, Methodology, and Main Findings of the Selected Studies

Author(s)	Objective	Methodology and approach	Number of TQM practices	Main findings
Lin and Clousing (1995)	Assessing TQM program status and executives attitude in the hospitals	Construct: TQM Method: Cross-sectional Approach: Correlation Sample type: Northern Louisiana hospitals, United States Sample size: 31 hospitals	7	Limited implementation of TQM Lack of top-management involvement and commitment, employee involvement, weakness of linkage with patient satisfaction
Raja et al. (2007)	Comparing quality awards and the selection criteria for assessing healthcare processes quality status in private sector healthcare institutions	Construct: Quality management (QM) and service quality Method: Cross-sectional Approach: Principal component analysis Sample type: Healthcare stake-holders, India Sample size: 62 private hospitals	5	Provide insights into the relationships among the dimensions like: relationship between leadership, resource measurement, people management, process management, and customer satisfaction.
Hazilah (2009)	Comparative analysis on QM practices among the three levels of public hospitals	Construct: QM Method: Cross-sectional Approach: *T*-test, one-way ANOVA Sample type: Public hospitals (District, state and national level) of Malaysia Sample size: 23 hospitals	9	QM practices significantly high in district hospitals, but no significant difference in perception on implementation outcome between the three levels of hospitals.
Meyer and Collier (2001)	Empirical testing of the Baldrige Model of QM for the healthcare industry and determining the causal relationships among the Baldrige Health Care pilot criteria	Construct: QM Method: Cross-sectional Approach: Structural equation modeling Sample type: Community hospitals ($n > 60$), United States Sample size: 220 hospitals	7	Many of the hypothesized causal relationships in the Baldrige model are statistically significant Study also clarifies and improves understanding of within-system performance relationships

Carman et al. (1996)	Identifying the key success factors for TQM implementation and the impact of TQM on organization performance	Construct: TQM Method: Cross-sectional Approach: Logistic regression Sample type: Health systems in the United States Sample size: 10 hospitals	7	Seven key success factors were found The degree of TQM implementation does not affect organization performance.
Kunst and Lemmink (2000)	Identifying and exploring success parameters of high quality performance and their interrelationships	Construct: TQM Method: Cross-sectional Approach: Factor analysis using principal component analysis Sample type: General and university hospitals in Spain, United Kingdom, and Netherlands Sample size: 850 hospitals	8	Different variables or parameters are linked to progress in TQM and business performance Positive link between progress in TQM and perceived service quality by customers
Miller et al. (2009)	Assessing the critical factors influencing the QM practices in healthcare	Construct: QM Method: Cross-sectional Approach: Factor analysis using principal component analysis Sample type: State hospital association member hospitals, U.S. southeastern state Sample size: 189 hospitals	10	Eight factors showed statistically significant effect on QM practices. A valid and reliable instrument was developed and used to assess QM practices in hospitals throughout a large U.S. state
Mosadegh Rad (2005)	Investigate the success of TQM and barriers to its successful implementation	Construct: TQM Method: Cross-sectional Approach: Correlation Sample type: Healthcare organizations in Isfahan province, Iran Sample size: 90 healthcare organizations	8	Top-management's commitment increased the successful implementation Barriers related to implementation: human resources, strategic, and structural problems
Salaheldin and Mukhalalati (2009)	Examining the implementation of TQM in the healthcare sector in Qatar and determining the most implemented	Construct: TQM Method: Cross-sectional Approach: Mann-Whitney test Sample type: Private and public hospitals, Qatar	9	Common understanding exists between managers about the significance of top-management support, employee training, and involvement in the TQM

(*Continued*)

TABLE 1 Continued

Author(s)	Objective	Methodology and approach	Number of TQM practices	Main findings
	TQM initiatives, the level of understanding and knowledge of TQM, and the critical success factors of TQM implementation	Sample size: 200 hospitals		implementation. Vital role of supplier in supporting quality improvement
Duggirala et al. (2008)	Identifying the dimensions of patient-perceived total quality service (TQS) in the healthcare sector and there impact on patient's satisfaction	Construct: TQS Method: Cross-sectional Approach: Multiple regression analysis Sample type: Patients discharged from hospitals, India Sample size: 300 patients of many hospitals	6	Seven distinct dimensions of patient-perceived TQS highlighted. Positive and significant relationships among the dimensions and patient satisfaction have been found
Isouard (1999)	Improving a variety of problem areas that affect the total pathology service of the hospital Potential barriers to achieve the required organizational environment are also explored	Construct: TQM Method: Exploratory study Approach: Descriptive Sample type: Pathology services, Australia Sample size: N/A	4	Four elements found to be important to the creation of the TQM environment: Change in management culture, development of teamwork, focus on customers, and continuous feedback to staff
Kozak et al. (2007)	Identifying employees' perceptions of the extent to which TQM programs are implemented into their hospital organizations and	Construct: TQM Method: Exploratory study Approach: N/A Sample type: Hospital organizations, Turkey Sample size: N/A	5	TQM perceptions are associated in the minds of hospital employees. The responsibility of both upper-level management and employees has been found as the most significant effect on

	exploring the problems they perceive during the successful implementation of TQM programs			employees' perceptions about the necessity of TQM programs at hospital settings.
Short and Rahim (1995)	Review and understanding the potential areas of conflict between hospitals' management and TQM	Construct: TQM Method: Literature review Approach: Descriptive Sample type: Healthcare industry of Canada and USA Sample size: NA	6	Hospital administrators should assess and make necessary changes to the structure, philosophy, policies, total commitment, and management style before introducing TQM TQM takes time and energy
Wardhani et al.(2009)	Identification of quality management systems' (QMS) determinants in hospitals	Construct: QMS Method: Search strategy (literature review) Approach: Descriptive (empirical articles) Sample: Medline databases (1992–2006) Sample size: 14 empirical publications on healthcare, hospitals etc.	6	Six factors determining QMS implementation were identified in the review They are: Organization culture, design, leadership, for quality, physician involvement, quality structure, and technical competence
Arasli and Ahmadeva(2004)	Proposing a quality improvement model for health promotion in hospitals in Northern Cyprus as well as comparing and understanding the their existing problems and challenges	Construct: TQM Method: Cross-sectional Approach: ANOVA test Sample type: Public and private hospitals of Northern Cyprus Sample size: 7hospitals covering 750 families	7	Public sector is in a much worse position than the private sector in terms of total quality The proposed model could contribute to total quality practices of hospitals in developing countries

TABLE 2 Major TQM Practices in Health Care Setting Investigated From Literature Review

	TQM practice							
Author(s)	TMC	TWP	PM	CFS	RM	OBC	CI	TE
Lin and Clousing (1995)	√	√					√	√
Raja et al. (2007)	√	√	√	√	√			
Hazilah (2009)	√	√	√				√	√
Meyer and Collier (2001)	√	√	√	√	√		√	
Carman et al. (1996)		√				√	√	
Kunst and Lemmink (2000)	√		√	√	√			
Miller et al. (2009)	√	√	√	√				√
Mosadegh Rad (2005)	√		√	√	√			
Salaheldin and Mukhalalati (2009)	√				√	√	√	√
Duggirala et al. (2008)			√		√			
Isouard (1999)		√		√		√		
Kozak, Asunakutlu, and Safran (2007)	√	√		√				
Short and Rahim (1995)	√					√		
Wardhani et al. (2009)	√					√		√
Arasli and Ahmadeva (2004)			√	√	√	√		
Total	11	8	8	8	7	6	5	5

TMC = top-management commitment; TWP = teamwork and participation; PM = process management; CFS = customer focus and satisfaction; RM = resource management; OBC = organization behavior and culture; CI = continuous improvement; and TE = training and education.

from these 15 papers were recorded, and based on their frequency of occurrence; the results were obtained as shown in Table 2.

RESULTS

Different findings and practical implications could be discerned from in-depth study of the 15 selected research publications with varying terms of their specific study approach, objectives, methodology, sampling type and size, setting, and respondents as shown in Table 1.

Overall, there are eight best practices in TQM implementation identified from the review of literature, namely, top-management commitment (or leadership; 11; teamwork (8); process management (8); customer focus and satisfaction (8); resource management (7); organization behavior and culture (6); continuous improvement (5); and training and education (5). These practices were identified on the basis of their frequency of occurrence in the literature review as shown in curly parentheses. The following part of this article will further explain each TQM practice.

Top-Management Commitment (Leadership)

Top-management commitment and support (or leadership) is found to be the most important enabling practice for implementing TQM in the health care institutions. Other elements of top-management commitment

include: leadership style, administrative support, upper-management involvement, support of upper-level management, and leadership for quality. Studies showed that quality of care has been connected to leadership in hospitals (Eubanks, 1992) and is an overall hospital systems driver (Meyer & Collier, 2001). The top-management acts as a coach to teach and to influence the subordinate (Yang, 2003). It is generally accepted that any bottom-up quality action might fail without support from the hospital top management (Mosadegh Rad, 2005). Sometimes committed physicians also play an important role for successful implementation of TQM program in hospitals (Wakefield et al. 2001). Further, top-management allows and encourages everyone to contribute in the organization by encouraging them, and emphasize on process improvement rather than individual accountability (Raja, Deshmukh, & Wadhwa, 2007). It can be concluded that top-management commitment is a prerequisite for effective and successful TQM implementation. This practice was well supported by 11 published studies during the present literature survey (Table 2).

Teamwork and Participation

A second key practice of TQM is the development of teamwork and participation. To overcome sectionalism, the entire organization should cooperate in improving quality and embark on quality improvement activities (Yang, 2003) by forming teams with full participation. The proper formation of quality improvement teams is vital to an organization's TQM success. It is essential that each issue and organizational problem is analyzed by all the team members who are responsible for its improvement (Brashier, Sower, Motwani, & Savoie, 1996). In hospitals, a team should be composed of personnel from each department and should be capable to improve a process. One of the important objectives of teamwork and participation is that they should solve the quality related issues in quick time who are sometimes called as quality action teams (Mayer, 1992). Hence, teamwork and participation is essential in health care institutions, as it requires cooperation among all related departments. This practice is well supported by eight published studies (Table 2). The other elements of teamwork and participation are: people management, staff focus, work system, employee relations, and teamwork development.

Process Management

Process management is a critical practice of health care quality which emphasizes conformance to patient (customer) requirements by means of error-free services in the most efficient way or in other words the experience of the patient with different processes that are a part of their stay in hospital (Duggirala, Rajendran, & Anantharaman, 2008). The key aspects of this practice covers: maintenance, setting standards, sincerity, effectiveness,

management by fact, giving priority to patient's need, emergency of service system, admission procedure, registration procedure, security system, and process of clinical care. These elements ensure error free quality output. It emphasizes the way staff strengthen the processes through quality improvement and operational performance (Raja et al., 2007). Zeithaml, Parasuraman, and Berry (1990) described process management as the actual procedures, mechanism, and flow of activities by which the service (health care service) is delivered. Finally, it concludes that process management examines the patient's perception with regard to the treatment process and the outcome of the treatment process. This practice was highlighted by eight published studies of the current literature survey (Table 2).

Customer Focus and Satisfaction

Customer focus and satisfaction is another important practice of the TQM movement because health care institutions can outsource their competitors by effectively addressing patients' (customers') needs and demands, and by anticipating and responding to their evolving interests and wants (Sureshchandar, Rajendran, and Anantharaman, 2001). Their primary duty is to provide the patients (customers) with the best possible services. These services begin with arrival of patient into hospital premises and at the registration counter by delivering online registration and taking immediate action as per the condition of the patient without loss of time. Hence, first impression is formed at the very first service rendered to the patient and this activity plays a key role in the patient's perception towards the hospital and may act as motivating force in his recovery. Effective food management and availability of hygienic food in the hospitals is also important in providing patients with high quality services. The amount of food offered to patients should be sufficient to satisfy their needs and suitable to all groups of patient (Arasali & Ahmadeva, 2004). Beside this, other items include: emergency services, customer expectations, confidence, treatment cost, patient focus, and complaint resolution. However, customer satisfaction is a short-term concept, which may or may not lead to commitment. The management's responsibility is to ensure that satisfaction is converted into commitment in the long run. Every patient needs proficient and skilled medical personnel for sound diagnosis, treatment and care (Raja et al., 2007). Hence, the ultimate aim is to satisfy customer. This practice was considered by eight published studies during the present literature survey (Table 2).

Resource Management

This practice of TQM assesses the patient's perception of quality with regard to physical facilities in the health care institutions. Resource management is basically concerned with management of available resources which are

needed right from patients' entry in the hospital to their discharge and therefore, is a critical factor for any health care institution. This practice includes: resource measurement, infrastructure, cleanliness, maintenance, and availability of service such as ambulance, laboratory, operation theaters, wards, materials, information system, ATM, banks, and drug stores. Good service cannot be provided if there is insufficient provision of the aforementioned items, no matter how professional doctors, physicians, and supporting staff are (Arasali & Ahmadeva, 2004). The provision of these facilities and materials has a direct impact on patient satisfaction (Hancock, 1999). Use of resource management as TQM practice was supported by seven studies in this literature survey (Table 2).

Organizational Behavior and Culture

The role of organizational behavior and culture plays an important role in successful implementation of TQM in health care institutions. The atmosphere of the hospital should be friendly and respectful, both among staff and between staff and patients, and it has a great impact on the physical condition of patients (Arasali & Ahmadeva, 2004). A total quality culture creates an atmosphere where people freely help each other to achieve goals and have fun during the process. In a positive culture, people feel appreciated, their opinions are prioritized, and actions follow suggestions (Short & Rahim, 1995). Further, the hospitals should be free of organisms and clean, develop an environment to work as a team in improving the quality, and the objective should be problem solving and shared accountability. For TQM to be adopted successfully, the organizational culture and behavior must be able to sustain and nurture it (Atchison, 1992). Six empirical studies tested and supported this practice (Table 2).

Continuous Improvement

Continuous improvement is also an influencing practice in the implementation of TQM. Five empirical studies found to support this quality management practice (Table 2). Institutionalizing continuous quality improvement in every department of health care institution will result in elimination of barriers, patient's dissatisfaction, and complaints. The aim of customer improvement is to fulfill patient's (customer) needs (Yang, 2003). Continuous quality improvement needs training and education of all staff and physicians together with the use of different quality improvement approaches, tools, and techniques. This practice ensures that organizations and staff do not settle for minimum standards but strive to do their best they can with available resources (Satia & Dohlie, 1999). The items for this practice also includes: measurement of quality care, performance measurement, innovativeness, and performance analysis. Furthermore, the quest for quality

improvement is not a definable task, but a continuous journey that throws up more and more opportunities for improvement. It has no definable objective other than the desire to strive for continuous improvement (Sureshchandar et al., 2001) and to achieve patient's satisfaction as a goal.

Training and Education

Training and education was also noted as supporting practice for implementing TQM approach. This practice was cited by atleast five research studies in the present review (Table 2). This practice reflects the organization's capability to use the quality management tools and techniques (Wardhani, Utarini, van Dijk, & Post, 2009). It includes: technical support, management training, statistical process control, employee training, scientific problem-solving approach, and information system. It is generally accepted that success in TQM relies on continuing education and training of all levels of personnel (Brashier et al., 1996). Technical training also intends to meet the needs of high performance at the workplace, as it effects employee and staff efficiency and safety. Further, the employees and staff need to be trained in statistical techniques for better quality management (Mahadevappa & Kotreshwar, 2004). Therefore, employee and staff training and education are the fundamental engineering during the implementation of TQM.

DISCUSSION AND CONCLUSIONS

From the present review of literature, eight important TQM practices were identified: top-management commitment (or leadership), teamwork and participation, process management, customer focus and satisfaction, resource management, organizational behavior and culture, continuous improvement, and training and education. It was found that these eight TQM practices are critical for the successful implementation of TQM in the health care institutions and will result in improved performance, patient satisfaction, improved quality of care, and reduced operating cost of health care institutions (Figure 2). Therefore, these practices are termed best practices of TQM in present study.

However, the findings of this study are, to some extent, different from previous studies related to the identification of TQM practices. Other studies have identified different number of practices as well as some other practices which are not found in the present study outcome. This inconsistency in findings may be due to several reasons. Some of them are due to:

- Limitations of the research methodology adopted in the study
- Some external environmental factors at each research site, and
- Outcome measures

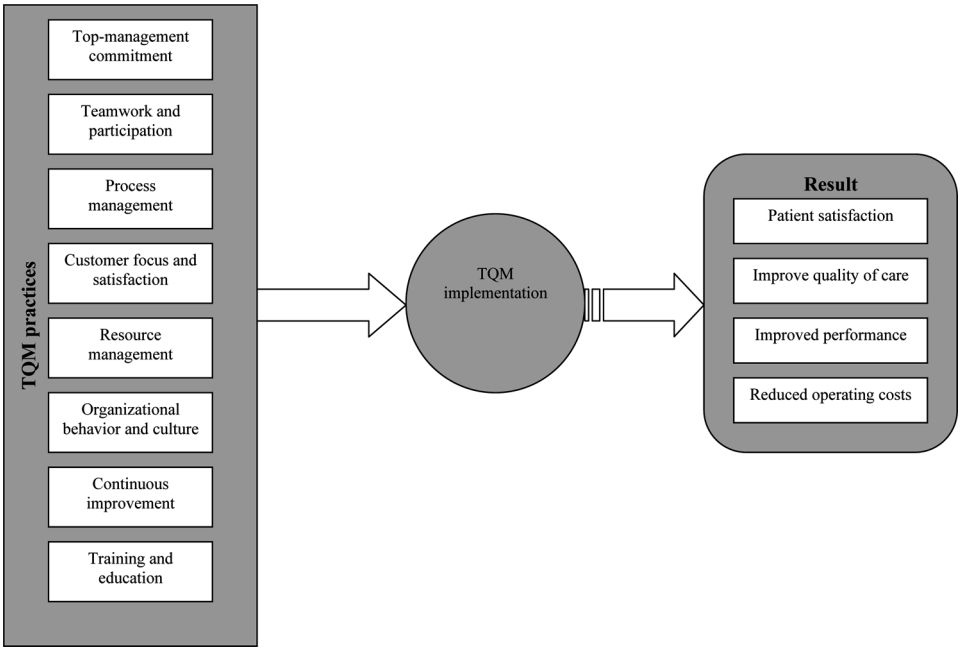

FIGURE 2 Conceptual model of TQM practices influencing its implementation in health care institutions.

Analyzing briefly these reasons, it was found that all empirical studies considered in this study were based on cross-sectional analysis except for few exploratory studies that have utilized literature review (descriptive) as methodology. Besides this, sampling type and size was also found to be varying in each study. This may affect the outcome of the present study. Further going through all the 15 research studies, it was found that four studies were conducted in United States, two in India, and one each in Cyprus, Australia, Canada, United Kingdom, Malaysia, Turkey, Iran, and Qatar. Two studies were also undertaken based on cross-country data. This supports that a set of TQM practices are not identical across the globe/world but they may vary from country to country depending upon the structure, size, and ownership of health care institutions. In the present study, hospitals of different sizes, structures, and ownership were considered for literature review. This may be another factor for the inconsistency in the result. Lastly, another reason for the inconsistency is related to the outcome measures. Most of the selected research studies utilized different standard models, such as the Malcolm Baldrige National Quality Award, the European Foundation for Quality Management, and Kanji's Business Excellence Model as a measure of the degree of TQM implementation and hence, this approach also affects the results of the present study.

Further, it is concluded from the results of this study that top-management commitment is considered as the first requirement for

implementing TQM as many research findings supported this practice. Hence, top-management should lead the effort in improving the quality of the health care institutions. While teamwork and participation, process management, and customer focus and satisfaction are considered as other important practices for successful TQM implementation. These practices are also well supported by many research studies and play a dominating role in health care institutions. Similarly, other practices like resource management, organizational behavior and culture, continuous improvement, and training and education also play an important role as explained in earlier section. Thus, it is concluded that all these eight identified TQM practices are very effective and are considered critical to the successful TQM implementation in health care institutions. Therefore, they may be treated as best TQM practices for health care institutions.

Managerial Implications

For the successful implementation of TQM philosophy in the health care institution some of the managerial implications of the current study are:

- Managers can use TQM philosophy as a strategic competitive weapon for achieving desirable outcome such as patient satisfaction, improved quality of care, and improved performance.
- Managers as well as quality policy makers in health care institutions should pay more attention to the vital role of top-management and employees and staff in the TQM initiation, implementation, and success stages.
- Managers can draw attention in enhancing the organization culture and developing teamwork and participation at all levels as well as the importance of giving training and education to their employees for the successful implementation of TQM philosophy.
- Finally, managers can understand the importance of satisfying all internal and external stakeholders upon the introduction of TQM strategy.

Recommendation for Future Research

The scope and suggested direction for further research work in this area are:

- Further study can be undertaken to understand the barriers in the implementation of TQM program and to broaden this study to other developing countries.
- A comparative study with other less developed countries may be carried out to observe the similarities and dissimilarities concerning TQM implementation in health care institutions.
- Further studies need to be undertaken concerning the detailed impact of identified eight best practices of this study on TQM implementation.

- Empirical research should be conducted to evaluate the understanding and the TQM practices based on customer's point of view.

Finally, the results of the present study will help the managers and practitioners to adopt TQM program successfully in their organizations and will open new dimensions for other researchers in this area, contributing to the knowledge in enhancing the implementation of TQM philosophy.

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