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Total quality management in the healthcare sector: Barriers and effectiveness in Saudi Arabia

Ibrahim Alqasmi

Department of Public Health School of Health Sciences, Saudi Electronic University, Saudi Arabia - Riyadh - Prince Muhammad Ibn Salman Rd - Ar Rabi
Email: i.alqasmi@seu.edu.sa

Abstract--Total quality management (TQM) is a noteworthy tool for helping an organisation/institute to enhance and improve its overall performance. For this reason, many organisations have adopted the TQM approach to help ensure that their services and products are of the highest standard as well as to enhance customer satisfaction. Moreover, due to the economic contributions of the healthcare sector and other significant factors, it is considered necessary to incorporate TQM practices into this sector. A number of standards have been introduced in an effort to drive quality improvement and management within healthcare organisations, including ISO 9001 (Quality Management), EN 15224 (Quality Management System in Healthcare), ISO 15189 (Medical Laboratories), ISO 13485 (Medical Devices) and IWA 1 (Quality Management Systems). Furthermore, the TQM approach has been implemented in many countries, 12 of which (United States, France, Turkey, Jordan, Saudi Arabia, United Arab Emirates, Iran, Pakistan, India, Taiwan, Mauritius and Namibia) were included in this study in order to examine the effectiveness of TQM in the healthcare sector. A case study concerning the implementation and effectiveness of TQM in Saudi Arabia was also conducted. Finally, some of the barriers to the proper implementation of TQM within healthcare organisations were analysed, including the lengthy duration of the implementation, lack of resources, limited commitment, diffusion of interests and improper structure of hospitals.

Keywords--total quality management, healthcare, health services, literature review, quality improvement.

Introduction

The meaning of the word 'quality' can be defined on the basis of various aspects and encompasses a wide array of concepts. It not only involves the objective quality of goods and services (in the context of meeting customers' demands) but also the subjective quality (in the context of achieving acceptable production quality) (Alzoubi et al., 2021). From a business perspective, it has been suggested that better corporate economics and improved business results are closely linked to quality management (Conti, 2012). Indeed, quality management represents a significant tool that can help an organisation to strategically improve its overall performance (Khan et al., 2011). In addition, it has been predicted that quality management in the 21st century will be influenced by increasing economic pressures, growing global competition, mounting customer expectations and modern management approaches (Conti, 2012). Interestingly, the issue of service quality gained significant research attention during the 1980s and 1990s, after which the incorporation of quality assurance and quality management practices into organisations, particularly in the manufacturing sector, became a crucial requirement (Halis et al., 2017).

In terms of the concept of total quality management (TQM), its core objective is to pave the way for organisations to deliver a high standard of products and services (Kurupparachchi and Perera, 2010). In fact, the attainment of high final quality for both employees and customers is generally the driving force that motivates an organisation to adopt TQM (Fields and Roman, 2010). Additionally, customer satisfaction is another driving force behind the adoption of TQM (Chang et al., 2010). The TQM approach is also intended to facilitate the achievement of a multitude of sub-objectives, including the removal of waste and the reduction of non-productive activities (Yusuf et al., 2007). Furthermore, TQM represents a significant means of improving service quality and enhancing efficiency with regard to resource utilisation (Ishfaq et al., 2016). One of the distinctive features of TQM is the fact that it requires a collaborative and collective approach within organisations. This means that it aims to achieve high-quality maintenance and improvement through the collective efforts of every individual within an organisation. This can be accomplished through the adoption of the continual improvement approach associated with TQM (Talib et al., 2013).

Over the past few decades, the world has witnessed an upsurge in customer demands and expectations concerning the quality of services, and the healthcare sector has proved no exception in this regard (Halis et al., 2017). Healthcare services are highly dominant when it comes to supporting the economy. For instance, according to the Organisation for Economic Co-operation and Development (OECD), the healthcare sector was responsible for 9.5% of the gross domestic product (GDP) of European nations in 2018. Moreover, the healthcare sector was responsible for 16.9% of the GDP of the United States in the same year (Aburayya et al., 2020). This high contribution on the part of the healthcare sector to national economic structures is a key reason why ensuring the high quality of healthcare products, processes and services is highly desirable from the perspective of healthcare organisations (Alhashmi et al., 2020).

In addition, the healthcare sector works through complex interactions among not only healthcare professionals (doctors, nurses, etc.) and patients but also other entities such as medicine suppliers, regulatory bodies and providers of non-medical equipment (Tosic et al., 2018). This means that a strong framework for the establishment and implementation of effective TQM is required within the healthcare sector. Therefore, the present study sought to explore the TQM approach from the perspective of the healthcare sector by analysing both its effectiveness and the barriers to its implementation in healthcare organisations.

Methodology

This study involved a systematic literature review. Relevant studies were identified by searching five electronic databases, namely Google Scholar, PubMed, PubMed Central (PMC), Publons and ResearchGate. After the manual evaluation of the identified publications, some were selected for inclusion in this study. Most of the works selected for review were research papers or review papers; however, a couple were conference papers. Moreover, the works selected for inclusion in this study were all written in English and published between 2001 and 2021.

More specifically, three published papers were selected to describe the concept of TQM in general, while data were collected from six publications to describe TQM in the context of the healthcare sector in particular. To analyse the effectiveness of TQM within healthcare organisations, studies conducted in 12 countries were selected and presented in chronological order (from newest to oldest) in a tabular form. The chosen countries were the United States, France, Turkey, Jordan, Saudi Arabia, the United Arab Emirates (UAE), Iran, Pakistan, India, Taiwan, Mauritius and Namibia. Finally, the barriers to the implementation of TQM were analysed on the basis of four studies.

Findings and Discussion: Description of TQM

The TQM approach aims to provide products and services that fulfil customers' expectations and meet their needs. Briefly put, it concerns the overall culture and attitude of organisations (Halis et al., 2017). Moreover, TQM and continuous quality improvement (CQI) are inter-related concepts that focus on improving the quality of products/services and ensuring the continual inculcation of such improvements, respectively. Both techniques aim to foster multidisciplinary and cooperative approaches to implementing positive changes in organisations' processes and monitoring the effectiveness of those changes (Balasubramanian, 2016). Figure 1 presents the key factors associated with the adoption of TQM within organisations.

Employees	• Commitment and understanding
Culture	• Quality improvement
Process	• Continuous improvement
Focus	• Customer requirements
Control measures	• Effectiveness

Fig. 1. Key factors concerning the adoption of TQM (Napierala, 2012)

Edward Deming, an American statistician and pioneer of the modern quality movement, is widely considered the father of quality management. He described 'quality' as a concept related to planning, service, conformance and design. Moreover, his famous 14 points for management are recognised as forming the basis for the modern TQM concept (Figure 2). These 14 points can be adopted by small and large organisations within the manufacturing sector (Swinton, n.d.).



Fig. 2. Edward Deming's 14 points for management

Concept of quality and TQM in healthcare

The concept of healthcare-based quality improvement developed during the 1850s. At that time, nursing pioneer Florence Nightingale explained that appropriate hygiene and sanitation standards were key to reducing the mortality

rates of soldiers fighting in the Crimean War (Vituri et al., 2015). This supported the notion that incorporating quality assurance served to achieve higher customer/patient satisfaction and reduce the risks related associated with healthcare (Padilha, 2001). The healthcare sector requires separate and specific quality management practices due to the difference between it and the conventional business and industrial sectors. The first reason for this difference is that the healthcare sector revolves around continuous interactions between customers (patients) and healthcare staff (doctors, nurses, etc.) (Tosic et al., 2018). Second, healthcare professionals not only need to satisfy their main customers (patients) by meeting their healthcare requirements, they also need to satisfy the third parties (family members or other concerned parties) who pay for their healthcare services (Tosic et al., 2018). Figure 3 reveals the six main dimensions of TQM in the healthcare sector, which all need to be present to ensure the quality-related improvement of healthcare services and processes (Institute of Medicine [IOM], 2001).



Fig. 3. Six domains of TQM in the healthcare sector

In terms of healthcare services, TQM is an inclusive strategy for changing the attitudes and processes of organisations in order to render the workforce capable of understanding and using quality methods to meet the requirements of customers (mainly patients) and reduce overall costs. In other words, TQM can be defined as an approach for maximising patients' satisfaction by weighing up the profits/benefits and losses associated with healthcare services and products (Balasubramanian, 2016).

Quality management standards in the healthcare sector

The following quality management standards are all applicable to the healthcare sector:

- ISO 9000 (Quality Management): The International Organization for Standardization (ISO) established the ISO 9000 family of standards for quality assurance and quality management. These standards elucidate the

conditions that must be fulfilled to ensure effective quality management within organisations. First, the standards aim to enhance customer satisfaction by driving improvements in organisations' systems. Second, they aim to ensure conformance with statutory requirements governing quality standards (Tosic et al., 2018).

- EN 15224 (Quality Management System in Healthcare): Here, 'EN' stands for European norms, although they are typically known as European standards. EN 15224 inculcates the quality management requirements for healthcare organisations. First, it aims to provide consistent healthcare services capable of meeting patients' requirements. Second, it aims to drive improvements in healthcare systems in order to increase customer satisfaction. The requirements considered in relation to this standard system include correct care, patient involvement, evidence-based care, socio-psychological integrity and accessibility (Tosic et al., 2018).
- ISO 15189 (Medical Laboratories): This standard aims to ensure competence and quality in the context of medical laboratories. It helps regulatory authorities and customers to recognise the competence of such laboratories. In addition, it allows medical laboratories to examine their own competence with regard to quality management (Tosic et al., 2018).
- ISO 13485 (Medical Devices): This standard establishes the requirements regarding medical devices and is applicable throughout their life cycles. As such, it is applied during the following stages to ensure the quality of medical devices (Tosic et al., 2018):
 - Design
 - Production
 - Storage
 - Distribution
 - Installation
 - Servicing
- IWA 1 (Process Improvements in Healthcare Organizations): This International Workshop Agreement (IWA) represents a well-known quality management system in the healthcare sector. It provides a set of regulations intended to maintain and improve the quality of healthcare organisations. It also provides further management directions for healthcare organisations, including those associated with medical research and training (Tosic et al., 2018).

Effectiveness of TQM in the healthcare sector

The healthcare sector is currently facing numerous challenges, including the high cost of healthcare services, increase in patients suffering from multiple health conditions, economic constraints, high inclination towards technological advancements and increased patient demand for high-quality healthcare services (Alzoubi et al., 2021). These challenges can be effectively tackled via the adoption of suitable quality management approaches by healthcare organisations. One such approach is the implementation of TQM. Patient inputs also play a crucial role in determining the effectiveness of the healthcare services provided to them. These inputs include patients' requirements, communication regarding their health and conditions, expectations, etc. In the absence of adequate insights into

these inputs, it is very difficult to both provide effective treatment and apply effective quality management in relation to healthcare practices (Tosic et al., 2018).

Table 1 lists the prior studies concerning TQM in hospitals or healthcare services that have been conducted in the 12 focal countries. It is noteworthy that all these studies identified factors related to the effective implementation of TQM within the healthcare sector. Moreover, they identified patterns of behaviours, interests and practices that influence the effectiveness of TQM in hospitals.

Table 1. TQM-related studies from the 12 case countries

S.No.	Country	Data collection method(s)	Findings	Reference
1	UAE	600 questionnaires were distributed in 2 public hospitals. 356 questionnaire responses were obtained (response rate of 59.3%).	Proper implementation of TQM in hospitals requires: <ul style="list-style-type: none"> • Top management commitment • Employee involvement • Training and education • Recognition and reward • Process management • Strategic planning • Information analysis • Organisation culture • Continuous improvement • Customer focus 	Aburayya et al. (2020)
2	Jordan	Data were collected from 1290 healthcare professionals working in accredited governmental hospitals.	TQM serves as an effective indicator of hospital performance.	El-Tohamy and Al Raoush (2015)
3	Iran	Data were collected from 20 workers (from Iranian healthcare organisations) and 30 participants (from three ISO-certified hospitals).	The implementation of TQM and its impact depend on the ability of managers to adopt and adapt related values and concepts in healthcare organisations.	Mosadeghrad (2014)
4	USA	Data were acquired from 37 hospitals in different regions of the USA.	The scores of the static three TQM dimensions group were significantly lower than those of the intervention group.	Jones et al. (2013)
5	Namibia	Data were collected from 180 nurses.	Most TQM practices positively influence nurses'	Awases et al. (2013)

			performance. However, the following TQM practices negatively influence nurses' performance: <ul style="list-style-type: none"> • Absence of recognition • Lack of performance appraisal indicators • Poor working conditions 	
6	Pakistan	Data were collected from 239 doctors working in various public hospitals.	The significant positive impact of selected TQM activities was observed on the execution of TQM and on operational performance.	Irfan et al. (2012)
7	Mauritius	Data were collected from 200 respondents from a public hospital.	TQM represents an effective strategy for public hospitals.	Ramseook-Munhurrun et al. (2011)
8	Saudi Arabia	Data were obtained from 1834 nurses working in different hospitals.	Nurses' job performance is positively influenced by the following: <ul style="list-style-type: none"> • Commitment • Personal and professional variables • Job satisfaction 	Al-Ahmadi (2009)
9	Turkey	Data were obtained from 5550 nurses working in different hospitals.	Nurses' job satisfaction is positively influenced by their commitment.	Güteryüz et al. (2008)
10	India	A pilot survey was conducted to collect data from hospital patients.	A positive relation was found between patient satisfaction and seven total quality service (TQS) practices.	Duggirala et al. (2008)
11	France	Data were collected from a 2000-bed university hospital. A total of 100 untrained and 98 trained employees participated.	No difference was observed in the knowledge of CQI methods between the untrained staff and the trained staff.	François et al. (2005)
12	Taiwan	Data were collected from 76 hospitals to test a multilevel model and study TQM adoption as one type of organisational adoption.	The extent of the TQM adoption was strongly related to the prospector strategy and the nature of the network relationship.	Hornng and Huarng (2002)

Barriers to effective TQM

The following factors have been identified as barriers to the effective implementation of TQM practices within healthcare organisations:

- Requirement for a long implementation duration: While many organisations have utilised the TQM approach to enhance their performance, a number of failures have also occurred in this regard (Kumar and Sharma, 2015). One very prominent challenge is that the results of TQM are difficult and time-consuming to attain, which explains why it has been observed that the longer an organisation implements TQM, the more successful its implementation will ultimately be (Talib et al., 2013).
- Lack of resources: When it comes to healthcare services, there are prominent differences among countries worldwide. For instance, some common health indicators suggest that developed countries have better healthcare services than developing countries. Moreover, if developing countries are analysed in terms of their healthcare services, it is clear that some have much worse services than others (Halis et al., 2017). This difference is not solely confined to the services offered by healthcare organisations, as it is also related to the structural factors and quality of healthcare systems. The core reason for this is that developed countries have more resources and a greater focus on improving their healthcare services by establishing better rules, methods and approaches (Halis et al., 2017).
- Limited commitment: Limited involvement and a lack of commitment among healthcare professionals render it difficult to successfully perform quality improvement and management in hospitals. This issue commonly arises when specialists and physicians do not cooperate with TQM procedures due to having a limited commitment to their hospitals (Balasubramanian, 2016).
- Diffusion of interests: The interests of many doctors are not directly related to the interests/goals of the hospitals in which they work, which can significantly constrain the implementation of healthcare improvements in hospitals (Balasubramanian, 2016).
- Improper hospital structure: The failure to involve healthcare personnel in the incorporation of TQM within hospitals' structure can also serve as barrier to the effective implementation of TQM (Balasubramanian, 2016).

The barriers to the effective implementation of TQM can be divided into four categories, namely strategic, human resource, contextual and procedural barriers (Figure 4) (Mosadeghrad, 2013).

Strategic barriers	Human resource barriers	Contextual barriers	Procedural barriers
<ul style="list-style-type: none"> • Poor management and leadership • Lack of top management support • Management turnover • Middle-management resistance to change • Inappropriate planning • Unlimited demand for healthcare services 	<ul style="list-style-type: none"> • Employees' lack of interest in TQM • Physicians' indifference towards TQM • Professional autonomy • Employees' resistance to change • Employee shortages and increased work load • Poor education and training 	<ul style="list-style-type: none"> • Inappropriate organisational culture • Inter-departmental barriers • Difficulties in changing the organisational culture • Lack of team orientation • Poor communication • Mindset barriers 	<ul style="list-style-type: none"> • Lack of process focus • Lack of focus on patient satisfaction • Lack of customer awareness • Complexity of processes • Fragmentation of activities

2 Figure 4. Four categories of barriers to the effective implementation of TQM (Mosadeghrad)

TQM in Saudi hospitals

In this context, the critical success factors (CSFs) are those factors required to ensure the effective implementation of TQM. Moreover, they reveal the ways in which TQM can be formulated within organisations. Through measuring the CSFs, various studies have sought to analyse the implementation of TQM in Middle Eastern countries, including Saudi Arabia (Abanumy and Alshetri, 2015; Kumar and Sharma, 2015; Mosadeghrad, 2014). For example, a study conducted in Saudi Arabia identified 21 CSFs with regard to the implementation of TQM (Al Omair, 2002). In addition, a number of studies have found that concern regarding the quality of healthcare services is increasing in Saudi Arabia (Alaloolah and Albedaiwi 2008; Alghamdi 2014). Although the application of the concept of TQM has become a pre-requisite for Saudi hospitals, it is still generally not properly implemented (Albejaidi, 2010). Some studies have sought to identify the challenges to the successful implementation of TQM in the Saudi healthcare sector. These challenges include the moderate satisfaction of patients concerning healthcare services, low job satisfaction of nurses and poor work-life balance of healthcare professionals in general. As nurses and patients are critical to the successful implementation of TQM in the healthcare sector, any challenge that affects them represents a major obstacle to the proper execution of TQM in relation to medical services (Almalki et al., 2012; Ishfaq et al., 2016).

Case study: Key themes

In 2017, a case study was conducted regarding the TQM practices of Saudi hospitals. The researcher conducted interviews with staff from various hospitals and identified five key themes concerning the quality of healthcare and patient satisfaction (Figure 5) (Alqasimi, 2017).

1. Level of understanding of TQM practice
<ul style="list-style-type: none"> • Strategic visioning and policy planning • Quality processes • Quality outcomes
2. Inter-institutional communication strategies
<ul style="list-style-type: none"> • Policy and regulatory communication • Inter-hospital resource & knowledge-sharing communication • Healthcare system advisory board communication
3. Enhanced competency development and training
<ul style="list-style-type: none"> • Financial investment in human resources • Employees' job satisfaction • Cultural competency training
4. Level of management commitment and leadership
<ul style="list-style-type: none"> • Standard setting and incentivisation • Managerial commitment to patient-centred care • Participative leadership
5. Barriers to improving the quality of care
<ul style="list-style-type: none"> • Nurse-related barriers • Patient-related barriers • Administration-related barriers

Fig. 5. Themes and sub-themes concerning present and future TQM practices in the Saudi healthcare sector

- **Level of understanding:** The first key theme concerns the link between TQM and the level of understanding within healthcare organisations. According to the analysis, the first sub-theme is the requirement for improved strategic visioning alongside policy planning. A lack of understanding was identified with regard to the strategic vision and policy planning of the Saudi Ministry of Health (MoH). Various statements made by the interviewees reflected the need to implement patient-centred care in Saudi hospitals. Therefore, strategic visioning and policy planning should be implemented even at low levels within the healthcare system (e.g. hospital administration). Moreover, their responses (including the head nurses' statements) also revealed that patient-oriented care should focus equally on all patients, regardless of their social status, to ensure the provision of the best quality of care to all individuals. In addition, better understanding on the part of every employee could facilitate an improvement in the quality of healthcare. Furthermore, Saudi healthcare service managers reported a preference for the concept of total quality, which indicates that TQM should continue to be included within the organisational agendas of Saudi hospitals (Alqasimi, 2017).
- **Inter-institutional communication strategies (IICS):** The second key theme identified based on the interview transcripts concerns communication. In fact, the interviewees highlighted how the limited communication by the

MoH (in the context of policy and regulatory communication), limited communication between hospitals and limited communication by the Healthcare System Advisory Board can prove highly troublesome with regard to the effective implementation of TQM within the Saudi healthcare sector (Alqasimi, 2017).

- **Enhanced competency development and training:** The interviewees considered financial investment in human resources (HR) to be very important in relation to the effectiveness of TQM. In particular, they stated that allowing for budget and investment increases (for hospital staff, infrastructure and facilities) while maintaining a focus on patient care should help to enhance the effectiveness of TQM in the Saudi healthcare sector. Moreover, as a sub-theme, employees' job satisfaction was identified as one of the most influential factors when it comes to the quality of healthcare. For instance, the nurses expressed that when a nurse feels appreciated, he/she performs better and exhibits enhanced competency is enhanced. In addition, the interviewees suggested that the inculcation of cultural aspects is highly important when training expatriate nurses. The reason for this is that improved cultural understanding renders nurses better able to understand their patients' different needs. Thus, the government of Saudi Arabia could consider replacing expatriate nurses with Saudi native staff in order to minimise cultural barriers to the implementation of TQM (Alqasimi, 2017).
- **Management and leadership:** Hospital management should ensure that refresher and specific training is provided to the nursing staff to facilitate the optimal implementation of TQM. Important sub-themes here concern standard setting (e.g. the formulation of patient satisfaction metrics) and incentivisation (e.g. provision of financial rewards for workers). Another interesting sub-theme concerns managerial commitment to patient-centred care, with the interviewees suggesting that patient-centred care should be the main focus of commitments made by healthcare managers. Moreover, the fostering of a participative culture or participative leadership represents another identified sub-theme. Involving hospital employees, including nurses, in meetings and the decision-making process was reported to be very important in terms of improving the quality of healthcare services in Saudi Arabia (Alqasimi, 2017).
- **Barriers to improving quality:** A number of barriers to improving the quality of care were revealed through the interviews (Alqasimi, 2017):
 - i. **Nurse-related barriers:** The three identified barriers concerning the work of nurses include staff shortages (as noted by seven interviewees), a lack of time for patients' treatment (as noted by nine interviewees) and pressure stemming from a high workload (as noted by four interviewees). Furthermore, the psychological barriers said to be faced by nurses include a lack of interest in nursing and learning advanced treatment processes, which ultimately have an adverse impact on the quality of healthcare. The other nurse-related barriers include language barriers, which are very problematic for nurses (especially expatriate nurses who cannot speak Arabic) when it comes to communicating with patients.
 - ii. **Patient-related barriers:** Nine interviewees reported that improvements in the quality of healthcare are greatly influenced by patients. The patient-related barriers to the implementation of TQM include their refusal to

accept treatment and their disrespectful behaviour, whether due to their literacy/education level or differences in their cultural/ethnic background.

- iii. Administration-related barriers: The administration-related barriers to the effective implementation of TQM within the healthcare sector include inadequate administration on the part hospital management, which results in job dissatisfaction among hospital employees, and the failure of educational instructors to provide proper training in healthcare quality improvement.

Conclusion

Quality management and quality improvement are both concepts that originated in the previous millennium. In fact, they began to be incorporated into healthcare services many decades ago. TQM is another concept that has been adopted by many organisations in the healthcare sector. It aims to enhance the effectiveness of healthcare treatments, to improve the quality of healthcare products and services and to increase the satisfaction of patients and other stakeholders. Various standards have been established in an effort to maintain and enhance the quality of healthcare services and products. The overall process of TQM in the Saudi healthcare sector must be handled strategically while keeping in mind the need for healthcare to have an inclusive and multi-disciplinary nature. Therefore, to ensure the proper implementation of TQM, healthcare organisations need to encourage employee involvement, implement continuous improvement, perform strategic planning, conduct training related to TQM and seek to improve the overall organisational culture of the Saudi healthcare system.

Recommendations

Based on the findings of this research, the following recommendations are offered:

1. The reviewed publications reveal the lack of a TQM model that can be applied by healthcare organisations in developing and under-developed countries to ensure the effective and uninterrupted implementation of TQM practices. Thus, studies should be conducted to formulate TQM frameworks that can be feasibly applied in all countries.
2. Despite the difficulty associated with noticing the tangible benefits of TQM within a few months, related practices should not be discontinued. It is important to recognise that reaping the full benefits of TQM will require at least a couple of years.
3. The legislative bodies of all developed and developing countries should promulgate laws and regulations that render the adoption of TQM mandatory in relation to the provision of healthcare services.

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