CHAPTER 1
INTRODUCTION

1.0 INTRODUCTION

One of the fastest growing industries in the service sector is the healthcare industry (Andaleeb, 1998). Healthcare organizations are increasingly realizing the need to focus on service quality as a measure to reduce cost and provide quality healthcare to patients. Healthcare systems around the world have been facing critical problems and deficiencies in their quality initiative. The quality and safety of the health care system remain a significant concern in many countries as evidence documenting gaps between actual and recommended practices continues to accumulate (Leape and Berwick 2005; Kohn, et al. 1999; Pittet and Donaldson 2006).

Evidence suggests that the health care provided for most of the world's population is of very poor quality and does not meet evidence-based standards (USAID, 2008). For example, a low-cost evidence-based package of three simple steps known as active management of the third stage of labor (AMTSL) has been shown to reduce postpartum hemorrhage, the leading cause of maternal mortality worldwide, by over 50%. Yet AMTSL is unavailable in many settings, and where it is "available," quality problems limit its effectiveness. Improving quality for more complex health care problems, such as acquired immunodeficiency syndrome (AIDS), poses much greater challenges (Prendiville et al. 1988).

Research has shown significant avoidable patient injury occurring in hospitals, increasing the risk of adverse outcomes and higher costs (Leape, 1994). In 1999, the Institute of Medicine (IOM), an agency of the US Government, released a report, called *To Err is Human,* stated that between 44,000 and 98,000 Americans

die each year from preventable medical errors in hospitals alone. The report estimated that medical errors cost the U.S. $17-29 billion a year, and recommended sweeping changes to the health care system to improve patient safety (IOM, 1999).

The Agency for Healthcare Research and Quality (AHRQ), reported several types of quality problems in health care have been documented through peer-reviewed research. These include: variation in services, underuse, overuse and misuse of services as well as disparities in quality (AHRQ, 2002). Poor health service quality wastes resources that could be used to treat more patients (IOM, 1999), and the public is becoming more critical of the quality of hospital care (Coulter and Magee 2003; Mossialos, 1997).

Today, the growing body of literature suggests that the healthcare industry is in serious crisis and does not have sound systems in place. Hospital errors in ordering, administration, transcription, and diagnosis have recently received considerable attention because of high defect rates (Merry and Brown, 2002). In fact, Kohn et al. (1999) report in their often cited study that nearly 100,000 people die of preventable medical related errors annually in the U.S. Many scholars attribute the poor performance of healthcare organizations to their inability to manage operations (Tucker, 2004; Tucker and Edmonson, 2003; Thompson, et al., 2003; Mango and Shapiro, 2001).

While some authors maintain that simple everyday functional tasks in the healthcare field are still underdeveloped (Patel, et al., 2002), others that healthcare leaders have favored product innovation over process innovation (Uhlig, 2001). Overall, the lack of focus on work processes and their impact on operational failures appears to have had a deleterious effect on the smooth functioning of the healthcare industry, ultimately exposing patients to significant risks.

The Saudi healthcare system is not an exception to this global quality and patient safety problem. A shocking reality is that although Saudi Arabia spends more than many other nations on health care, the quality of care provided frequently falls far short of what is optimal. A recent study on medication errors in the general paediatric ward and paediatric intensive care unit (PICU) at King Abdulaziz Medical City (KAMC) in Riyadh, showed that, the overall error rate was 56% which means 560 errors per 1,000 medication order. Out of which 78.8% were classified as potentially harmful. They concluded that medication errors were significantly high compared to international figures of 3.5 per 1,000 medication order (Al-Jeraisy et al. 2011).

Besides patient safety problems, the Saudi Ministry of Health (MOH) is facing serious challenges in reforming the Saudi health care system and in improving the quality of services provided to citizens. This is despite the enormous fiscal expenditure and huge resources allocated by the Saudi government to the Ministry of Health (Albejaidi, 2010; Al Malki et al., 2011).

According to the Institute of Medicine (IOM) report, *To Err Is Human*, the majority of medical errors result from faulty systems and processes, not individuals. Processes that are inefficient and variable, differences in provider education and experience, and numerous other factors contribute to the complexity of health care (IOM, 1999). Because errors are caused by system or process failures, it is important to adopt various process-improvement techniques to identify inefficiencies, ineffective care, and preventable errors to then influence changes associated with systems (McNally, 1997).

Total Quality Management (TQM) is a management philosophy that focuses on the continuous improvement of systems and processes. TQM is characterized by

the design and implementation of organization-wide quality improvement programs based on core principles of customer focus, reduction of variability, continuous improvement and employee participation (Oakland, 2003). It offers a method for solving quality problems of healthcare, even in the context of weak health systems facing severe material and human resource constraints (Zeitz et al., 1993; Loevinsohn et al., 1995; Heiby 1998; Massoud et al., 2001; Kelley et al., 2001; Hermida and Robalino, 2002; Berwick 2004; Rowe et al., 2005; Rennie et al., 2007; Dickson et al., 2007).

TQM has become a globally strategic force, which may lead to several benefits: improved customer satisfaction, greater employee focus and motivation, reduced waste, reduced cost and improved overall performance (Juran, 1988). TQM has thus emerged as a potential solution to improve the efficiency and effectiveness of health care provision and is becoming increasingly important for the successful operation of public hospitals. Many hospitals are turning towards TQM adoption to improve their overall performance.

TQM originated from industrial practices where decades of competitive pressures have led to the development of methods for improving efficiency and resource utilization, and the effects are well-documented (Mango & Shapiro, 2001). Although the industrial environment is different from that of healthcare, studies have shown that TQM can be used in a healthcare setting (Hyer et al., 2003; Lindgaard Laursen, 2003; Spear, 2005). Shortell et al., 1998, maintains that TQM emphasizes determining and meeting the needs and wishes of patients or customers; it aims at a holistic approach to quality improvement based on identifying the underlying causes of poor performance; it emphasizes fact-based management and scientific methodology and may therefore be culturally compatible with the values of health professionals; and it emphasizes the need to

improve quality on a daily basis (Shortell et al., 1998). It can also be described as one of the models for organizational change (Thompson, 1996).

However, this new management technique from industry has not always been embraced with open arms by healthcare practitioners. A self-image of having organizations and processes that are “different” or “unique” may be one explanation for this attitude that forestalls organizational improvements (Yasin et al., 2002). In the early years when TQM was used in health care, it was mainly in administrative areas; it was only applied in clinical areas from around the mid 1990s (Shortell et al., 1998). Previous research on the transfer to healthcare of TQM from industry shows that the adoption of the ideas is not unproblematic. In most cases, TQM is implemented in a piece-meal approach, rarely delivering the improved organizational performance wished for (Yasin et al., 2002). However, there are of course differences between organizations in that matter. According to Ovretveit 2000, many hospitals adopt some of the practices of TQM and apply the approach in a piecemeal way hence it is difficult to evaluate the large numbers of projects and programs that claim to implement TQM (Ovretveit, 2000).

Reviews of published research (e.g. Bigelow and Arndt, 1995; Shortell et al., 1998; Ovretveit, 2000; Shojania and Grimshaw, 2005) conclude that there is limited evidence about whether TQM works and whether it is more or less successful than other quality improvement approaches such as Lean thinking and Six Sigma. In part this is because TQM is more susceptible to being used as a general ‘catch-all’ label than Lean thinking or Six Sigma and it is difficult to define what is done under this overall ‘heading’. In addition, it is difficult to assess whether reported improvements are attributable to, or merely contemporaneous with, the TQM interventions (Shortell et al., 1998). The purpose of this research is to find out the impact of the implementation of TQM practices on hospital performance.

1.1 STATEMENT OF THE PROBLEM

The use of Total Quality Management (TQM) as an integrated management philosophy which aims to continuously improve the performance of products and services to achieve high quality that exceeds customer expectations have been encouraged by many quality experts. Despite the enormous fiscal and human resources expended in the implementation of Total Quality Management practices, the Saudi healthcare system is still functioning at 'far lower **[**quality**]** levels than it could and should' (Albejaidi, 2010). TQM is relatively new to the kingdom of Saudi Arabia, where the culture and environment are different from those in developed countries which have effectively applied TQM. Saudi public hospitals face increasing pressures to improve their operations and to provide evidence of the quality and efficiency of their organizations. These pressures come from several directions. The first is the government that has put the quality of healthcare as a top priority and has made accreditation mandatory for all hospitals. The second comes from patients and their families whose expectations for safe and quality care is ever increasing. Consumers are becoming increasingly aware of rising standards in service quality, prompted by competitive trends which have developed higher expectations (Yavas & Shemwell, 2001). The third comes from the Saudi media that is fund of reporting medical errors and focusing on the human tragedy of the victims and notions of individual culpability ignoring the system failures responsible for these errors.

Most TQM studies have focused on organizations in developed countries and there is lack of information about the nature and stage of TQM implementation in developing countries (Rao et al., 1997; Al-Khalifa and Aspinwall, 2000). Reviews of published research (e.g. Bigelow and Arndt, 1995; Shortell et al., 1998; Ovretveit 2000; Shojania and Grimshaw, 2005) conclude that there is limited

evidence about whether TQM works. This may be due to the implementation-related problems, resistance to change and top management focus on short-term strategy and actions (Yasin and Alavi, 1999). Research also suggests that TQM has highly variable effects which depend heavily on the context in which it is used and the way it is implemented (Walshe and Freeman, 2002). Other studies (Folaron, 2003; Evans and Lindsay, 2005; Lazarus and Novicoff, 2004; Benedetto, 2003), suggest that, not all organizations are able to implement TQM practices successfully because it requires a different implementation approach that caters for certain critical factors in order to be effectively be implemented.

The adoption of TQM by most organization has been hampered due to their non compliance with the procedure and principles of TQM implementation. This has accounted for the failure of most organization in meeting up to their expected target from implementing this approach (Ugboro & Obeng, 2000).

Recent research shows that, the successful implementation of TQM practices in an organization gives it the capability of adapting to changes in business environment and the flexibility of involving employees in problem solving and adequate utilization of improvement opportunities that influence the overall organizational performance (Dilber et al., 2005; Maliki et al., 2010; Ali et al., 2012).This achievement can only become possible through top management support and leadership, employee involvement, employee empowerment, education and training, customer focus, continuous improvement and process management especially in the context of hospital (Ali et al., 2012).

This study intends to examine the relationship and influence of Total Quality Management (TQM) on hospital performance in the Saudi context using regression analysis to explore the impact and to suggest possible ways of improvement of health care services for the benefit of patients, employees, stakeholders and healthcare sector in Saudi Arabia.

1.2 RESEARCH QUESTIONS

The research questions, based on the above aim and objectives, are:

1. What is the relationship between Total Quality Management Practices and hospital performance?
2. Do accredited hospitals have better level of TQM practices implementation than unaccredited hospitals?

1.3 OBJECTIVES OF THE STUDY

The objectives of the study are;

1. To investigate the relationship between the implementation of Total Quality Management (TQM) practices and hospital performance.
2. To analyze the differences in the implementation level of TQM practices between accredited and unaccredited hospitals.
3. To suggest possible ways of improvement of health care services for the benefit of patients, employees, stakeholders and healthcare sector in Saudi Arabia.

1.4 HYPOTHESIS OF THE STUDY

Based on the above objective, the following hypotheses are framed;

1. Hypothesis 1: Leadership commitment significantly relates with hospital performance.
2. Hypothesis 2: Education and Training significantly relates with hospital performance.
3. Hypothesis 3: Employee management significantly relates with hospital performance.
4. Hypothesis 4: Information and analysis significantly relates with hospital performance.

5. Hypothesis 5: Supplier management significantly relates with hospital performance.
6. Hypothesis 6: Process management significantly relates with hospital performance.
7. Hypothesis 7: Customer focus significantly relates with hospital performance.
8. Hypothesis 8: Continuous improvement significantly relates with hospital performance.
9. Hypothesis 9: Accredited hospitals have better level of TQM practices implementation than unaccredited hospitals.

1.5 RESEARCH MODEL

Figure 1 illustrates the theory-based research model that describes the proposed factors hypothesized to be related to hospital performance. The model was based on the organizational institutionalization of change model originally developed by Goodman and Dean (1984). The general premise of the institutionalization model is that organizational characteristics and the structure of the change impact institutionalization processes, which in turn impact the institutionalization performance. The institutionalization theory as well as the structure of the institutionalization model translates well to the working theory of Total Quality Management (TQM) practices impact on hospital performance.

TQM is a planned organizational change that is intended to be long term. If one is interested in creating long term organizational change, an understanding of the practices that bring about this long-term change is critical. Eight variables were included in the study of the impact of critical TQM practices on hospital performance.

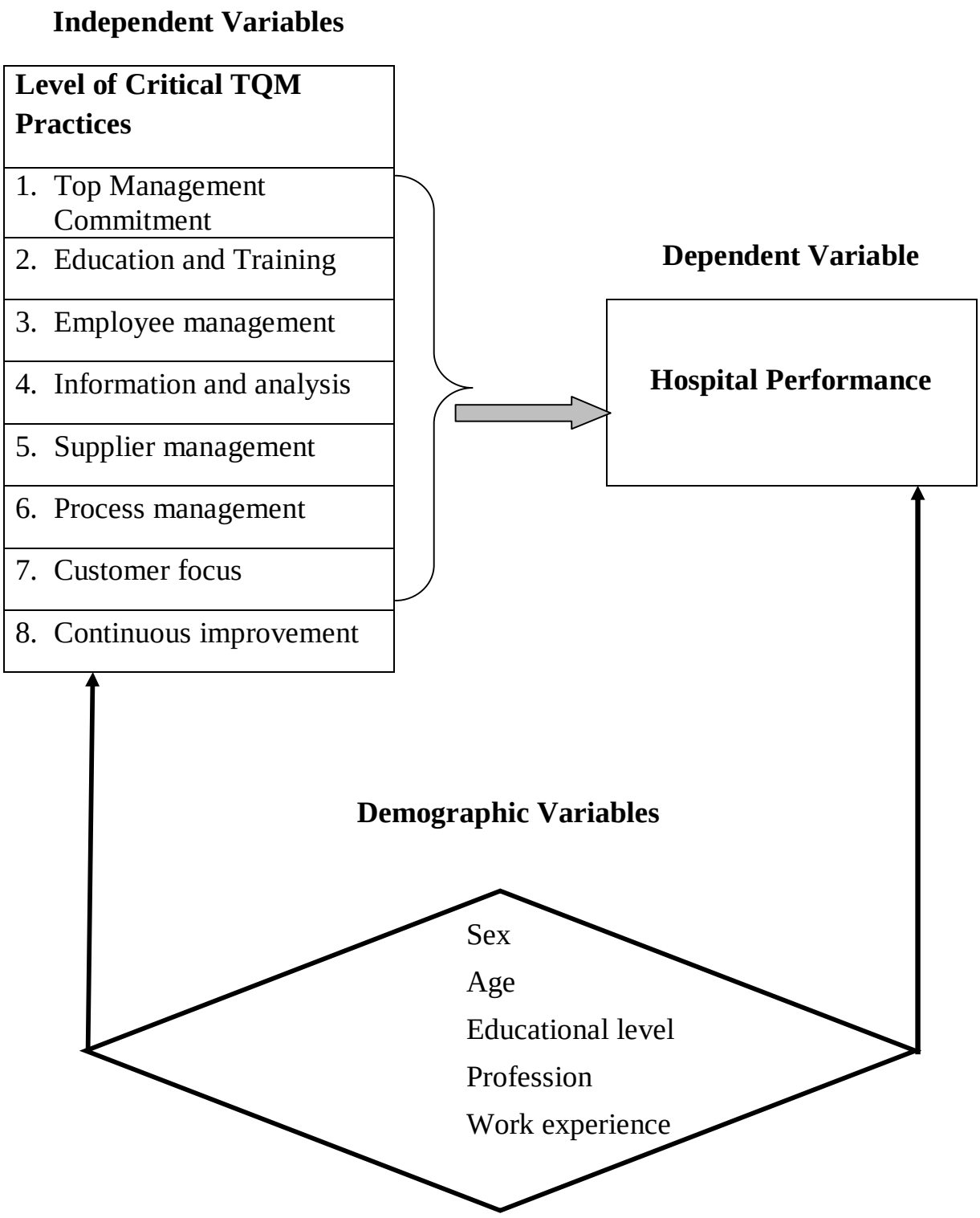

Figure 1 Conceptual Research Model (Source: Researcher)

1.6 SIGNIFICANCE OF THIS RESEARCH

The TQM movement, while strong in many other countries, is still in its infancy stage in Saudi healthcare services. Although the need for quality exists at all levels of healthcare provision, hospitals are of the greatest importance because they are where the medical technology is most advanced, where the greatest social and economic cost to society is incurred and where the opportunity for abuse and sub-optimal care is clearly present. Hence, the researcher conducts an empirical study to determine the impact of TQM practices on the performance of hospitals.

There is a shortage of research on this subject not only in Saudi Arabia but at the level of Arab countries. This research contributes to the body of knowledge about the implementation of Total Quality Management (TQM) in healthcare in a number of ways. First, it provides an extensive review of the past and present works in the field of TQM in healthcare. As the use of TQM in healthcare in developed countries has increased, the number of publications discussing this quality improvement phenomenon has also grown. It is important to periodically assess the recent advances in this field in order to help many hospitals that are searching for ways to change the delivery of patient care through TQM. Although TQM has been extensively researched in the manufacturing sector for many years, now in the healthcare sector there is still significant interest in and need for empirical studies on TQM. Many hospitals are adopting and implementing TQM and its diffusion is on the increase globally (Ehigie and McAndrew, 2005).

There is also a growing consensus that customer satisfaction is an important indicator of healthcare quality and many hospitals are searching for ways to change the delivery of patient care through TQM (Schalk and Dijk, 2005). Therefore, it is imperative that a proper study is carried out to ensure that the

adoption of TQM is a worthwhile initiative in public hospitals. Public hospitals have always been criticized for their poor service quality and that they are not aware of the benefits of adopting and implementing a quality improvement program. Thus this study aims to assess the perceptions of management and employees on the impact of critical TQM practices on the performance of public hospitals in Saudi Arabia.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

Healthcare institutions encounter many challenges such as customer dissatisfaction, increasing cost of health services, limited resources, aggressive competition, increasing sophistication of medical technologies and continuous change in the way medicine is practiced (Ramseook-Munhurrun et al., 2011; Dilber et al., 2005; Ernst, 1994). All of these factors force the health organizations to search for a system that can resolve these problems. Total Quality Management is a system that can cope with all these challenges and resolve most the problems faced by health care services providers (Al-Omar, 2002; Al-Ahmadi, 2000; Ta'amneh, 2001; Al-kahtany, 1993; Diane, 1994). TQM can provide a lot of benefits to healthcare organizations like they have provided in the manufacturing industry in the past. TQM has thus emerged as a potential solution to improve the efficiency and effectiveness of health care delivery and is becoming increasingly important for the successful operation of public hospitals (Ramseook-Munhurrun et al., 2011).

TQM is a holistic management philosophy that emphasizes the involvement of every employee at different levels of an organization to achieve customer satisfaction and achieve organizational goals through continuous process improvement (Demirbag et al., 2006; Saee and Mahmood. 2004; Juran, 1988). TQM principles and techniques have gained the attention and acceptance of growing number of practitioners and academics (Saee and Mahmood, 2004).

The TQM phenomenon has created a profound impact on management that some authors put it as bringing about a second industrial revolution (Noronha 2002; Ross, 1993; Kanji, 1990). It has been said that, of all the inventions,

innovations and initiatives affecting health care organizations worldwide over the past few years, perhaps none has been more influential or wide spread than the Total Quality Management revolution (Foley and Hermel, 2008; Adinolfi, 2003; Dobyns and Crawford-Mason, 1991). TQM has been given continuous attention in industrialized countries such as USA, Japan, and UK, and remained for many years the privilege of the developed world (Hassan et al., 2012). However, only during the last ten years that researchers in developing countries have started to scrutinize TQM practices (Khanna et al., 2010; Satish and Srinivasan, 2010; Al-Swidi and Mahmood, 2012).

Although originated in manufacturing industry, TQM has started during the last three decades to gain increasing acceptance in the service sectors such as healthcare, banking and education (Kaplan et al., 2010; Manivannan and Premila, 2011; Hassan et al., 2012; Irfan et al., 2009). Although TQM promises much for service industries yet it has been little used in healthcare (Øvretveit, 2000).

The extensive review of the literature shows that organizations which have implemented TQM have achieved mixed results. Many empirical studies suggested that the successful implementation of TQM will result in improved employee involvement, improved communication, increased productivity, improved customer satisfaction, and improved competitive advantage (Talib et al., 2010; Kumar et al., 2009; Demirbag et al., 2006; Prajogo and Sohal, 2003; Antony et al., 2002). While other authors argue that, despite the substantial resources invested by many organizations to adapt and implement TQM programs, many of them did not achieve any improvement and some only a little. According to Øvretveit (2000), of those hospitals and services which have implemented TQM, few have had great success and many have found difficulties sustaining their programs. In fact, it has been suggested that the number of successful implementations of TQM programs may be insignificant when compared with the number of failed implementations

(Parry, 1993). Schaffer (1993) on the other hand claims that, later surveys have suggested that over 80 percent of organizations implementing TQM programs have failed to achieve measurable, let alone positive results.

Researchers who explored the unsuccessful TQM efforts in healthcare organizations have identified two main problems that impede successful implementation of TQM. The first was the uncertain definition of TQM, and the second was the inappropriate implementation of TQM (Hansson and Ericsson, 2002). Specifically, due to the presence of a multitude of barriers, many healthcare organizations utilize only a partial implementation of TQM, and hence are unable to achieve continuous and systematic improvement (Nwabueze and Kanji, 1997; Zabada et al., 1998). According to Mosadeghrad (2013), unsuccessful implementation of TQM in healthcare sector can be attributed to the strongly departmentalized, bureaucratic and hierarchical structure, professional autonomy, tensions between managers and professionals and the difficulties involved in evaluating healthcare processes and outcomes. Other barriers to TQM success include lack of: leadership commitment and support; poor leadership and management; insufficient training and education; lack of a quality culture; inadequate resources; and lack of employees' involvement and commitment to TQM implementation (Mosadeghrad, 2013).

Despite this lack of success, many researchers found that TQM is still a very important source for improving the organizational performance of hospitals (Yang, 2003; Eggli and Halfon, 2003; Andaleeb, 2001; Ovretveit, 2001; Kunst and Lemming, 2000; Butler, Leong, 2000; Kenagy et al., 1999; Yasin et al., 1998; Brashier et al., 1996; McAlexander et al., 1994). Swinehart and Green (1995), state that TQM can provide an environment that will focus on quality of patient care and continuous quality improvement at all levels of the organization including the governing body, the administrative, managerial, and clinical areas.

The TQM program can improve hospital performance in terms of increased economic efficiency (i.e., length of stay, costs, and labor productivity), improved clinical outcomes, improved customer satisfaction, and increased market acceptance (Carman et al., 2010). Johnson and Omachonu (1995), maintain that the greatest challenge for top management is to make TQM a part of corporate strategy and to create an organization in which every employee, department and function is linked to the organization's mission and vision.

An extensive literature review of the previous studies on successful TQM shows that researchers have identified different sets of practices that are considered essential to the successful implementation of TQM (Alolayyan et al., 2012; Talib et al., 2010; Saraph et al., 1989; Antony et al., 2002). Such TQM practices have been documented and empirically analyzed in measurement studies and in studies that have investigated the relationship between TQM practices and organizational performance (Alolayyan et al., 2012; Talib et al., 2010; Prajogo and Sohal, 2003; Terziovski and Samson,1999).

This chapter will discuss the previous studies, the origin of TQM, its definition and development in healthcare, the perspectives of quality management pioneers both in industry and healthcare, and finally the TQM practices and how they relate to hospital performance and accreditation.

2.1 PREVIOS STUDIES

2.1.1 Saudi Studies

Total Quality Management philosophy is relatively new to Saudi Arabia. There is little research in the field of Total Quality Management in the country. Some of these studies are as follows:

Albejaidi (2010) studied the healthcare system in Saudi Arabia and principally focused on its level of development, structure, implementation of TQM and the future challenges. The study identified a number of obstacles that do not allow the effective implementation of TQM in the healthcare services. These obstacles include: lack of special funds for quality, lack of quality management professionals and qualified heath workforce and the lack of an established and efficient National Health Information System (NHIS).

Al-Awa (2011) investigated the impact of hospital accreditation on patients' safety and quality indicators at King Abdulaziz University Hospital in Jeddah, Saudi Arabia. He found that, accreditation has generated a positive impact on the quality of patient care and patient safety.

Alharbi and Yusoff (2012) investigated the relationships between leadership styles (transformational leadership style, transactional leadership style and laissez-faire leadership styles), and quality management practices in public hospitals in Saudi Arabia. They used a survey method in a sample of 144 hospitals out of the total of 225 MOH hospitals in Saudi Arabia, located in 21 health regions across the country. Results revealed that the transformational leadership style has a significant, positive relationship with quality management practices.

Al-Qahtani et al., 2012, investigated the quality of healthcare services provided by accredited and non-accredited hospitals and the potential contributing factors affecting the quality of care. They used two outcome measures: (i) quality of healthcare services; and (ii) the potential contributing factors affecting the quality of care. They concluded that, accredited hospitals perform favorably compared with non-accredited hospitals in almost all quality practices.

2.1.2 Other Studies

Maliki et al. (2010) explored the impact of total quality management practices on non-financial performance of small and medium size enterprises (SMEs). The investigated determinants included top management commitment, customer focus, supplier relationships, employee involvement and empowerment, work environment and benchmarking. Their findings indicate that TQM practices have a positive impact on performance of SMEs.

Ramseook-Munhurrun et al. (2011), assessed management and employees perceptions on the critical factors influencing effective TQM adoption in public hospitals in Mauritius. The managers were top management in-charge of the different departments in the hospital, while employees were the medical staff, other health care professionals and administrative staff. They used eight TQM principles: teamwork; customer satisfaction; continuous quality improvement; employees' empowerment; top management commitment; training; organizational culture; and service process. They used a questionnaire as data collection tool. Their findings showed that the TQM practices have a significant impact on the management of public hospitals.

Ali et al. (2012) explored the extent of applying TQM on the hospital performance in the Jordanian hospitals. They used eight TQM principles: Leadership, Employee Management, Information Analysis, Training, Customer Focus, Continuous Improvement, Process Management and Supplier management. Their findings revealed a significant and positive relationship between the Total Quality Management (TQM) practices and hospital performance in the Jordanian context.

Irfan et al. (2012), measured the impact of TQM practices on operational performance of public hospital in Pakistan using a questionnaire with fourteen

TQM practices. The results showed a significant positive impact on TQM implementation and also on operational performance in terms of increased flexibility, improved quality of services, reduction in service time and effective diagnostics.

2.2 ORIGIN OF TOTAL QUALITY MANAGEMENT (TQM)

It can be argued that many of the TQM practices were being applied by organizations before the TQM movement appeared; consequently, it is not easy to establish the exact date of birth of the term TQM. However, many authors in this field believe that, Total Quality Management (TQM) originated in manufacturing industry from the thoughts and practices pioneered by quality management experts such as Deming, Juran, Crosby, and Ishikawa (Khan, 2010).

Deming's 14 points, Juran's trilogy and 10 steps, Crosby's 14 steps to quality improvement, are essential elements of a quality strategy (Brocka and Brocka, 1992). The literature shows that, Deming is the most popular of all quality gurus and the founder of the TQM philosophy. Deming is US statistician who worked in Japan in the 1950s and became more prominent outside Japan from the late 1980s and from the early 1990s in health care (Gann and Restuccia 1994; Schiff and Goldfield 1994; Trisolini 2002; Grol et al. 2007). Deming recognized that putting quality first could reduce costs and improve productivity (Roberts 1993). Deming's approach emphasized continuous ongoing improvement and enabling staff to participate in producing a quality product or service (Schiff and Goldfield 1994).

The adoption of TQM has been attributed to the search by organizations for a broader solution than the earlier 'quality circles' which lacked the continuous involvement of managers and failed to address issues of interdepartmental processes (Roberts 1993). Its increasing use in US health care organizations is said

to result from increased consumerism, competition and institutional pressures on organizations (e.g. from accrediting bodies and from other hospitals) and from the growing emphasis in the health care literature on the need to move from quality assurance to industrial quality management approaches (Berwick 1998; Bigelow and Arndt 1995; Gann and Restuccia 1994).

2.3 DEFINITION OF TOTAL QUALITY MANAGEMENT (TQM)

2.3.1 Definition of Total Quality Management in Industry

The terms Total Quality Management (TQM), Continuous Quality Improvement (CQI) and Quality Improvement (QI) are often used interchangeably in the healthcare quality literature (Gustafson and Hundt 1995). However, some authors maintain that, what was originally called total quality management (TQM) in the manufacturing industry evolved into continuous quality improvement (CQI) as it was applied to healthcare administrative and clinical processes (Sollecito and Johnson 2012). Indeed some authors argue that in practice TQM and CQI have become not so much specific interventions as more general approaches to improving quality: different organizations use different approaches under an overall heading of TQM/CQI (Shojania and Grimshaw 2005).

To keep with previous editions and to focus on the unique challenges within healthcare, the term TQM will be used primarily throughout this research as an umbrella term which includes CQI.

A global definition of quality does not appear to exist, as different definitions are appropriate under different circumstances and different writers place a different emphasis on different aspects of quality. According to Lau and Anderson, defining Total Quality Management is quite problematic because the most serious problem with TQM is the absence of a uniform definition (Lau and Anderson, 1998). The

term quality is open to a range of interpretations and the formation of a standard definition remains elusive (Dale and Plunkett, 1990**)**.

Despite the large amount of literature on quality issues, there is surprisingly no consensus definition of TQM. When asked by Journal of Organizational Change Management, Deming refused to define TQM indicating that TQM had many meanings for researchers (Boje, 1993). Crosby, argues that the word quality should have no qualifiers. He feels that quality 'control' and quality 'assurance' help to disguise a simple message that 'every time you see the word "quality", read conformance to requirements'. That is why TQM has been defined and represented in a variety of ways, for example: fitness for use (Juran, 1979**);** conformance to requirement (Crosby, 1979); a way of managing an organization (Feigenbaum, 1983); meeting customer requirements (Oakland, 1989**);** a search for excellence, creating a “right first time” attitude, zero defects and delighting the customer (Moore and Brown, 2006).

TQM is an organization-wide process, where employees are motivated and empowered to do the right things, right first time and every time, to reflect on what they do and to improve what they do (Mohanty and Behera, 1996). TQM is a systematic approach to the practice of management, requiring changes in organizational processes, strategic priorities, individual beliefs, individual attitudes, and individual behaviors (Spencer 1994). TQM is both a philosophy and a set of guiding principles for managing an organization (van der Wiele et al. 1997).

The problem in defining TQM results in another problem of establishing a clear-cut boundary to distinguish “TQM” from “not TQM”, and what belongs to TQM and what does not. Indeed some authors (e.g. Shojania and Grimshaw 2005) argue that in practice TQM has become not so much a specific intervention but a

more general approach to improving quality and different organizations use different approaches under an overall heading of TQM.

2.3.2 Definition of Total Quality Management in Healthcare

The starting point in every initiative taken to improve quality and outcomes in health systems is the understanding of what is meant by 'quality'. Without this understanding, it would be impossible to design the interventions and measures used to improve results (WHO, 2006).

There are many definitions of quality used in relation to health care and the concept depends on whose perspective is taken (Chin and Muramatsu 2003; Currie et al. 2005). Different professional groups have different views on what constitutes quality or a good outcome of health care (Degeling *et al.* 1998; Firth-Cozens 2001; Davies et al. 2006). For example, medical staff may define quality patient care as care that leads to control or resolution of illness and improvement of function (Attree 2001; Degeling *et al.* 2001), and can tend to disregard patient satisfaction as a specific marker of quality care (Newman and Pyne 1996). Nurses, in contrast, may place greater emphasis on achieving patient satisfaction, on meeting the patient's psychosocial and physical care needs, and on the relationship between patient and health professionals (Attree 2001; Degeling *et al.* 2001).

Equally problematic are consumer definitions of quality in health care, whether as patients, or their families, or payers (Degeling *et al.* 1998; Firth-Cozens 2001). However, understanding different perspectives about quality in healthcare does not prevent success in achieving quality as long as critical practices and concepts of quality are identified, understood, and used.

Deming (1994) said, "a product or service possesses quality if it helps somebody and enjoys good sustainable market" (Deming, 1994). In healthcare, it refers to the care that meets the expectations of patients and supports the competitive position of the organization (Laffel and Blumenthal, 1989). Juran and

De Feo (2010), in their book "Juran's Quality Handbook", defined quality as both: “product features that meet customer needs and freedom from deficiencies” (Juran and De Feo, 2010). In healthcare “freedom from deficiencies” means freedom from any avoidable intervention required to achieve an equivalent patient outcome (Brown, 2012).

Total Quality Management is a continuous effort by all the members of an organization to meet and exceed the needs and expectations of the patients and other customers. The goal is to not merely meet standards of care or to see them as ceilings to which we strive, but to exceed these standards (Al-Assaf and Schmele, 1993; MxGlynn, 1996). Another widely quoted definition of quality health care is the one formulated by Maxwell (1984), who identified six different aspects comprising quality health care: (1) access to service; (2) relevance to need (for the whole community); (3) effectiveness (for individual patients); (4) equity; (5) social acceptability, and (6) efficiency.

The Agency for Healthcare Research and Quality (AHRQ) defines quality in health care as "doing the right thing, at the right time, in the right way, for the right person and having the best possible results (AHRQ, 2001). The right things are the standards of care which are created when experts are able to understand what the right things are and how they are best achieved. So quality can be said to be, at least in part, compliance to standards. However, when recipients define quality, they judge whether or not the right things are done to meet their own needs and expectations.

The US Institute of Medicine (IOM) collected and analyzed over 100 definitions of quality of care and came to a consensus definition: healthcare quality is the “degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (IOM, 1999). According to Buttell et al. (2008), this definition is the

most recent, the most durable and the most widely accepted and cited definition of quality of health care. The definition incorporates treatment, prevention and measurement. ‘Degree” implies measurement of performance, “desired” health outcomes are those sought by the recipients of the services, “current professional knowledge” refers to ever-changing technical standards of care (Buttell et al., 2008).

2.4 DEVELOPMENT OF QUALITY IN HEALTHCARE

Two main activities in healthcare quality improvement are evident in the literature, namely those focusing on clinically-led improvement and those concerned with quality from a management perspective. Historically, these have often been treated as discrete, parallel activities within an organization, with the resulting risk of misaligned objectives, duplication of effort and a lack of focus on improving both clinical evidence and the process of care (Berwick 2008).

Clinical quality improvement is an interdisciplinary process designed to raise the standards of the delivery of preventive, diagnostic, therapeutic, and rehabilitative measures in order to maintain, restore or improve health outcomes of individuals and populations (IOM, 1990). The challenge for healthcare organizations is to improve both clinical and managerial quality, whilst also recognizing their interaction (Boaden et al. 2008).

In the past, quality was defined by hospitals as an adherence to the predetermined standards, which has started as a peer review in 1912 by the American College of Surgeons ((Roberts et al., 1987). The Joint Commission on Accreditation of Hospitals, which was established in 1950, also adopted the peer review process for evaluation (Mahgerefteh et al., 2009). In the 1970s, Quality Assurance (QA) appeared as an approach that focuses on the structure, the process and the outcome.

TQM and QA differ in that QA focuses on the problem solving as a reactive system (Ali et al., 2012). QA in healthcare focused on monitoring two key elements of patient care; the 'WHAT' of care and the "WHO' of care. The 'what' of care monitors the type of care provided to the patient (Brown, 2012). It is about doing the right things, the right service to the right patient at the right time and place. The focus is on the performance of the individuals. If there is a medical error, the individual who provided the care; usually a physician, nurse, or pharmacist; is held responsible for the medical error. Quality Assurance is solely the responsibility of the quality department in the hospitals, which in its turn also use inspection that focuses on meeting the criteria (Al-Assaf and Schmele, 1993; MxGlynn, 1996).

The TQM is freeing the move to improvement in organization performance as it concentrates on improving systems and processes most of the time and individual practitioner does not have to be the primary focus (Ali et al., 2012). According to Al-Assaf & Schmele (1993); Diane, (1994) deeming anticipated that 85% of work errors are referred to as system fault (common causes) that is virtually, the responsibility of the management while less than 15 % are referred to individuals' errors, (special causes) which are the responsibility of the individuals. Organizations may still monitor the 'WHAT' and the 'WHO' but the emphasis is on the 'HOW' and the end 'RESULT'. The 'HOW' of care means the focus is on the patient care processes such as systems, processes, policies, procedures, clinical pathways, practice guidelines and communication, while the 'RESULT' of care means the patient care outcomes such as mortality, morbidity and quality of daily living (Brown, 2012).

TQM is seen as a paradigm shift from "Quality Assurance" that have traditionally, focused on physicians (alone) and changing physicians' behavior by: (i) assessing or measuring performance; (ii) determining whether the performance

conformed to standards and clinical practice guidelines; (iii) improving performance when standards are not met (Al-Assaf and Schmele, 1993; MxGlynn, 1996). Underlying this approach is the "Bad Apples" view: "find the bad apple and get rid of it." Such an approach to measuring and insuring quality has, understandably, led to much resentment and focuses on meeting minimal standards (then stopping the assessment) rather than on improvement of quality as a continuous activity and "ethic" ((Al-Assaf and Schmele, 1993; MxGlynn, 1996).

A more mature and developed approach than Quality Assurance (QA) alone is Total Quality Management (TQM). It uses Quality Assurance (QA) as its first step and seeks to implement the results of QA into a more comprehensive and continuous effort to improve Quality (Brown, 2012).

2.5 TOTAL QUALITY MANAGEMENT PIONEERS

Review of the literature reveals that TQM can be best defined and understood by two ways: (i) by referring to the work of a variety of individuals who have influenced the development of quality management; and (ii) by a list of practices/constructs or critical success factors held to be essential for its successful implementation.

2.5.1 Total Quality Management Pioneers in Industry

There are certain individuals who have influenced the development of quality management and they are often honored as “quality gurus” based on their views and prescriptions about modern quality management (Dean and Bowen 1994; Anderson et al., 1994a; Hackman and Wageman 1995; Plenert 1996; Lau and Anderson 1998). They viewed *the 'process'* as a sequence of activities and communications that accomplished a service for a client or customer; hence organizations must focus on improving the process to improve the quality of the outcome (Gaucher & Coffey, 1991). In the following section, the contribution of

the most popular gurus will be briefly discussed, namely: Shewhart, Deming, Juran, Crosby, and Ishikawa**.**

2.5.1.1 Shewhart

In the 1920s, Walter Shewhart, a statistician at Bell Telephone Laboratories, developed the Shewhart cycle, known as Plan, Do, Check, Act (PDCA). This four-step process is designed to continuously improve quality. (1) Plan**:** pose theories on how to improve the process and predict measurable outcomes; (2) Do**:** make changes on an experimental, pilot basis; (3) Check**:** measure outcomes compared to predicted outcomes; and (4) Act: implement the changes on a broad scale (Gaucher & Coffey, 1991). The PDCA cycle was later adapted by Deming as the Plan, Do, Study, Act (PDSA) cycle; therefore, it is also referred to as the 'Deming Cycle', or the 'Deming Wheel'.

2.5.1.2 Deming

W. Edwards Deming is probably the most famous of the industrial quality "gurus." A statistician with doctorates in mathematics and physics, he ultimately became the "philosopher" of quality and the learning organization (Merry, 1992). Deming proposed replacing traditional management techniques with a statistically controlled management process to determine when to—and when not to—intervene in a process. Statistical process control (SPC) techniques allow management to determine a range of random variation that always occurs in a process.

SPC describes two types of causes of random variation: common cause and special cause. Common cause problems are inherited and rooted in basic processes and systems. Special cause problems stem from isolated occurrences that are outside the system. Deming said that 85% of the problems detected are process- or system-related, whereas 15% are traceable to individuals; this is known as the "85/15 theory" (Deming, 1986). Deming's management philosophy is based on his

famous 14 points for business to be competitive. *See appendix 5.* There are many barriers to successful implementation of TQM which Deming categorizes as "deadly diseases" and "dreadful diseases". *See appendix 6.*

2.5.1.3 Juran

Joseph Juran's background was in engineering and law. He followed Deming to Japan after World War II, emphasizing the key role of top organizational leadership and the quality process in the organization (Merry, 1992). In the book *'Juran on Leadership for Quality'* (1989), Juran states that quality is "product performance that results in customer satisfaction; freedom from product deficiencies which avoid customer dissatisfaction." This concept is known as *fitness for use* and is explained in 'The Juran Trilogy'. Juran states that the cost of quality accounting means that there is a break-even point of less than 100%. Beyond a certain point, the cost of providing quality exceeds the value of the incremental improvement in quality.

Juran's Trilogy (quality planning, quality control, and quality improvement) is analogous to certain familiar financial processes. Quality planning is equal to budgeting, quality control (sometimes called *measurement*) is comparable to cost control, and quality improvement relates to cost reduction and margin improvement (Gaucher & Coffey, 1991). *See appendix 7.* Juran also identified 14 steps for quality management. *See appendix 8.*

2.5.1.4 Crosby

In the 1970s and 1980s, Philip B. Crosby developed an important concept known as: *'the cost of poor quality'*. His work documented that high quality (what he terms "conformance to expectations") is actually less costly than the waste and rework that characterizes poor-quality processes. Crosby demonstrated conclusively that investment in quality can offer an enormous financial return (Merry, 1992). There are five stages of management maturity identified by Crosby

in his book, *Quality Is Free* (1979): (1) Uncertainty, when an organization is characterized by the statement, "We don't know why we have quality problems."; (2) Awakening; (3) Enlightenment; (4) Wisdom; (5) Certainty, reserved for organizations in which top management proclaims, "We know why we don't have quality problems." The mature company is equipped to initiate a quality improvement program (Hunt, 1992). Crosby identifies 14 steps to improve quality and to move the company toward "certainty". *See appendix 9.*

2.5.1.5 Ishikawa

Kaoru Ishikawa was one of Deming's early Japanese hosts and inventor of the cause-and-effect, or fishbone diagram and is credited with using the term *total quality control* to imply not just the operational but also the total organizational commitment (marketing, finance, research) needed to fully actualize all components of the modern quality-committed organization. The preferred American term is *total quality management* (Merry, 1992).

2.5.2 Total Quality Management Pioneers in Healthcare

Throughout the history of quality in healthcare, a number of prominent clinicians have challenged traditional ways of thinking and pioneered developments in medical quality evaluation and improvement (Kenney 2008). They have made significant contributions to the early improvement of healthcare delivery, including the development and implementation of a variety of improvement strategies. The following section includes a small sample of these individuals and their contribution to the progress of quality in healthcare.

2.5.2.1 The First Era: Nightingale, Codman, and the American College of Surgeons

In 1863, that patients seemed to improve better in some London hospitals than in others, Florence Nightingale was the first to call for systematic inquiry into the

nature of care processes that might be related to this outcome variability. Although there is little evidence that Nightingale's quality vision came to fruition during her lifetime, Boston surgeon Ernest Codman's early-20th-century efforts had more direct impact. Also observing variability in patient outcomes among several hospitals, Codman called for a systematic evaluation process with a view toward improving care (Codman, 1916, 1972). Although his efforts met with considerable resistance, Codman's ideas were embodied in the founding of the American College of Surgeons in 1913. This body set about the task of establishing quality standards.

In 1917, the college established a five-part "minimum standard," and the Hospital Standardization Program was born (Roberts et al., 1987). The program was based on Codman's end result system of standardization in which hospitals would track every patient it treated long enough to determine whether the treatment was effective. When treatment was found to be ineffective, the hospital would attempt to determine why so that similar cases could be treated successfully in the future.

2.5.2.2 The Second Era: Donabedian, and the Joint Commission's Monitoring and Evaluation Process

Accreditation standards evolved slowly through the 1950s and early 1960s. At the academic level, the University of Michigan's Avedis Donabedian, MD, examined what research existed, formulating a theoretical framework for patient care evaluation (Donabedian, 1980). Donabedian was one of the first theorists to recognize that the TQM philosophy could be applied to healthcare services. He is best recognized for his "structure, process, outcomes" model of quality evaluation. This model suggests the importance of relating healthcare structures (the qualifications of practitioners and facilities/technology available to them) and

processes (the activities involved in prevention, diagnosis, and treatment) to outcomes (how patients actually fare as a result of their care).

In the past, Joint Commission on Accreditation of Healthcare Organizations standards mainly reflected the structure and process elements of this model. Surveyors reviewed the structures and processes. They assessed hospital plans and technology, qualifications of clinicians and administrators, and organizational structures against the annually updated requirements contained in the *Accreditation Manual for Hospitals*. Specialized standards for behavioral health and other services were developed as well. From documentation and discussion the surveyors inferred process. They reviewed minutes and interviewed clinical and administrative leaders to ascertain whether designated individuals were following proper quality evaluation processes.

2.5.2.3 The Third Era: Berwick, Batalden, and James

The names of Donald Berwick, MD, Paul Batalden, MD, and Brent James, MD, stand out in the field of healthcare quality management. Like many of their colleagues, these physicians were dissatisfied with traditional healthcare quality assurance (QA) practices. These pioneering physicians, however, went beyond a mere critique of existing QA. Both Berwick and Batalden researched the industrial methods publicized by the Japanese experience. Arising from this research, Berwick's article describing healthcare QA as based upon the "Theory of the Bad Apples" has become a classic (Berwick, 1989). Among his many contributions, Batalden translated Deming's famous 14 points into a healthcare context (Batalden & Buchanan, 1989).

In 1987, these two physicians played key roles in linking with the Juran Institute and a variety of industrial quality consultants to create the National Demonstration Project on Quality Improvement in Healthcare. This multiyear project and its original 21 forward-looking healthcare organizations conclusively

demonstrated the applicability of TQM processes to healthcare (Berwick et al., 1990).

James, of the Intermountain Health System, was also a pioneer in applying quality improvement processes directly to patients and clinical outcomes. The success of James and his team has been measured not only in improved results in a single hospital, but also across the entire multihospital system (James, 1990). As more experience has been gained in applying TQM to healthcare, the list of visionary leaders, both clinical and managerial, continues to grow.

In 1991, Berwick established the Institute for Healthcare Improvement (IHI), which began driving improvements in healthcare by supporting national projects that focus on safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity (IOM, 2000). One approach was to set up collaborative involving many organizations trying to affect the same issue and then use rapid cycle improvement efforts to implement change. A major benefit of this approach is that the collaborating organizations share their experiences and improvements spread quickly. Projects that have been initiated include improvements in chronic care, critical care, patient safety, and end-of-life care.

2.6 TOTAL QUALITY MANAGEMENT PRACTICTES

The extent review of the previous empirical studies on TQM showed that researchers have suggested different sets of practices (also known as principles, constructs or critical success factors (CSFs) in the literature) that are considered essential to the successful implementation of TQM (Alolayyan et al., 2012; Talib et al., 2010; Al-Marri *et al.*, 2007; Prajogo and Sohal, 2003; Antony *et al.*, 2002; Sureshchandar *et al.*, 2002; Sila and Ebrahimpour, 2002;Terziovski and Samson, 1999; Saraph *et al.*, 1989).

The literature review also revealed that researchers used similar description for most of the TQM practices (CSFs) but under slightly different names or labels (Talib et al. 2010). Such TQM practices have been documented and empirically analyzed in measurement studies and in studies that have investigated the relationship between TQM practices and performance (Ali et al., 2012; Talib et al., 2010).

TQM adoption and implementation requires changes in structure, system, and process as a necessary precondition to achieve improved business performance and changes in employee behavior (Yang, 2003). It is therefore important to identify the critical factors that influence the success of TQM adoption and implementation in service organizations (Taylor and Wright, 2003).

TQM constructs can be defined as “the critical areas which organization must accomplish to achieve its mission by examination and categorization of their impacts” (Oakland, 1995). Boynton and Zmud (1984), defined TQM constructs as: "those vital factors that must go well to ensure success for an organization, and therefore, they represent those managerial or organizational areas that must be given special and continual attention to bring about increased performance. On the other hand, Brotherton and Shaw (1996) defined CSFs as “the essential things that must be achieved by the company or those areas that will produce the greatest competitive leverage”. They emphasize that TQM constructs are not objectives, but are the actions and processes that can be controlled by management to achieve the organization's goals. Alternatively, it can be said that the CSFs are those vital few requirements that must be present in an organization to be able to attain its vision, and to be guided towards its vision (Wali *et al.*, 2003).

Hence, better management of such TQM practices will result in improved quality and increased financial performance for the organization. The importance of defining the TQM constructs for implementation is to increase the success rate,

reduce costs, and prevent disillusionment with continuous improvement programs (Fryer *et al.*, 2007).

The advantages of total quality management are to increase profit, to satisfy customer, to develop market share, and to create competitive advantage (Rad, 2006). However, sometimes TQM implementation cannot end with these advantages (Seetharaman et al., 2006). This is why critical practices of TQM implementation should be investigated for each country and industry separately. This idea is enforced when many of the literatures were reviewed. According to review of literatures in TQM practices, the majority of the empirical researches were conducted in countries such as USA, Canada, and UK. However, there are no sufficient studies in developing countries (Thiagarajan and Zairi, 1998), and especially among the Middle East countries (Najeh and Kara-Zaitri, 2007). According to Al-khalifa and Aspinwall (2008), the level of awareness and knowledge of constructs of TQM has increased considerably during last decade.

Many studies have investigated such constructs of TQM implementation. Some constructs such as leadership, teamwork, and customer focus were widely addressed by Karuppusami and Gandhinathan (2006) and Al-khalifa and Aspinwall (2008). Some other constructs like top management support, training and education, process management, supplier quality management, and customer centric were investigated by Saraph *et al.*1989; Black and Porter 1996; Motwani 2001; Antony et al., 2002; Sila and Ebrahimpour 2005). These studies were carried out through many disciplines involving review of the literature, case studies and empirical researches (Karuppusami & Gandhinathan, 2006)**.**

One of the earlier empirical studies by Saraph *et al.* (1989) have used data obtained from 20 manufacturing and service industries collected in the region of USA to identify the practices of TQM. They identified eight factors: top management leadership, role of quality department, training, product design,

supplier quality management, process management, quality data reposting, and employee relations (Saraph et al., 1989). A review of several studies that adopted and replicated Saraphs' instrument of TQM practices in United States (Saraph et al., 1989), India (Motwani et al., 1994), in United Arab Emirates (Badrie, Davies, & Davies, 1995; Danny & Vincent, 1999) all provided strong evidence that the measures are judged to be both valid and reliable across nations.

Samat *et al.*, (2006) extracted seven practices from 25 TQM practices as prescribed by Sila and Ebrahimpour, (2003). They are: management support and commitment, employee involvement, employee empowerment, information and communication, training and education, customer focus and continuous improvement. A recent study conducted by Talib and Rahman (2010) identified nine important practices of TQM in their literature review on implementation of TQM in service industries, they are: top-management commitment, customers focus, training and education, continuous improvement and innovation, supplier management, employee involvement, employee encouragement, benchmarking, and quality information and performance.

Talib et al., 2010, applied a Pareto analysis quality tool to sort TQM constructs in descending order according to the frequencies of their occurrences obtained from the present studies. The top eight constructs in their list of *25 "vital few"* are: top management commitment, customer focus and satisfaction, training and education, continuous improvement and innovation, quality information and performance measurement, supplier management, employee involvement, and process management (Talib et al., 2010).

While it is true that there exists other sets of TQM CSFs and in future, more factors could be developed or defined differently, but this set appears to capture most of the important aspects of effective TQM implementation in service industries as recommended by leading researchers and practitioners.

This study uses eight main practices of TQM implementation which were the top eight of the list of 25 vital few proposed by Talib et al., 2010. The same eight practices were extracted from the list of 18 most comprehensive TQM practices elaborated by Sila and Ebrahimpour (2003). These eight practices appears to capture most of the important aspects of effective TQM implementation in service industry as recommended by leading researchers and practitioners (Talib et al., 2010; Talib and Rahman 2010). They were selected due to their relation to and support in all service organizations particularly in hospitals (Alolayyan et al., 2012). These practices comprises: Top management support and leadership, employee management which involve employee involvement and employee empowerment, information and analysis, employee education and training, customer focus, continuous improvement and process management.

Similarly, Ali et al., (2012) in their study, used the same eight practices of TQM implementation in Jordanian hospitals, Samat et al. (2008) adopted seven main practices of TQM implementation; while Sadikoglu and Zehir (2010) adopted eight main practices where all three studies emphasize on the same practices which are earlier expressed by Talib et al., (2010), Talib and Rahman (2010), Sila and Ebrahimpour (2003).

By following the literature, this study focuses on eight TQM constructs. These eight constructs are mainly drawn from the findings of the researches conducted by Sila and Ebrahimpour (2003); Samat et al. (2008), Talib et al., (2010), Talib and Rahman (2010) and Sadikoglu and Zehir (2010). Moreover, these practices are considered as the most comprehensive practices for measuring the impact of TQM on hospital performance, therefore, making them suitable for addressing the specific research objectives (Alolayyan et al., 2012; Talib et al., 2010).

2.6.1 Leadership

"Of all the things I've done, the most vital is coordinating the talents of those who work for us and pointing them towards a certain goal."

Walt Disney

Leadership is a complex phenomenon that depends on a process of influence, whereby people are inspired and motivated to work towards group goals (Bennis and Nanus, 1985; Kotter, 1990; Gosling and Mintzberg, 2003). It is intentional influence by one person or group over other people to make the changes necessary to achieve results (Yukl, 2002). Northouse (2004) identified four themes of leadership: (i) leadership is a process; (ii) leadership involves influence; (iii) leadership occurs in a group context; and (iv) leadership involves goal attainment. Soichiro Honda, founder of the Honda Motor Company, described "The Sacred Obligations of Senior Leadership" this way: (i) Vision: what will we be?; (ii) Goals: what four or five key things must we do to get there?; (iii) Alignment: translate the work of each person into an alignment with the goals (Costello and Garrett, 2008). Alignment is a necessary condition for organizational effectiveness. According to Brown (2012), "alignment" in healthcare means that all the systems, functions, processes, process steps, departments, units, and people in the organization are working together, in synchrony with mission, vision, values, and strategic directon, to serve the key customer – the patient.

Leadership emerged as the most essential TQM practice in studies on critical success factors of TQM implementation (Das et. al., 2011; Idris and Ali, 2008; Jitpaiboon and Rao 2007; Ju et al., 2006; Black and Porter, 1996; Anderson, et. al., 1994; Saraph, et. al., 1989;). Previous studies emphasized the critical role of leadership in driving overall TQM implementation in the organizations (Zakuan et al., 2010; Flynn et al., 1994; Teh et al., 2008; de Jong and den Hartog, 2007).

Leadership provides guidance and direction for the entire organization to adopt and implement any quality improvement program (Teh et. al., 2009). According to the Central Board of Accreditation for Health Care Institutions (CBAHI) 2011, it is the responsibility of the leadership of the organization to develop the mission and provide adequate resources to fulfill this mission.

Many researches maintain that TQM practices are positively related to top management support and that the competent leader would be able to execute the important critical factors of TQM implementation more effectively (Das et. al., 2011, Idris and Ali, 2008; Idris et. al., 2003; Jitpaiboon and Rao, 2007). Sila and Ebrahimpour (2005) identified leadership and information and analysis as the two factors that act as the foundations on achieving favorable business results. Teh et al. (2008) noted that senior leaders guide the organization and assess the organizational performance. Kanji (2001) asserted that leadership commitment is the fundamental driver of business excellence. Further, studies showed that leadership commitment significantly affects the quality performance and drives towards organizational performance (Arumugam et al., 2008; Prajogo and Brown, 2004; Zakuan et al., 1997).

Leadership role at all levels in the organizations is critical in creating a healthy working environment which motivates the employees for gaining the sustainable advantages. An appropriate style of leadership determines the organizational capability to efficiently and effectively utilize its resources to achieve the desired end. This is consistent with the definition established by Amit and Schoemaker (1993), which defines capabilities as the capacities to organize resources to affect a preferred result through mixing intangible and tangible resources over time.

Competent leaders would be able to execute the important TQM practices more effectively (Das et. al., 2011, Idris and Ali, 2008; Idris et. al., 2003). Charismatic leaders create workers' trusts, initiate improved performance, enhance performance

and shift companies culture prior to and while adopting TQM (Ooi, 2007a; Ugboro and Obeng, 2000). Mayfield et al. (1998), reported significant relationship between a leader's use of good communication skills (direction-giving, relationship-building and cultural transmission) and employee performance and satisfaction. Jitpaiboon and Rao (2007) further show that all TQM practices are positively related to internal and external performance and top management support has had the highest impact on performances. Several studies show that TQM implementation requires a long-term leadership commitment for several years in order to achieve successful results (Laohavichien et al., 2009).

2.6.2 Training and Education

"Quality begins and ends with education."

Kaoru Ishikawa

Training and education refers to actions taken by the organization in the efforts to stimulate job involvement, facilitate the expertise updating, lead the feeling of ownership, welfare and benefits, higher devotions towards the institutions, and strengthen the organization's competitiveness (Acton and Golden, 2002). Training is a very important tool for promoting and developing skills related to an organization's beliefs and values to change to a culture that places high value on quality. Once management has the skills to lead the TQM process, the rest of the organization should be trained to ensure a systematic, integrated, consistent organization-wide effort (Rad, 2005).

Providing training to employees in problem solving skills is one of the most important activities for organizational climate change (Taylor and Wright, 2003). TQM advocates showed that job-associated proficiency can be preserved after a while by constant training and enhancement program not only in practical parts of the job, but also related to quality understanding and expertise (Deming, 1986;

Juran, 1989). Extensive quality training provided to employees is critical factor in the implementation of TQM (Al-Zu'bi and Judeh. (2011).

According to Talib and Rahman, training and education spread the knowledge of continuous improvement and innovation in service process to attain full benefits and business excellence. They reported the critical role of training and education in maintaining high quality level within the service industry Talib and Rahman (2010). Adawiyah and Pramuka asserts that an emphasis on continuous learning and improvement, induces a positive culture where there is sufficient behavioral modification to warrant a sustainable TQM climate (Adawiyah and Pramuka 2012). Further, the research on TQM also found a positive correlation between training and education, and organization performance (Reed *et al.*, 2000; Vermeulen and Crous, 2000).

2.6.3 Employee Management

"It is easy to get the players. Getting them to play together, that is the hard part."

Casey Stengel

Review of the literature shows that, employee management is explicitly emphasized in most studies in TQM with different labels and terms, such as people management, employee involvement and empowerment, employee focus, employee engagement, and employee encouragement (Talib et al, 2010; Ramseook-Munhurrun et al. 2011; Adawiyah and Pramuka 2012; Miyagawa and Yoshida 2010 Das et al., 2006; Zhang et al., 2000; Tari, 2005; Ramasamy, 2005). TQM requires total management commitment to ensure employees engagement in quality work culture and hence rendering quality services to the customers (Huq, 2005; Schalk and Dijk, 2005).

Deming claimed that involvement and participation of all employees at all level in the organization is critical to improve the quality of the current and future

product or service (Deming 1986). Employees are the strength of the organization and the prime contributors to its success. When involved in quality improvement processes, decision making processes, and policy making issues, employees can use their expertise and knowledge to make significant contributions to improve their work areas (Sadikoglu and Zehir, 2010; Ooi *et al.*, 2007a). Their suggestions could relate to improvements in the job, the product, the service, the work atmosphere or the organization as a whole (Schalk and Dijk, 2005). Miyagawa and Yoshida (2010) conclude that employee involvement in the TQM strategy has a significant effect on organizational performance in the areas of increased productivity, market share, profit and competitiveness.

Deros *et al.* (2006) reported that employee management is one of the critical practices for improving business and management processes. Successful implementation of total quality management depends heavily on changes in employee attitude and activities (Rad, 2005; Huq, 2005; Yang, 2003). Another study by Sanchez-Rodriguez *et al.* (2006) noted that management of employees was positively associated with improved operational performance. Yang (2006) further concluded that employee management as TQM practice significantly correlated with customer satisfaction which is also supported by Sit *et al.* (2009).

Several studies have emphasized on the need of effective and efficient employee management as a key tool of TQM implementation in services sector (Josuh et al., 2008; Bayraktar et al., 2008; Malek and Kanji, 2000; Rosa et. al., 2007). Among the issues that were stressed by quality gurus are employee empowerment, employee encouragement, reward and recognition, training and development, communication and team work. Without clear support and contribution of the employees, a successful TQM implementation cannot be accomplished (Josuh et al., 2008)..

Teh et al., (2009) focused on employee empowerment for successful implementation of TQM. According to Xerox Corporate Management Institute, employee empowerment is defined as "an organizational state, where people are aligned with business direction and understand their performance boundaries, thus enabling them to take responsibility and ownership while seeking improvements, identifying the best course of action and initiating steps to satisfy customer requirements" (Ramasamy, 2005). Teh et al., (2009) found a positive relationship between empowerment and role conflict.

Das et al., (2006), Tari, 2005, and Zhang et al,. (2000) focused on employee encouragement such as rewards and recognition that motivates employees to perform and in turn influence customer satisfaction (Das et al., 2006; Zhang et al., 2000; Tari, 2005). Yusuf et al., (2007) reported that employee encouragement is positively related with organization performance and employee satisfaction. Schneider and Bowen (1995), found that employee encouragement gives the right direction to work force and it is an essential practice in public dealing industries such as healthcare (Schneider and Bowen, 1995).

Ooi et al., (2007) focused on teamwork as a critical practice that provides an atmosphere of mutual relationship, involvement, and participation of employees throughout the organization. The most difficult aspect of TQM is to create an environment of "all one team" where everyone throughout the organization works together to improve processes and to execute them with energy and efficiency (Ramseook-Munhurrun et al, 2011; Rad, 2005; Huq, 2005; Yang, 2003). Teamwork is essential in having a fully functioning process management and improvement, especially in medical treatment; it requires cooperation among all care providers to work as a group (Westphal, Gulati and Shortell, 1997; Huq, 2005; Vouzas, and Psychogios, 2007). According to (Ooi et al., 2007b), teamwork is positively associated with employees' job satisfaction. Yang (2006) commented

that entire organization should work for improving quality and support for quality improvement activities by implementing teamwork practice. Further, Silos (1999) suggested that teamwork will result in more committed and involved employees with the organization.

Another aspect is communication which refers to information sharing process between employees of the organization (Ooi et al., 2007a). Increased employee's participation in the overall quality strategy brings an increased flow of information and knowledge and contributes to the wellness of the organization for resolving problems (Schalk and Dijk, 2005). Communication is critical within organizations for connecting employees and permits organizations to function as well as an essential element to the implementation of TQM (Ooi et al., 2007a; Gray and Laidlaw, 2002). Several studies noted that effective communication influence the organization to move systematically towards employees' involvement and customer satisfaction and improves organization performance (Ooi et al., 2007a; Yusuf et al., 2007; Goris et al., 2000).

2.6.4 Information and Analysis

"In God we trust. All others must bring data."

The Joint Commission

Information is data that is transformed through analysis and interpretation into a form useful for decision making (Brown, 2012). The Joint Commission stated a goal of information management "to support decision making to improve patient outcomes, improve healthcare documentation, improve patient safety, and improve performance in patient care, treatment, and services and governance, management and support processes" (Joint Commission, 2008). Deming summarizes the reason for data and information and quality by his famous words "In God we trust, all others must bring data" (Lynch and Sruckler, 2012). Deming founded his quality management theory on carefully designed data collection and appropriate analysis,

in order to improve quality processes in Japanese industry after World War II (Merry, 1992; Lynch and Sruckler, 2012).

Information is always required for a right decision to be made or an appropriate action to be taken. According to Brown (2012), in the past the healthcare system had no defined process for decision making, hence, healthcare professionals relied upon their opinion, logic, intuition, rationalization, rumor and hearsay to take actions to improve the quality of care and service. Now, the healthcare system has a data-based model for decision making and information management function that closely resembles scientific method: design, data collection, data through statistical analysis leads to information, information is interpreted to lead to knowledge, and knowledge leads to appropriate decision making (Brown, 2012). Decisions that are made based on data produces remarkable results than decisions that are based on a hunch or intuition (Lai, 2003). According to Juran (1986), decisions in quality management fall into three categories of activity (the Quality Management Cycle): quality planning, quality control/measurement, and quality improvement.

Many authors warned from a phenomenon in data management called widely as: “Data rich, information poor” or 'DRIP' (Brown, 2012; Haskett, 2005; Kaplan and Rautman 1998; Ferraro, 2006). The phenomenon can be described as underdeveloped ability to understand, interpret data rationally and convert it into useful information (Kaplan and Rautman 1998; Jones, 2002). It can also be defined as improper capture of information at the time test or collecting and processing vast amounts of data but few people make good use of that data (Ferraro, 2006).

The process of collecting data, analysis of data, obtaining information, and use of the information is critical to quality management as it will contribute to obtaining quality products or services (Chin-Keng and Hamzah, 2011), According to Woon (2000), Singaporean service organizations generally showed a lower level of TQM implementation than the manufacturing organizations in the practice of

information and analysis. Prajogo (2005), revealed the importance of information and analysis TQM practice on quality performance. Similarly Sit et al., (2009) also indicated that information and analysis have a significant effect on customer satisfaction. Information and analysis also helps an organization to ensure the availability of high quality, timely data and information for all users like employees, suppliers, and customers (Teh et al., 2009; Lee et al., 2003). Projogo (2005) in his study examines that the significant impact of quality information and analysis of TQM on quality performance. Lai (2003) reported that the use of information and analysis greatly enhances customer satisfaction, improves the quality and efficiency, and improves the overall organizational performance. This is also support by Lee et al., 2003) showed that from empirical study quality information and analysis have a significant effect on process management.

2.6.5 Supplier Management

"Few companies have everything that they need. You may need money, customers, or product. No matter what you need, there is someone who has it. That someone is a potential Corporate Partner."

Curtis E. Sahakian

Structural changes and increasing market dynamics in the health care sector forced hospitals to look for ways to contain cost and optimize work processes (Mettler and Rohner, 2009). Despite the fact that labor costs constitute most of the total costs of healthcare, there is still a high economic potential in improving expenditure on products and supplies (European Commission, 2006; The Chartered Institute of Purchasing & Supply, 2005). One source to generate not only short-term savings but also sustainable benefits is the active and sophisticated

management of the relationship with different suppliers (Mettler and Rohner, 2009).

Suppliers are defined by Evans (2005) as those organizations that provide hospitals with the required materials to satisfy the demand and requirement of their customers. Supplier Relationship Management (SRM) or Supplier Management (both terms are used interchangeably in the literature) is understood as a comprehensive approach to systematically managing an organization's interactions with the firms that supply the products and services it uses, can help to reduce costs and enhance quality of service delivery (Mettler and Rohner, 2009). The Supply Chain Management Institute (2008) defines (SRM) as: "Supplier relationship management is the process that defines how a company interacts with its suppliers. As the name suggests, this is a mirror image of customer relationship management (CRM).

Mettler and Rohner (2009) noted that, although Supplier Relationship Management (SRM) has helped industrial sector in reducing costs and optimizing performance, it has not yet been given much attention in the healthcare sector. They maintained that, hospital purchasing departments were just expected to get the cheapest price for the needed goods and therefore the relationship between the hospital and the supplier is often weak and adversarial. Just as a company needs to develop relationships with its customers, it also needs to foster relationships with its suppliers. The desired outcome is a win-win relationship where both parties benefit." Supplier Management is a concept that has its origin in the late 80's and flourished in the manufacturing industry, originating from the supply system by which Toyota was seen to coordinate and manage its suppliers (Womack *et al.*, 1990; Dwyer et al., 1987; Davenport and Short, 1990).

Industries with intense competition like for example the automotive industry (e.g. Toyota and Honda) have developed a wide spectrum of managerial tools and

techniques to manage the relationship with their suppliers (Christopher, 1992; Sabel et al., 1987; Slack, 1991). In contrast, the trust between the healthcare sector and the supplier remained weak and antagonistic. According to Mettler & Rohner (2009), SRM is not paid much attention in healthcare research and practice yet.

As material cost continuously increases in the health care sector, it is crucial to recognize the potentials of the relationship with suppliers (Zakuan et al., 2010). This development towards better cost consciousness and process outcome will also affect the purchasing department of a hospital. In the recent past, hospital buyers were only expected to attain the best price for the needed goods. In future, hospital managers assume that the purchasing department will also contribute to revenue increases and to knowledge acquisition. Hence the role of the supplier who formerly was considered as opponent within price negotiations will change to a business partner who contributes an added value to the hospital and therefore needs to be better integrated into the procurement processes (Mettler and Rohner, 2009).

According to Zakuan et al., (2010), effective supplier management can be achieved by cooperation and long term relationship with the suppliers. This argument is also supported by Zineldin and Fonsson (2000), who found that developing supplier partnership and long-term relationships can increase the organization competitiveness and thus, improve performance. In line with these findings, Talib et al., (2010) reported that supplier management for TQM practices is positively correlated with quality performance of the organization (Talib et al., 2010). In line with these findings, Mettler and Rohner (2008) maintains that, good supplier management definitely enhance the bargaining power of the hospital's purchasing department, improve the in-house ordering procedures, and provide sustainable benefits in terms of efficiency, efficacy and quality of the operational procurement.

2.6.6 Process Management

"If we keep doing what we have been doing, we will keep getting what we have always gotten."

Paul Batalden

The Joint Commission (2004), defined the process as “a systematic series of actions directed to some end.” It is a goal-directed interrelated series of events, activities, actions, mechanisms, or steps that transform inputs (resources) into outputs (services). Processes of healthcare are a series of inter-related activities undertaken to achieve objectives (Mainz, 2003). Process refers to procedures, methods, means, or sequence of steps for providing or delivering care and producing outcomes. In industrial terms, processes are activities that act on an “input” from a “supplier” to produce an “output” to a “customer” (Brown, 2012). They denote what is actually done in giving and receiving care, i.e. the practitioner’s activities in making a diagnosis, recommending or implementing treatment, or other interaction with the patient (Mainz, 2003).

There are three types of processes in healthcare: 1) clinical processes include what practitioners do to patients and what patients do in response; 2) care delivery processes include the support activities, supplies and products utilized by practitioners to provide care to patients; and 3) governance, administrative and management activities performed in the management of the organization (Brown, 2012). Sit et al., (2009) and Zairi (1997), described process management as: "a systematic approach in which all the resources of an organization are used in most efficient and effective manner to achieve desired performance". However, Helfert (2009) argues that, despite the importance of process management, currently, internationally very few guidelines are provided for introducing healthcare process management in hospitals. The focus on process in healthcare is influenced by four factors that determine the degree to which healthcare services achieve desired

health outcomes: 1) disease process and severity; 2) processes of care; 3) patient compliance; and 4) random and unidentified variables (Brown, 2012).

Process management focuses on behavioral and methodological activities. It is characterized by collection and use of information, procedures, means, and human resources competencies to identify, measure, evaluate, and initiate actions to refine processes (Elzinga et al., 1995; Ooi, 2009; Sadikoglu and Zehir, 2010). It stresses the value adding to a process, increasing the productivity of every employee and improving the quality of the organization (Motwani, 2001). The process is improved by reducing the source of variation that exists within it, and everyone in the TQM environment, is required to gain additional capabilities to improve the process (Eng Eng and Yusof, 2003; Huq, 2005). A proactive approach to planning, executing, monitoring, and evaluating processes is essential to affect improvement to respond to customers' existing and emerging needs. Effective use of quality improvement tools is important to achieve desired results (Nofal et al., 2005; Tari et al., 2006; Jung et al., 2009).

Intensive review of the literature shows that many empirical studies that systematically investigated the relationships between process management and organization performance, stressed the need of organizations to have a set of well-defined, well-designed and effectively managed processes to meet the organization's quality and performance requirements (Prajogo and Sohal, 2004; Flynn et al.,1995; Kanji, 1998; Cua et al., 2001; Feng et al., 2006). The results of these studies showed positive correlation between process management and organization performance. Schalk and Dijk (2005) are of the opinion that hospitals will have to focus on integrating their various processes in different levels that include quality management, human resource management etc. to meet and exceed customers' expectations and to achieve organizational excellence.

The Joint Commission suggests that, an organization can improve patient care quality by assessing and improving the governance, managerial, clinical and support processes that most affect patient outcomes. Without shirking responsibility to address serious problems involving deficits in knowledge or skill of caregivers, the principle goal should be to help improve the processes (Brown, 2012).

2.6.7 Customer Focus

"None of you truly believes until he loves for his brother what he loves for himself."

The Prophet (peace be upon him)

Customer focus is one of the most important practices of Total Quality Management (Kammerlind et al., 2004; Asubonteng and Stamatis, 1996). A customer is defined as the one receiving goods or services. In healthcare, there are two types of customers: 1) external customers (e.g. patients and their families) receiving services from the organization; 2) internal customers (e.g. physicians, nurses, pharmacists … etc. who depend on others within the organization to do their work). Both external and internal customers tend to focus on how services meet their perceived needs and whether their expected outcomes are met (Feigenbaum, 2004).

The customer is the center of all health services, so customers' satisfaction must be the basic principle for any health system in order to be able to evaluate its services and to keep its competitive position (Diane, 1994; Asubonteng and Stamatis, 1996). According to Chong et al., (2009), customer focus can be subdivided into two main elements: customer loyalty and customer satisfaction. Customer satisfaction boosts customer loyalty, which in turn decreases the risk of losing customers due to poor quality which will then affects the organizational

competitive advantage and organizational and financial performance (Chong et al., 2009).

The importance of customer satisfaction has been emphasized by most of the quality gurus, like Deming, Crosby, Feigenbaum, Ishikawa, and Juran (Das et al., 2006). Kammerlind et al., (2004) assert that customer focus and process orientation are key characteristics of organizations with high employee and patient satisfaction. In fact, these organizations have well defined, mapped and described their organizational processes, and initiated improvement projects that lead to improved organizational outcome and more satisfied patients.

The heart of customer satisfaction research is to acquire information that can be used to make improvements in the nature of the business. Therefore, it is very important to understand expectations and desires of customers in order to create a solid foundation, in which the organization knows how to best serve its customers. Knowing expectations and perceptions may include both the hard and soft measures. The hard measures refer to those that are more tangible and observable such as number of complaints and average wait time. The soft measures refer to those that have less tangible aspects such as friendliness, helpfulness, respect and care (Naik et al., 2010).

Patient satisfaction can be determined by patient experience in the healthcare settings. Formation of this experience begins from the time patients entered the healthcare setting until they are discharged. In fact, patient experience compares what they expected to receive and what they actually received. Since this is the case, healthcare managers should know the expectations of the patients in order to be able to meet their satisfaction (Evans, 2008). Davis (2009) indicates that patient satisfaction can be achieved when a service provides a favorable level consumption related fulfillment with regard to the patient's expectations for that service. Therefore, the majority of research conducted in service environment proposed that

the confirmation or disconfirmation of expectations is an essential determinant of satisfaction. In short, the quality of service delivered by a healthcare/hospital can be measured by determining the difference between what the patient needs (patient expectations) and how the patient experiences the service (patient perceptions).

Zakuan et al., 2010 indicate that the customer satisfaction has a great impact on business results through quality practices and that customer satisfaction has a positive relationship with process improvement. There is also evidence by Taddese and Osada (2010) that there is a strong relationship between TQM and customer satisfaction. In their case study of a company with 44000 employees working in more than 40 countries, Tanninen et al. (2010) investigate the effect of TQM on profitability, productivity and customer satisfaction. The results indicated that TQM does have a positive effect on customer satisfaction.

2.6.8 Continuous Improvement

"You can only elevate individual performance by elevating that of the entire system."

W. Edwards Deming

Continuous improvement in products and services is essential to respond to changing customers' preferences. Quality management is a dynamic process, aiming at sustainability of achievements and further improvement in the future (Deming, 1986). Without these, an organization will be lacking behind by its competitors (Chin-Keng and Hamzah, 2011), Continuous improvement, which is the most important part of services, means searching for never-ending improvements and developing processes to find new or improved methods in the process of converting inputs into useful outputs (Sadikoglu and Zehir, 2010). Hospitals like any other business are under increased pressure to continuously

improve their quality of care, and focus on improving outcomes and overall patient safety. Continuous improvement of all operations and activities is at the heart of TQM (Adinolfi, 2003; Hanna, and Newman, 1995; Metri, 2005; Hansson, 2003).

According to Crosby, the process of continuous improvement is cyclic iterative and a never ending activity (Crosby, 1984). It requires that employees acquire and apply new knowledge, skills and values to continuously improve the organization's performance (Deming, 1986). Many authors maintained that continuous improvement is a powerful approach related to the pursuit of never-ending improvement in existing services and processes to meet external and internal customer needs (Huq, 1996; Taylor and Wright, 2003; Schalk and Dijk, 2005). This approach leads to innovations, reduction in delivery time, costs associated with repair, rework, and yields cost competitiveness (Baghal and Bhuiyan, 2005; Deming, 1986; Juergensen, 2000). This approach builds adequate knowledge spread within organization, and embeds in people, processes, infrastructure, and difficult to copy by competitors (Baghal and Bhuiyan, 2005).

Continuous improvement is the philosophy of improvement initiatives that increases success and reduces failure and must be integrated into the management of all systems and processes (Huq, 1996; Walsh et al., 2002; Vouzas and Psychogios, 2007). Kanji reported that continuous improvement requires management by facts and commitment of all employees with an emphasis on teamwork to promote a culture of quality improvement (Kanji, 1998).

The culture of continuous improvement generates creativity among employees and results in competitive excellence (Baghal and Bhuiyan, 2005; Deming, 1986; Juergensen, 2000). It helps in reducing the process variability thereby continuously improving the output performance (Sadikoglu and Zehir, 2010). Corbett and Rastrick (2000) asserted that in TQM, the best way to improve organizational performance is to continuously improve the performance activities.

2.7 HOSPITALA PERFORMANCE

Assessing hospital performance has become increasingly important in response to growing pressures from patients, purchasers, providers, clinicians and the media. Hospitals are required to work effectively and efficiently within limited resources and under close scrutiny from regulatory, licensing and accrediting institutions (Minvielle et al., 2008). In the last 10 years, there has been a substantial increase in programs to assess hospital performance and public reporting of its performance. The final goals being to improve the quality of health care, as well as to benchmark it both internally and externally. Studies have shown that the quality of health care is variable and often inadequate (Jha et al., 2005; Institute of Medicine, 2001).

2.7.1 Definition of Hospital Performance

A hospital can be defined as: "an organized effort to provide a specific set of medical services, usually physically located in one or several buildings, and related to specialized cure (diagnosis and treatment) and care with the input of health professionals, technologies and facilities" (WHO, 2003). Intensive review of the literature shows that there is no consensus on how hospital performance is defined. Many authors were interested in answering this difficult question and a large literature exists (Donabedian, 1966; Shulz et al., 1983; Fottler, 1987; Fetter, 1991; Kazadjian et al., 1993; Berkowitz, 1995; Sicotte et al., 1998).

The World Health Organization (WHO), defined hospital performance as: "the achievement of desired goals. High hospital performance should be based on professional competences in application of present knowledge, available technologies and resources; efficiency in the use of resources; minimal risk to the patient; satisfaction of the patient; health outcomes.

Within the health care environment, high hospital performance should further address the responsiveness to community needs and demands, the integration of

services in the overall delivery system, and commitment to health promotion. High hospital performance should be assessed in relation to the availability of hospitals' services to all patients irrespective of physical, cultural, social, demographic and economic barriers" (WHO, 2003). Crêteur et al., (2000), defined hospital performance through five criteria: quality of care, satisfaction of patients, human resources, efficiency and financial results (Crêteur et al., 2000). The target of assessing hospital performance is to provide quality care at low and reasonable cost (Li and Collier, 2000).

2.7.2 Dimensions of Hospital Performance

The dimensions of hospital performance and their classification have been widely discussed by researchers and experts in many countries. However, review of literature on healthcare quality, revealed that there is no agreed global model for assessing hospital performance. The Ontario Hospitals Association proposed a (balanced scorecard framework) that includes four main dimensions: financial, patient perspective, clinical utilization, system integration and change. The researchers of the University of Montreal developed a model that encompasses: goal attainment, production, adaptation, and culture and values (Secotte et al., 1998). The WHO (2003), proposed six key dimensions for assessing hospital performance: four domains (clinical effectiveness, efficiency, staff orientation and responsive governance) and two transversal perspectives (safety, patient centeredness) (Arah et al., 2003).

According to Veillard et al., (2005), the selection of this six-dimension of performance measurement is built on strong theoretical background, empirical material and it was elaborated by a group of international experts, based on extensive reviews of the literature and surveys on data availability and assessments of indicators. The Institute of Medicine (IOM), suggested six quality measurement dimensions for healthcare: (1) safety; (2) effectiveness; (3) patient-centeredness;

(4) timeliness; (5) efficiency; (6) equity. According to the (IOM), a health care system that achieves major gains in these six areas would be far better at meeting patient needs (IOM, 2001).

2.7.3 Measurement of Hospital Performance

Quality Gurus believed that without measuring something, it is impossible to improve or control it (Deming, 1982; Juran, 1982). In other words "what cannot be measured, cannot be improved or controlled". Quality practice can have positive or negative impact on improving organizational performance. However, the only way to provide evidence of positive or negative impact of TQM practice is to determine the total quality management criteria and measure their effect on organizational performance (Madu et al., 1996; Gadenne and Sharma, 2002).

Numerous studies have examined the positive and negative relationships or correlations between TQM practices and various performance measures. Both manufacturing and service sector literature contain a considerable number of studies that measure business performance through total quality management practices (Samson and Terziovski, 1998; Flynn et al., 1995).

The general conclusion is that if TQM plan is implemented properly, it produces a variety of benefits such as understanding customers' needs, improved customer satisfaction, improved internal communication, better problem solving, fewer errors, and so on (Wilson & Collier, 2000; Fynes & Voss, 2001; Flynn & Saladin, 2001; Stein, 1998).

According to the Institute of Medicine (IOM), measurement is essential to understand whether the organization delivers quality health care and to know how its health services have affected individual and population levels of physical, mental and social functioning (Institute of Medicine, 1999). Hospital performance reflects the outcome of the medical services as experienced by the patients physically, mentally, emotionally, socially and functionally.

The outcome refers to the result of medical care (adverse or beneficial) and includes: (i) clinical (short term results, complications, adverse events and mortality); (ii) functional (long term health status, activities of daily living (ADL) status, and progress towards stated objectives); (iii) perceived (satisfaction, level of health education, and peer acceptability) (Brown, 2012). Hence, performance measurement is an essential tool to evaluate overall health care service quality and ensure that it is practiced in every function and every department of the hospital because it reflects the overall level of service quality delivered by the organization (Duggirala et al., 2008).

Measurement of health care quality serves a range of objectives, including: providing data to inform quality improvement efforts; inspecting and certifying that a facility or individual meets previously established standards; comparing groups for a variety of purposes; informing patients, families, and employees about the health care decisions and choices they face; identifying and eliminating substandard performers; highlighting, rewarding, and disseminating best practices; monitoring and reporting information about changes in quality over time; and addressing the health needs of communities (Institute of Medicine, 1999).

Scholars have used different performance types such as financial, business, innovative, operational and quality performance while examining the association between TQM practices and performance (Zehir et al., 2012; Hassan et al., 2012). Samson and Terziovski, (1999), suggested leadership, people management and customer focus as elements to measure operational performance in an organization. Goldstein et al., (2002) used two measures to assess hospital performance: (i) clinical measures such as adjusted length of patient stay in the hospital and adjusted mortality rate; and (ii) financial measures such as operating cost and operating margin.

Yavas and Romanova, (2005) used 11 standard factors to evaluate hospital performance. These factors were: (1) less tensioned between physicians and hospitals management; (2) better position in negotiating with insurance companies; (3) find and access to new markets; (4) increased occupancy rate; (5) decreased number of personnel per occupied bed; (6) lower total expense per occupied bed; (7) decrease in duplication of services and facilities; (8) containment of operating costs; (9) increased clinical effectiveness; (10) lower procurement costs; and (11) shared risks.

Carman et al., (2010), used three dimensions of hospital performance: (i) patient satisfaction; (ii) market share; and (iii) economic efficiency as measured by overall length of stay (LOS), adjusted cost per admission, and labor productivity. Alolayyan et al., (2011) used operational flexibility (external flexibility and internal robustness) to measure hospital performance. In the context of healthcare flexibility involves the quick introduction of newly designed services and processes in the care system, handling changes in patient demands and rapid adjustment of capacity and services.

According to Alolayyan et al., (2011), hospitals can survive and prosper in the healthcare industry if they meet two criteria: (i) they must provide the health care and service that patient's want and willing to pay for, and (ii) they must survive competition. The overall competitive position of a hospital derives from the difference between the value it offers to customers and its cost of creating that customer value (Institute of Management Accountants,1996; Treacy and Wiersema, 1996). Hence, financial measures have also been used to measure success of business performance financially. Profit, market share, earnings, and growth have been regarded as critical indicators of business performance.

Kaplan and Norton (1996) reported that, organizational performance is measured by monetary pointers such as market share, total sale, and net profit. In

addition to financial measures, Hassan et al., (2012), used non-financial classes for measuring organizational performance such as: improvement in employees' attitude towards quality, improvement of the flow of information among departments, reduction in absenteeism, reduction in tardiness rate, improvement in skill's level (Hassan et al., 2012).

Dilber et al., 2005, used financial and non-financial indicators to measure hospital performance in Turkey. Financial criteria included subjective measures such as revenue growth, net profits, return on investment, profit to revenue ratio, cash flow from operations. On the other hand, non-financial criteria; relative to the competition; contained subjective measures such as reputation among major customer segments, capacity to develop a unique competitive profile, new product/ service development and market development.

The World Health Organization (WHO) Regional Office for Europe launched in 2003 the performance assessment tool for hospitals (PATH). This tool aims at supporting hospitals in assessing their performance by using six dimensions of hospital performance: clinical effectiveness, safety, patient centeredness, production efficiency, staff orientation and responsive governance (WHO, 2003; Arah et al., 2003; Veillard et al., 2005).

Like many other service organizations, healthcare have also used all quality awards frameworks to measure hospital performance such as the Malcolm Baldrige National Quality Award (MBNQA), European Foundation for Quality Management (EFQM), the ISO 9000 model, and the European Foundation for Quality Management (EFQM). These frameworks provide sets of criteria for organizational quality assessment and improvement and have been used by thousands of service organizations including healthcare, banking and education for more than a decade (Foster, 2007).

D'Souza and Sequeira (2011), adopted the Malcolm Baldrige National Quality Award (MBNQA) health care criteria for performance excellence and grounded theory for patient service quality to measure the internal and external service quality of healthcare organizations in India. The grounded theory for patient service quality measures patients' perception of quality of care and is important for strategy planning and health services evaluation (Raftopoulos, 2005; Wilde et al., 1993). Patient complaint and satisfaction are two measures used in the grounded theory for two purposes: (i) to evaluate patient care; and (ii) to predict patient 'consumer' behavior (e.g. will they recommend a health care service or return for care in the future) (Ware, et al., 1977).

Griffith et al., (2002) evaluated hospital performance through nine multi-dimensional constructs derived from Medicare reports (cash flow, asset turnover, mortality, complications, length of inpatient stay, cost per case, occupancy, change in occupancy, and percent of revenue from outpatient care). They examined the content validity, reliability and sensitivity, validity of comparison, and independence of the nine measures and concluded that seven of the nine measures (all but the two occupancy measures) represent a potentially useful set for evaluating the performance of most U.S. hospitals (Griffith et al., 2002).

According to Ali et al., (2012), today, most researchers have used these nine constructs to measure performance in hospitals covering all available Medicare reports for community hospitals including reflecting customer, financial, and operational performance. Ali et al., (2012), assessed performance of hospitals in Jordan using four domains: (1) dimensions of hospital performance; (2) staff and work system results; (3) hospital efficiency and effectiveness results; and (4) flexibility performance result.

After extensive review of the literature on hospital performance measurement, these four domains suggested by Ali et al., (2012) were adopted in this study. They

are drawn from the findings of many studies conducted by Sila and Ebrahimpour (2003); Samat et al., (2008) and Sadikoglu and Zehir (2010). They are most current and cover most aspects of hospital performance. The Hashemite Kingdom of Jordan is one of the places most famous for treatment of physical ailments. Jordan, in addition to being ranked first among Arab countries, and among the world's top five countries, in medical tourism, is characterized by the presence of advanced hospitals, staffed by highly qualified, internationally renowned doctors (Council of Cooperative Health Insurance, 2011). Jordanian hospitals can serve as benchmarking references for Saudi hospitals that are interested in improving their healthcare services. In addition, the similarity of the context, the culture and healthcare system design between Saudi Arabia and Jordan makes it logical to compare the findings of this study with the findings of Ali and his colleagues.

Moreover, to the best knowledge of the researcher, there was no similar study conducted in Saudi Arabia to investigate the relationship between TQM practice and hospital performance. This study uses the following four domains proposed by Ali et al., (2012) to assess hospital performance in Saudi Arabia:

1- Dimensions of Hospital Performance: general mortality rate, outpatients' satisfaction, readmission rate within 24 hours, length of stay, services lead-time, and patient's complaints;
2- Staff and Work System Results: employees hours spent in education and training, employee productivity, employee satisfaction, turnover rate of employees, and information sharing;
3- Hospital Efficiency and Effectiveness Results: numbers of outpatients, numbers of inpatients, number of general anesthesia surgery, general occupancy rate, hospital productivity, hospital's reputation, number of service defects, errors, or breakdowns, and cost of quality.

4- Flexibility Performance Result: waste, competitive position of hospital, capacity to develop unique competitive profile, and capability to provide specialized health care and services.

2.8 ACCREDITATION OF HOSPITALS

Accreditation is a process whereby an organization is assessed by external peer reviewers on a set of pre-determined standards (Klazinga, 2000; Montagu, 2003). A standard is a statement of excellence, developed by peers against which conformity of the healthcare organization is evaluated. Accreditation intends to promote quality of healthcare and foster a culture of safety through diverse approaches that are either mandated by the government, voluntary or initiated by independent agencies (Montagu, 2003). Although many healthcare organizations in developing countries are undergoing or considering accreditation, there is little research on its impact, and consequently no conclusive evidence that it improves quality of care (Buetow and Wellingham, 2003; Viswanathan and Salmon, 2000; Salmon et al., 2003; Shaw, 2001).

Accreditation is increasingly being used in developing countries as a tool for government regulation to ensure quality of care (El-Jardali et al., 2008). In 2006 the Ministry of Health established an accreditation body, the Central Board of Accreditation for Health Care Institutions (CBAHI), to help in the accreditation process in public health as well as private health services (Albejaidi, 2012). The CBAHI Accreditation Standards were developed by a consensus process of healthcare experts representing organizations concerned with healthcare in the Kingdom (Central Board of Accreditation for Health Care Institutions, 2011). The total number of hospitals in the Kingdom is 415 out of which are 249 owned by MOH, 39 owned by other governmental sector, and 127 owned by the private sector (MOH, 2012). Since CBAHI is a mandatory accreditation, all health care

facilities in KSA have to be accredited by CBAHI. However, only a limited number of hospitals have been able to acquire CBAHI accreditation so far, and many are still under process (Qureshi et al., 2012).

Although Saudi Arabia is one of the countries in the East Mediterranean Region to develop and implement accreditation standards, little is known yet on its impact on quality of care. Quality of care is now prominent on health policy agendas of governments of several countries in the East Mediterranean Region. A study conducted in 2000 by the World Health Organization revealed that there were no accreditation programs in the Eastern Mediterranean (WHO, 2003).

Al-Qahtani et al., 2012, investigated the quality of healthcare services provided by accredited and non-accredited hospitals and the potential contributing factors affecting the quality of care. They used two outcome measures: (i) quality of healthcare services; and (ii) the potential contributing factors affecting the quality of care. They concluded that, accredited hospitals perform favorably compared with non-accredited hospitals in almost all quality practices. They identified leadership commitment and support, and strategic quality planning as the most important determinants of quality in healthcare. Thus, accreditation can be considered a tool for improving hospital quality.

CHAPTER 3

METHODOLOGY

3.0 INTRODUCTION

This chapter presents steps of how the research was carried out. It includes the following sections: the research design and approach, sampling and data collection procedure, the instrumentation, validity and reliability of the instrument, data management and statistical analysis plan, and conclusion.

3.1 PURPOSE OF RESEARCH

The purpose of this research is to determine the relationship between critical Total Quality Management practices and hospital performance in the Ministry of Health (MOH) hospitals in Saudi Arabia. It also highlights the level of the implementation of TQM practice in accredited MOH hospitals as compared to that of unaccredited ones.

Since the primary research questions demand an explanation for negative or positive impact of TQM practice on hospital performance, the research has an explanatory purpose. On the other hand, it is practically impossible to explore the problem of TQM implementation without identifying its critical success factors and explaining the interrelationship between them, and how they impact hospital performance. Therefore, this study appears to be in line with an exploratory study as well as an explanatory study.

3.2 RESEARCH DESIGN AND APPROACH

This study was conducted using a quantitative research method where empirical investigation was carried out to determine the relationship of critical total quality management practices and hospital performance in MOH hospitals in Saudi Arabia. The questionnaire was adopted and modified from the previous literature

included socio-demographic information of the respondents (profession, gender, age, education, name of hospital and years of working), and the items that measured the extent impact of implementing various total quality management practices on hospital performance.

A quantitative approach allows the use of structured and validated data-collection instruments such as surveys which can be distributed to a large number of people in different cities and towns. This characteristic makes it more suitable as the study involves a sample of 400 employees who work in hospitals that are far from Tabuk. Another important reason for selecting a quantitative approach is the time constraints of the healthcare professionals. The questionnaire gives them time to complete it at their convenience. Also, due to political reasons, it will be difficult to have permission to talk to managers and staff in the hospitals under study. Therefore, this study uses the questionnaire as the dominant tool for collecting survey information.

3.3 DATA SOURCES AND DATA COLLECTION

In this thesis both primary and secondary data are collected. The primary data is collected using a quantitative questionnaire. The secondary data used has been critically evaluated and collected from books, academic journals, published articles, quality management journals, news papers, accrediting institutions, related organization information data bases, and internet sources, in order to obtain some better insight of the situation of hospitals in Saudi Arabia and to support the theoretical as well as methodological part of the thesis.

3.3.1 The Instrumentation

This study uses the questionnaire as the dominant tool for collecting survey information. In order to gather primary research data, quantitative method using a structured 5-Likert-scale questionnaire was conducted in all sites. The researcher,

in his aim to develop a reliable instrument for this study, reviewed several studies to find a suitable research questionnaire.

A structured questionnaire was compiled, consisting of 66 items within 4 constructs for hospital performance and 43 items within 8 constructs for total quality management which were adopted and modified from (Alolayyan et al., 2011; Arumugam, 2011; Talib et al., 2010; Maliki et al., 2010; Sadikoglu and Zehir, 2010; Demirbag et al., 2006; Yusuf et al., 2007; Lai, 2003).

It can be seen that all variables of this study are strongly supported by different research studies. The relationship between accreditation as an independent factor and the implementation of TQM practices as dependent factor is also added which makes this study unique on its own.

To avoid language problems the questionnaire was developed in two versions: Arabic and English. Before starting the main study, ten questionnaires were distributed to a purposive sample of managers and healthcare workers in each of the four hospitals to pilot test the questionnaire. Pre-testing helps to uncover biased or ambiguous questions before they are administered at large (Sekaran, 2010, Zikmund, 2000).

The purpose of the pilot test was to: check whether each question could measure the desired objective and check for any misunderstanding of the questions. The feedback was used in modifying the questionnaire to make it clearer and to avoid any confusion or ambiguity. A panel of experts is consulted to validate the questionnaire (both Arabic and English versions).

Thus, the questionnaire was structured in such a way that respondents will be able to easily answer it. The set of questionnaire was structured using the Likert scale is a five (or seven) point scale which is used to allow the individual to express how much they agree or disagree with a particular statement (Bowling 1997, Burns and Grove 1997). A Likert Scale is the most commonly used scale

procedure. In this questionnaire, the respondents were given five response choices. These options served as the quantification of the participants' agreement or disagreement on each question item.

Below is a list of the designated quantifications used for measurement in the questionnaire: Table (1) shows the scoring criteria for respondents' answers.

Table (1): Scoring criteria for respondents' answers

Score	Answer
1	Strongly Disagree
2	Disagree
3	Neither agree or disagree
4	Agree
5	Strongly Agree

The questionnaire consists of three parts; demographic data, total quality management, and hospital performance which was accompanied with a cover letter that contained a brief summary of the purpose of the study and confidential considerations and was self-administered by the researcher.

3.3.2 Credibility of the research findings

The terms validity and reliability are associated with quantitative research approaches. Guba and Lincoln (1981) stated that all research must have “truth value”, “applicability”, “consistency”, and “neutrality” in order to be considered worthwhile. Ultimately, the data collected is used to inform the research findings. If the data is not verifiable, the implication is that the findings are potentially suspected. Accordingly, the researcher is there for required to validate his/her

findings (Sekaran, 2003). Without trustworthiness, research is worthless, becomes fiction, and loses its utility. Hence, a great deal of attention is applied to reliability and validity in all research methods (Morse et al., 2002).

3.3.2.1 Reliability

Reliability is the extent to which results are consistent over time and can be reproduced under a similar methodology. This the study is considered to be highly reliable. However, due to the very nature of humans, even with the best of intentions in mind, the researcher is often confronted with a variety of variables which may affect the reliability of his findings. Simply stated, respondents may simply tick of response options without reading or considering them. They may be biased or, simply not in the mood to answer the questions with any degree of interest.

To ensure the reliability of the instrument, the researcher carefully read through the questionnaire data to ensure that there are no logical defects and that the responses given by any one respondent are not contradictory. In addition, and to better ensure reliability, the researcher when distributing the questionnaire gave the participants several days to answer. The researcher; based on applying research scholars advice to ensure reliability; would argue that this thesis is relatively highly reliable.

3.3.2.2 Validity

Validity means the degree to which a test measures what it is supposed to measure and, consequently, permits appropriate interpretation of scores. It refers to the accuracy of the inferences, interpretations or actions made on the basis of quantitative data.

Many steps were carried out to ensure the content validity of the instrument. A pilot test was carried out, where 20 questionnaires were distributed in different

hospitals and to different categories of employees (managers, doctors, nurses, technicians, administrative).

The goal of the pilot test was to refine the questions so that respondents of different professionals and educational backgrounds would not have any problems in answering the questions both Arabic and English.

The questionnaire was also assessed by a panel of five experts: two experts in quality management, an expert biostatistician, and two consultant physicians working in a CBAHI accredited hospital. The questionnaire was also reviewed and assessed by the research and ethics committee (REC) of King Khaled Hospital of Tabuk. Some questions were modified to give clear definitions of dimensions of the instrument.

The questions were designed using clear, specific and unambiguous words to ensure that the questions will be understood in the same way by all participants and that they can complete the questionnaire without help from the researcher.

The research for this thesis could be considered as a field research as it is carried out among people who happen to constitute the sample frame and whose responses the researcher cannot influence in any significant manner. Furthermore, to ensure both internal and external validity, the right and relevant questions were asked in the survey, the most feasible data collection method used, and the tools used to analyze the data are also considered to be accurate and produce valid results.

3.4 SAMPLE SIZE AND SAMPLING TECHNIQUES

3.4.1 Setting

The study was performed in the Ministry of Health (MOH) hospitals in Tabuk Region, Saudi Arabia. In the region, there are 14 hospitals in total, 12 of which are

MOH hospitals, 1 military hospital, and 1 private hospital. Of the 14 hospitals, four hospitals are selected for inclusion in this study, namely: King Khaled Hospital, King Fahad Hospital, Maternity Hospital and Hagel General Hospital. The reason for selection of these hospitals is because they are either accredited by the Central Board for Accreditation of Healthcare Institutions (CBAHI) or are currently involved in the accreditation process. The CBAHI was formed in the year 2006 as a national accrediting body focusing on improving hospital performance through using accreditation and certification services (CBAHI, 2011).

The CBAHI has developed a set of quality standards to be implemented by those hospitals seeking accreditation. Some of the main CBAHI requirements that are related to quality are: hospitals seeking CBAHI accreditation must have quality improvement departments within their systems and must use structured quality methods and improvement tools to continuously improve their performance. The four hospitals have responded to the CBAHI accreditation requirements that include establishing quality management departments, employing related staff, adopting appropriate quality improvement models, and implementing quality practices such as leadership, training, customer focus, employee management, and data-based decision making.

The other eight MOH hospitals in Tabuk Region have been excluded because they are not yet engaged in the CBAHI accreditation process. They have not yet started any type of structured quality improvement activities, at least at the time this study was conducted. On the other hand, military and private hospitals are excluded because their system is different from that of MOH hospitals.

3.4.2 Target Population

The word 'population' is used in statistics in a wider sense than usual. It is not limited to a population of people but can refer to any collection of objects. According to Hussey and Hussey (1997), the population is a set of people or collection of items which is under consideration. The term “population” can also be defined as the total number of people, items or subjects which is the focus of attention in a particular research process (Veal, 2011).

In this study the target population is the whole employees of all categories (managers, physicians, nurses, technicians, and administrators) who work in the four selected MOH hospitals in Tabuk Region, Saudi Arabia. At the time of this study, the total number of employees of all categories in the four hospitals was 2479. This number was obtained through direct telephone contact with the statistics department in each hospital.

However; based on the findings of Albejaidi (2010), Almalki et al. (2011) and personal observation; the researcher believes that, the total number of the target population of the selected four hospitals is changing almost every day due to the continuous creation of new positions on one hand, and the high turnover rate in MOH Hospitals on the other hand.

3.4.3 Sampling

Maree (2007) asserted that it is usually impossible or impractical to include everyone in the population in a study because it is typically expensive in terms of time and resources. Consequently**,** researchers often use sample survey methodology to obtain information about a large population by selecting and measuring a portion from that population (Kirkwood, 1992). A sample is any subset of a population, so its size can be small or large. A sample should be small

enough to be manageable, yet large enough to give statistically significant results (Brown, 2012).

The sampling technique used in accessing the respondents of the study was convenient sampling. A sample of convenience is the terminology used to describe a sample in which elements have been selected from the target population on the basis of their accessibility or convenience to the researcher.

The justification for using convenience sampling was due to extreme difficulties faced by the researcher in gaining access to the respondents randomly in the four selected hospitals. The researcher was confronted with operational, regulatory, logistic and financial limitations. The sampling frame of this research has been improved by using many resources namely direct communication with quality managers from related hospitals through telephone, email, and informal meetings.

Using appropriate statistical tests, the sample size was calculated to be 20 subjects per professional category (doctors, nurses, managers, technicians and administrative), with a total of 100 subjects for each hospital. There are many considerations that make it useful and logical to allocate equal number of questionnaires to each hospital regardless of its size. For example the total number of the manpower at the King Khaled hospital – the biggest hospital in the region - is (800) employees as per the Human Resource database for the year 2012. The sample size of 100 will constitute 12.5% of the KKH population. The total number of manpower in the other three hospitals range between 300 – 400 employees. Therefore, the sample size ranged between 12.5% and 33% of the targeted population.

The sample size is generally acceptable between 5% and 10% from the targeted population. Hence a total of 400 questionnaires were distributed to the respondents

with full instructions on how to complete the instrument. The potential respondents consisted of managers, physicians, nurses, technicians and administrative staff. There were no specific inclusion and exclusion criteria specified for the selection of subjects. However, inclusion and exclusion criteria for hospital selection were explicitly mentioned. The sampling procedure and the sample size used in this study are appropriate and modulated according to the study design and limitations.

The sample used in this study can be used as a representative sample since it is comprised of subjects recruited from four different hospitals in Saudi Arabia which diminishes selection bias. The use of such a representative sample improves the strength of the study as it contributes towards the generalizability of the results.

3.5 DATA COLLECTION, MANAGEMENT AND STATISTICAL ANALYSIS PLAN

Once the instrument was finalized and its validity tested, data collection was initiated. The questionnaires, prepared in both Arabic and English languages, were distributed in the four selected hospitals. A cover letter was sent along with the questionnaire informing the respondents of the purpose and the authenticity of the research. To prove the authenticity, the approval of the Research and Ethical Committee (REC) from the King Khaled Hospital was secured and enclosed along with the detailed confidentiality clause. A survey package was sent to the four MOH hospitals in Tabuk Region, Saudi Arabia, and 269 were returned, giving a response rate of 67 percent.

Collected data were entered from the paper data collection form (questionnaire) into computer excel sheet for the purpose of data editing and cleaning regarding errors and missing. Verification was done through double check of the paper questionnaire and discrepancies were handled and fixed.

The clean final data file were eventually transferred from the computer excel sheet to SPSS statistical software for the purpose of statistical analysis.

Two sixty nine (n = 269) participant volunteers were enrolled in this study; they represent the staff of four Saudi hospitals. 72 (26.77%) participants were from King Khaled Hospital, 63 (23.42%) King Fahad Hospital, 65 (24.16%) from Maternity and Children Hospital, and 69 (25.65%) from Hagel General Hospital.

Descriptive statistical analysis were conducted for both demographic variables, quality related response variables, and performance related response variables to report proportions for categorical variables including staff gender, specialty, and level of education, while mean ± standard deviation were used for continuous variables including period of professional practice, and the length of work in the specific hospital

Analytic statistics were conducted to report the correlation between quality management and performance after reporting the responses as sum of the total individual questions as continuous variable (correlation coefficient “r”) test was reported.

Comparison between hospitals and staff specialty were done to find any possible significant difference and t-test was computed. P-value of ≤ 0.05 will be considered significant for all statistical tests.

CHAPTER 4

RESULTS AND ANALYSIS

4.0 RESULTS

General characteristics of the participants are shown in table I. Out of the total 272 participants 131 (48.70%) were males, and 138 (51.30%) were females. Regarding the age 47 (17.47%) were found to be below 30 years of age, 95 (35.32%) between 30 and 39 years old, 77 (28.62%) were 40 to 49 years old, and 50 (18.59%) above 50 years old. Regarding the educational degree of the participants; those with diploma and bachelor degree were equal in number 95 (35.32%) each, participants with post graduate degrees were 69 (25.56%), while only 10 (3.72%) out of the total having less than diploma degree. The staff position for the majority were nursing 87 (32.34%), with the same number 87 (32.34%) for physicians and dentists, followed by administrator, manager, and head department were 41 (15.24%), health technician 30 (11.15%), administrative staff 19 (7.06%), administrative specialist 3 (1.12%), and non-physician health specialist were 2 (0.74%). The work experience was found to be 5 to less than 10 years for 73 (27.87%), 2 to less than 5 years for 67 (25.00%), 10 to less than 15 for 45 (16.79%), 15 to less than 20 for 34 (12.69%), 20 years and more for 26 (9.70%), and less than 2 years for 24 (8.96%).

The 5-Likert scale has been used in the questionnaire with the following values: strongly disagree (1), disagree (2), neither (3), agree (4), and strongly agree (5). The mean and the standard deviation of the different questions were calculated. It was considered that the manager or the employee agree on a given statement when the mean is (3.5) or more. A mean below this value, indicate a negative response.

The predictor variable in this study was the total quality management practice measured by 43 questions from question 1 to 43 each question has score on 5-Likert scale with following values: strongly disagree (1), disagree (2), neither (3), agree (4), and strongly agree (5), with a total score ranging from 43 to 215, while the outcome was the hospital performance which was measured by 23 questions from 44 to question 66, with a total sum of 23 lowest and 115 highest on the 5-Likert scale. It was considered that the manager or the employee agrees on a given statement when the mean is (3.5) or more. A mean below this value, indicates a negative response. Mean ± SD for total quality management score for different variables including hospitals, gender, age, education, staff position, and experience was reported. *See table 2 and 3.*

Correlation test was conducted and revealed direct positive association between total quality management practice and overall hospital performance, with a correlation coefficient 'r' value of 0.9 (p-value 0.0001). *See table 4.*

ANOVA test revealed significant association between different hospitals and quality management, and significant association between different staff positions and quality management. While showed non-significant association with other variables including gender, age, education, and experience. *See figure 2.*

Tuckey test showed some hospitals applied quality management significantly more than the others, and on the other hand showed insignificant difference between staff positions due to the low significance value in the ANOVA test. *See table 3 and 5 and figures 3 and 4.*

In conclusion the analysis results have revealed how overall hospital performance significantly associated with quality management practice. We have found that some hospitals have higher quality practice than others.

Table 2: demographic characteristics (n=269)

Characteristics	N (%)
Hospital	
King Khaled	72 (26.77%)
King Fahad	63 (23.42%)
Maternity and children	65 (24.16%)
Hagel General	69 (25.65%)
Gender	
Males	131 (48.70%)
Females	138 (51.30%)
Age	
< 30 years	47 (17.47%)
30-39 years	95 (35.32%)
40-49 years	77 (28.62%)
≥ 50 years	50 (18.59%)
Education	
Less than diploma	10 (3.72%)
Diploma	95 (35.32%)
Bachelor	95 (35.32%)
Postgraduate	69 (25.56%)
Staff position	
Physician/dentist	87 (32.34%)
Nurse	87 (32.34%)
No-physician health specialist	2 (0.74%)
Administrative specialist	3 (1.12%)
Health technician	30 (11.15%)

Administrative staff	19 (7.06%)
Administrator/manager/head department	41 (15.24%)
Experience	
Less than 2 years	24 (8.96%)
2 to less than 5 years	67 (25.00%)
5 to less than 10 years	73 (26.87%)
10 to less than 15 years	45 (16.79%)
15 to less than 20 years	34 (12.69%)
20 years and more	26 (9.70%)

Table 3: Analysis of the relation between the different variables and quality

Characteristics	Mean ±SD	p-value
Hospital		
King Khaled	177.19 ± 26.74	0.0001
Maternity and children	155.45 ± 31.78	
Hagel General	151.84 ± 23.81	
King Fahad	131.60 ± 36.70	
Gender		
Males	158.56 ± 33.92	0.0733
Females	151.15 ± 33.62	
Age		
40-49 years	158.88 ± 30.96	0.6167
30-39 years	153.85 ± 30.96	
≥ 50 years	153.50 ± 39.07	
< 30 years	151.17 ± 30.77	
Education		
Less than diploma	148.50 ± 31.53	0.2193
Diploma	153.08 ± 32.55	
Bachelor	151.83 ± 33.29	
Postgraduate	162.00 ± 36.44	

Staff position		
No-physician health specialist	183.50 ± 2.12	0.0024
Administrator/manager/head department	172.05 ± 23.73	
Administrative specialist	164.67 ± 33.17	
Administrative staff	162.00 ± 33.08	
Health technician	158.20 ± 30.45	
Physician/dentist	151.28 ± 34.57	
Nurse	146.32 ± 35.96	
Experience		
10 to less than 15 years	162.20 ± 29.13	0.1757
5 to less than 10 years	160.21 ± 32.27	
15 to less than 20 years	153.29 ± 39.40	
2 to less than 5 years	150.79 ± 34.57	
Less than 2 years	147.38 ± 30.20	
20 years and more	146.54 ± 38.20	

Table 4: Analysis of the relation between Total Quality Management practices and different areas of performance

Variables	**Hospital Performance**	
	r	***p***
Leadership	0.838	0.0001
Training	0.758	0.0001
Employee management	0.802	0.0001
Information and analysis	0.782	0.0001
Supplier management	0.739	0.0001
Process management	0.719	0.0001
Customer focus	0.817	0.0001
Continuous improvement	0.612	0.0001

Table 5: The difference in quality management practice within different hospitals

Hospital	Mean ± SD	p-value
Hagel general	151.84 ± 23.81	0.0008
vs. King Fahd	131.60 ± 36.70	
King Khalid	177.19 ± 26.74	0.0001
vs. Hagel general	151.84 ± 23.81	
Maternity	155.45 ± 31.78	0.8982
vs. Hagel general	151.84 ± 23.81	
King Khalid	131.60 ± 36.70	0.0001
vs. Khing Fahad	131.60 ± 36.70	
Maternity	155.45 ± 31.78	0.0001
vs.King Fahad	131.60 ± 36.70	
King Khalid	177.19 ± 26.74	0.0002
vs. Maternity	155.45 ± 31.78	

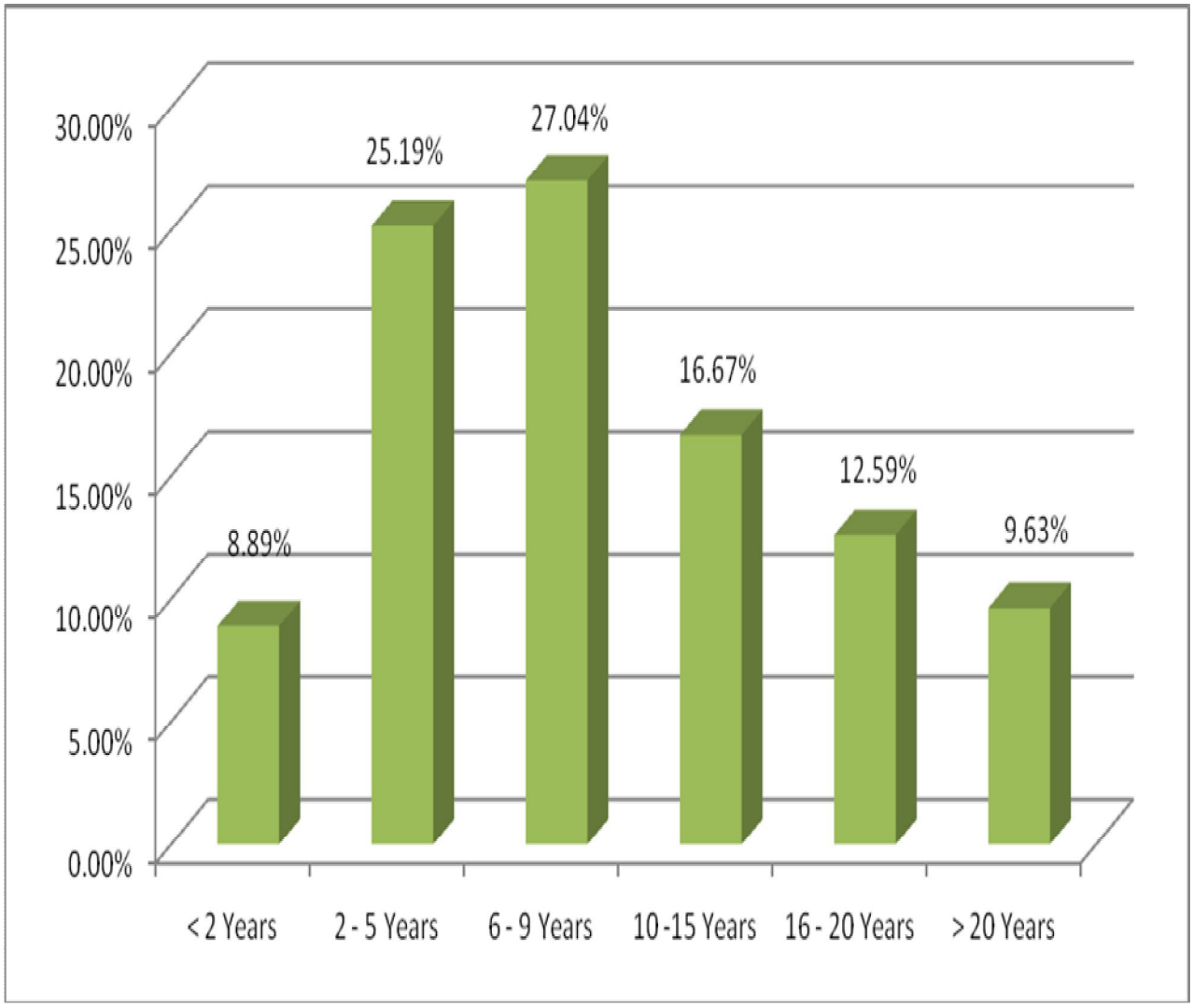

Figure 2: Experience of the staff

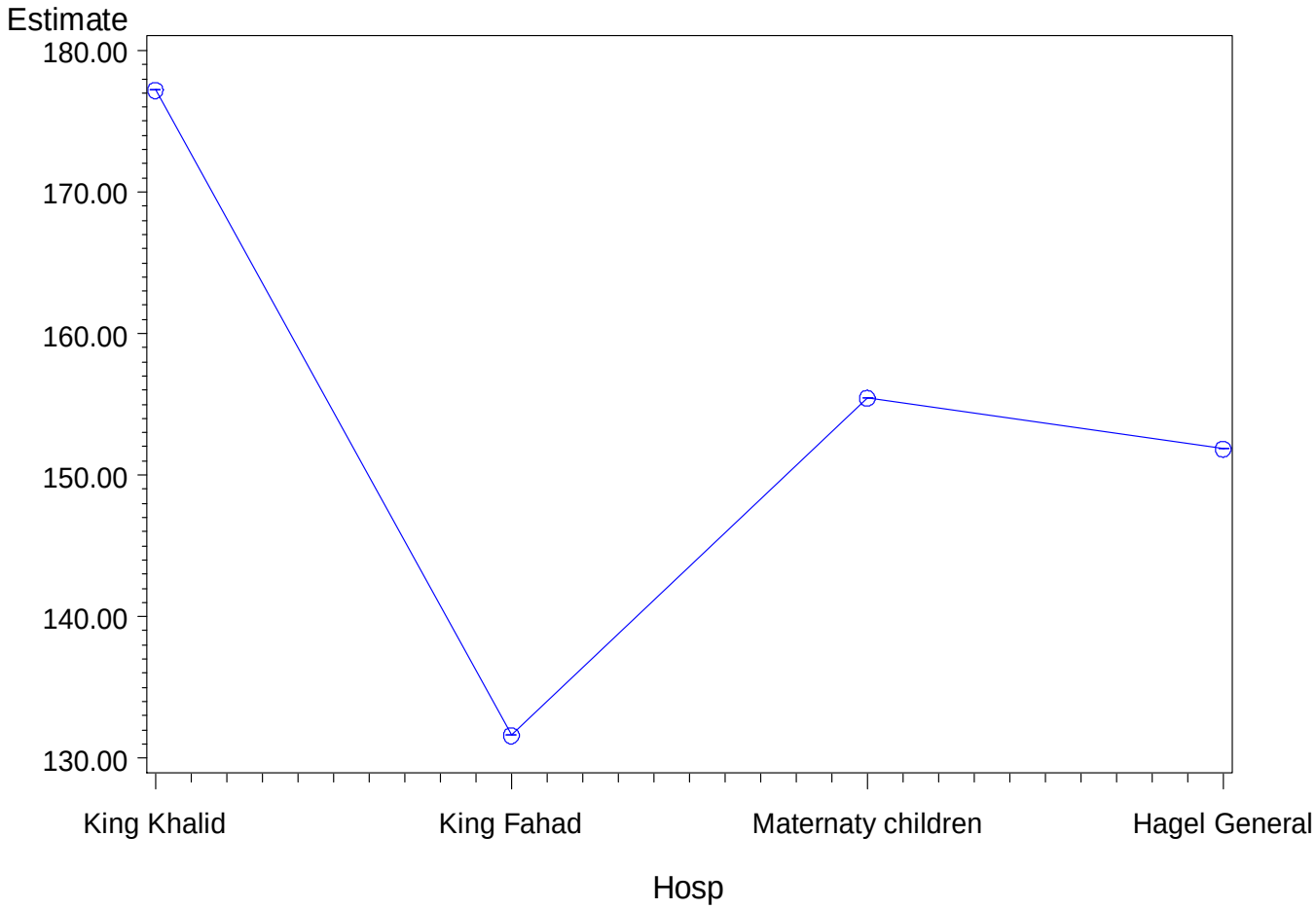

Figure 3: The difference in quality management practice within different hospitals

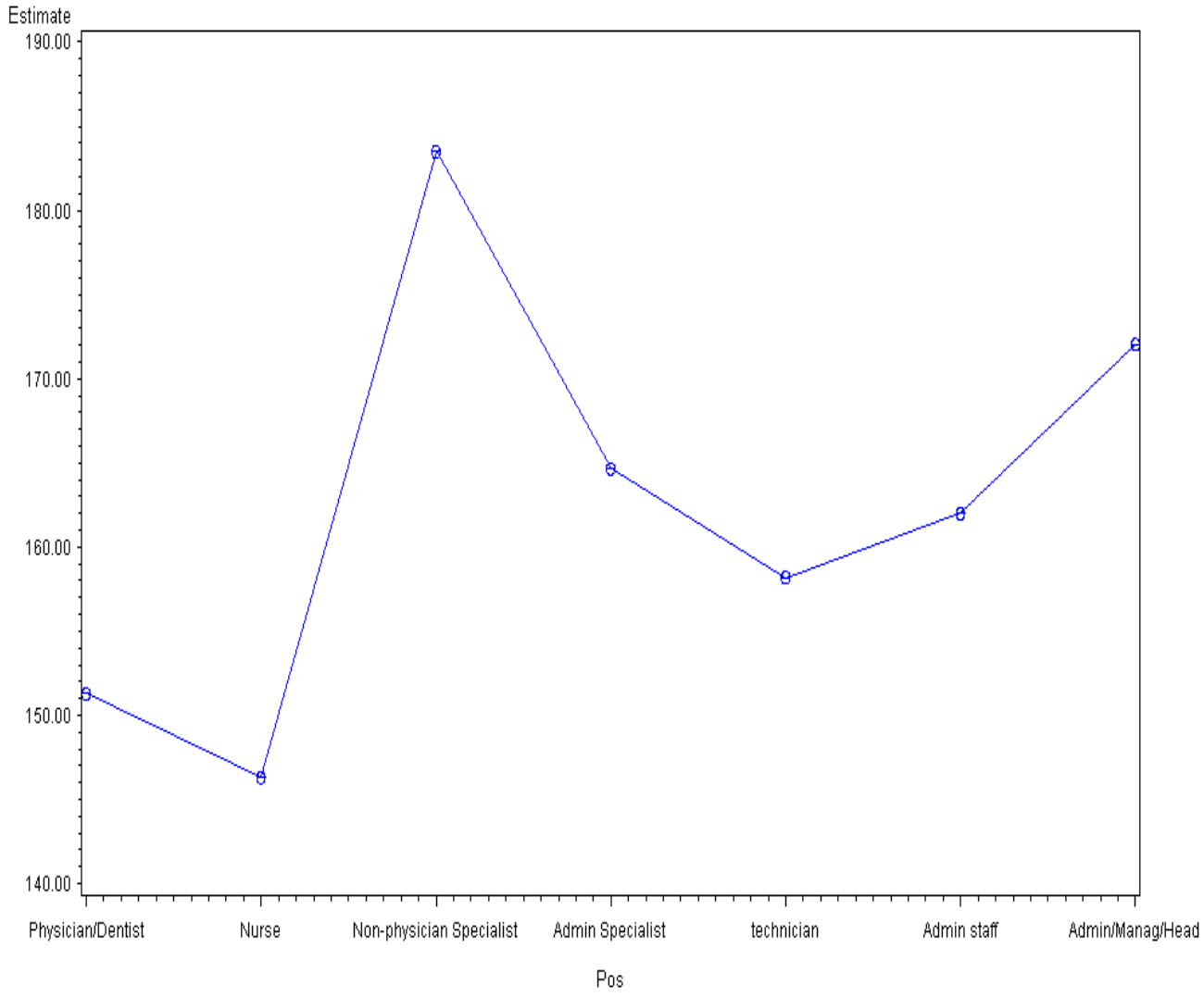

Figure 4: The difference in quality management practice by different staff positions

CHAPTER 5
DISCUSSION, CONCLUSION AND RECOMMENDATIONS

"It takes a wise man to know whether he has found a ROPE or LOST A MULE".

- Anonymous quote

5.1 DISCUSSION

The first remarkable finding of our study is that it reveals a significant and positive relationship between Total Quality Management (TQM) as an independent variable and hospital performance as dependent variable with correlation coefficient ‘r’ value of (0.9) and p-value (0.0001). This means the correlation between TQM and hospital performance is significantly strong to the extent that any improvement in Total Quality Management practices in the Saudi hospitals will lead to increase in the performance of the Saudi MOH hospitals.

This study shows that TQM practices support to reduce service time and thus enable the hospital employees to treat more patients within limited resources. In addition, TQM helps hospitals to increase the organizational flexibility to provide more specialized health services, develop a more competitive profile and improves its reputation in the healthcare market. This leads to increased flexibility among the doctors to provide extra care to patients and improved services that lead towards patient satisfaction. Moreover, our results show that successful implementation of TQM practices enables hospitals to eliminate waste, decrease medical errors, reduce service defects, reduce length of stay, decrease mortality and readmission rates, and thus improve the efficiency of the processes and reduce healthcare costs.

Our results also reveal that the implementation of TQM practices improve the involvement of staff in quality education, improve the communication and share of information among the staff and result in better collaboration and coordination of services. In addition, TQM practices improve productivity, increase staff satisfaction and decrease turnover rate of employees.

The findings of this study confirm and support the findings of many researchers in different countries which revealed a significant positive relationship between TQM and organizational performance either directly or indirectly. In a Jordanian context, Ali et al., (2012) found a significant correlation between TQM practices and hospital performance in Jordanian hospitals. In Pakistan, a recent study by Irfan et al., (2012), revealed that there was a positive correlation among the TQM practices and operational performance of public hospitals of Pakistan. Also in Pakistan, ul Hassan et al., (2012) found a positive significant relationship between the TQM practice implementation and quality performance, business performance, and organizational performance. In line with these findings, Malik et al., (2010), found a positive impact of TQM practice on performance of Small and Medium-sized Enterprises (SMEs) in Punjab province.

The results are also supported by Zakuan et al., (2009) who noted that TQM implementation had positive effect and led to better organizational performance In Malaysia and Thailand. In Turkish healthcare industry, Dilber et al., (2005) indicated a positive correlation between the performance of the hospital and the critical factors of quality management. In India, Talib et al., (2010), found a significant positive relationship between identified TQM practices and quality performance of Indian service companies.

Studies conducted in developed countries also go in line with our findings. For instance, in the United States of America, Weiner et al., (2006) reported a significant association between QI implementation and hospital performance on

clinical quality indicators in community hospitals located in the USA. In an Australian context, Prajogo and Sohal (2004), showed a significant relationship between TQM practices and organizational performance**.**

The second important finding of this study is that it reveals a significant and positive relationship between each of the eight critical TQM practice and hospital performance, with a correlation coefficient 'r' value of 0.84 (p-value 0.0001). This means any increase in the implementation of any of the eight TQM practices in Saudi hospitals will lead to improvement in hospital performance. Our findings establish the importance of TQM as a managerial and quality strategy for continuous improvement of products and services in Saudi hospitals. Effective implementation of the TQM practices in Saudi hospitals will help shape their business ability, enables them to gain competitive advantage through adequate market share and thus positively influence their overall performance.

Many recent studies in different countries around the world indicated that organizational performance was highly influenced by the effective implementation of TQM practices (Ali et al., 2012; Irfan et al., 2012; ul Hassan et al., 2012; Zakuan et al., 2009; Talib et al., 2010; Sadikoglu, 2010; Eker and Pala, 2008). Our findings are also in line with findings of older studies which showed that organizations that successfully adopted TQM practices had a greater flexibility and a greater market advantage in boosting the overall performance of the organization (Yusuf et al., 2007; Sila, 2007; Demirbag et al., 2006; Prajogo and Sohal, 2004; Lin et al., 2005; Nair, 2006; Jun et al., 2006; Kaynak, 2003; Samson and Terziovski, 1999; and Easton and Jarrell, 1998).

The findings of this study show that leadership commitment as a critical TQM practice has the highest impact on hospital performance with 'r' value (0.84) and p-value (0.0001). This means that any improvement in the leadership commitment and support to the implementation of the Total Quality Management practice will

lead to significant improvement in the overall performance of the hospital. We found that, when leaders in Saudi hospitals: accept their responsibility for quality; provide personal leadership for quality services and improvement; encourage fast service; engage all employees in the service process; create and communicate a vision focused on quality improvements; and personally involve in quality improvement projects**,** they increase TQM implementation and improve hospital performance.

This finding is confirmed by several studies that supported the strong positive relationship between leadership commitment and improved hospital performance. For instance, in Saudi Arabia, a recent study by Alharbi and Yusoff (2012) showed a significant positive relationship between leadership and quality management practices in Saudi public hospitals. In Jordan, Ali et al., (2012) also found a significant correlation between leadership and hospital performance in Jordanian hospitals. In Pakistan, a recent study by Irfan et al., (2012), revealed a positive impact of top management on effective implementation of TQM in public hospitals in Pakistan. In Sri Lanka, Kaluarachchi (2009) found that the personal values of the leader (teamwork, openness, responsiveness, forgiveness, practical orientation, and continuation) had positive impact on the successful implementation of the TQM practices in hospitals of Sri Lanka.

In Turkey, Dilber et al., (2005) reported a strong correlation between top management commitment to implementation of TQM and business performance in healthcare industry in Turkey. In India (Talib et al., 2010) noted that top-management commitment for TQM practices was positively correlated with quality performance in Indian service organizations. In Malaysia, Idris (2011) also found positive impact of leadership on any effort to improve the quality of work in Malaysian firms. Dilber et al., (2005) indicated a strong positive correlation

between top management commitment and hospital performance in small and medium size hospitals in Turkey.

This study also reveals a significant and positive relationship between education and training as a critical TQM practice and hospital performance, with a correlation coefficient 'r' value (0.758) and p-value (0.0001). This means that when Saudi hospitals provide extensive training on specific work-skills, TQM practices, and quality understanding and expertise to all staff throughout the organization, they significantly and positively influence hospital performance.

The results go in line with the findings of Ali et al., (2012) who found a significant relationship between training and hospital performance in the Jordanian hospital; Adawiyah and Pramuka, (2012) who asserted that an emphasis on continuous learning and improvement induced a positive culture to warrant a sustainable TQM climate in the organization; and Al-Zu'bi and Judeh, (2011) who noted that extensive quality training provided to employees was critical factor for organization performance. Other older studies also confirmed a positive correlation between training and education, and organization performance (Rad, 2005; Reed et al., 2000; Vermeulen and Crous, 2000; Acton and Golden, 2002).

This study reveals a significant and positive relationship between customer focus as a critical TQM practice and hospital performance, with a correlation coefficient 'r' value (0.817) and p-value(0.0001). The study shows that when managers in Saudi hospitals identify and disseminate customer requirements; supervisors behave in ways that increase the importance of customers and encourage activities that improve customer satisfaction; and employees work in close contact with customers to meet their needs and expectations, Saudi hospitals significantly improve TQM implementation and hospital performance.

Many studies revealed a significant and positive relationship between customer focus and hospital performance. In Jordan, Ali et al., (2012) reported a significant

correlation between customer focus and hospital performance in the Jordanian hospital. In Pakistan, a recent study by Irfan et al., (2012), revealed that customer orientation had positive impact on effective implementation of TQM in public hospitals of Pakistan. In Malaysia and Thailand, Zakuan et al., (2008) noted that customer focus and satisfaction for TQM practices was positively correlated with organizational performanc*e*. Other researchers such as: Tanninen et al., (2010); Taddese and Osada, (2010); Zakuan et al., (2010) indicated a strong relationship between TQM and customer satisfaction and that the customer satisfaction has a great impact on business results through quality practices and that customer satisfaction.

This study reveals a significant and positive relationship between employee management as a critical TQM practice and hospital performance, with a correlation coefficient 'r' value (0.802) and p-value (0.0001***)***. The findings show that when Saudi hospitals acknowledge the value of teamwork as an essential factor in having a fully functioning process management and improvement; form problem solving teams that involve members from all related departments; encourage employees to voice their opinions and suggestions; and actively use teamwork outcomes in decision making, they bring significant improvements in service processes and overall hospital performance.

The finding confirms the findings of recent studies by Talib et al., (2010); Idris, (2011); Irfan et al., (2012); Ali et al., (2012); Ramseook-Munhurrun, (2011); and Zakuan et al., (2008) who all found that employee management was positively correlated with organizational performance. In addition, our finding supports older studies by (Westphal et al., 1997; Yang, 2003; Rad, 2005; Huq, 2005; Sanchez-Rodriguez et al., 2006; Vouzas and Psychogios, 2007) noted that management of employees was significantly and positively correlated with organizational performance. Moreover, our finding goes in line with the guidance of quality

experts who claimed that involvement and participation of all employees at all levels in the organization is critical to improve the quality of the current and future product or service (Deming 1986).

This study reveals a significant and positive relationship between information and analysis as a critical TQM practice and hospital performance, with a correlation coefficient ‘r’ value (0.782) and p-value (0.0001). It has been found that when Saudi hospitals widely use data and information as tools for managing quality; evaluating hospital performance; designing services and processes; and establishing service specifications and procedure, they bring significant positive effect on process management and overall hospital performance.

This finding go in line with the findings of Ali et al., (2012); Chin-Keng and Hamzah, 2011; Sit et al., (2009); Teh et al., (2009) who all noted that the use of information and analysis greatly enhanced customer satisfaction, improved the quality and efficiency, and improved the overall organizational performance. Older empirical studies also reported similar findings, such as: Projogo, (2005); Lee et al., (2003); and Woon, (2000). The findings also go well with Deming's quality management theory which was founded on carefully designed data collection and appropriate analysis, in order to improve quality processes and organization wide systems (Lynch and Sruckler, 2012; Merry, 1992; Deming, 1986).

This study reveals a significant and positive relationship between supplier management as a critical TQM practice and hospital performance, with a correlation coefficient ‘r’ value (0.739) and p-value (0.0001). It has been found that when Saudi hospitals emphasize quality of medical materials in choosing the right supplier instead of price; consider commitment to quality in supplier selection; build good mutual relationships with suppliers; and commit to continuous improvement in supplier selection, they make significant improvement in TQM implementation and hospital performance.

The findings confirm the findings of Talib et al., (2010); Zakuan et al., (2010); Ali et al., (2012) and Mettler and Rohner, (2009) who found that supplier management for TQM practices was positively correlated with quality performance of the organization. They reported that good supplier management provided sustainable benefits in terms of efficiency, efficacy and quality of the operational procurement. Their findings included that developing supplier partnership and long-term relationships could increase the organization competitiveness and thus, improve performance. Similar results were reported by older research which found that developing supplier partnership and long-term relationships can increase the organization competitiveness and improve performance (Zineldin and Fonsson, 2000; Christopher, 1992; Sabel et al., 1987; Slack, 1991).

This study reveals a significant and positive relationship between process management as a critical TQM practice and hospital performance, with a correlation coefficient ‘r’ value (0.719) and p-value (0.000). This means that, when Saudi hospitals use statistical quality tools to reduce variation and bring all equipments and service processes under statistical quality control; train the employees on the basic statistical techniques (such as histogram and control charts); and provide training on advanced statistical techniques (e.g. regression analysis), they positively impact TQM implementation and hospital performance.

Many recent and old studies support the findings of this study. Ali et al., (2012) noted that process management had a significant relationship with hospital performance in Jordanian hospital. Irfan et al., (2012), reported a positive correlation process management and operational performance of public hospitals of Pakistan. Moreover, Sadikoglu and Zehir, (2010); ul Hassan et al., (2012); and Malik et al. (2010) indicated positive impact of process management on organization performance in India, Turkey and Pakistan firms. Zakuan et al., (2008) and Dilber et al., (2005) indicated a positive correlation between process

management and organizational performance. Other empirical studies that systematically investigated the relationships between process management and organization performance showed a positive correlation between the two (Prajogo and Sohal, 2004; Flynn et al.,1995; Kanji, 1998; Cua et al., 2001; Feng et al., 2006).

This study reveals a significant and positive relationship between customer focus as a critical TQM practice and hospital performance, with a correlation coefficient 'r' value (0.817) and p-value(0.0001). the study shows that when Saudi hospitals understand what customers really want and disseminate customer requirements organization wide; hospital managers behave in ways that increase the importance of customers and encourage activities that improve customer satisfaction; and hospital employees collaborate and work in close contact with customers to meet their needs and expectations, they significantly improve TQM implementation and hospital performance.

This study finding is supported by several researchers such as Ali et al., (2012), Taddese and Osada (2010) and Talib et al., (2010) who all found a strong relationship between customer focus and customer satisfaction, and that customer satisfaction has a great impact on business results and organizational performance. In addition, Zakuan et al., (2010) indicated a great positive impact of customer focus on business results and process improvement. There is also evidence from Chong et al., (2009) who reported that customer focus boosted customer loyalty and positively affected competitive advantage and financial performance of the organizational. Moreover, our findings concur with most of the findings of quality experts who agreed that customer focus is a key component of economic success especially in hospitals where customer satisfaction must be the basic principle for any health system in order to be able to evaluate its services and to keep its competitive position (Evans, 2008; Das et al., 2006; Davis, 2009).

The findings show a significant and positive relationship between continuous improvement as a critical TQM practice and hospital performance, with a correlation coefficient 'r' value (0.612) and p-value (0.0001). It has been found that when Saudi hospitals see quality improvement as a normal and integrated ongoing activity within the organization; focus attention on processes and systems rather than individuals; encourage the employees to acquire and apply new knowledge, skills and values to continuously improve the organizational performance; and constantly search for new or improved methods in the process of converting inputs into useful outputs, they significantly improve hospital performance and meet accreditation requirements.

In Jordan, Ali et al., (2012) also found a significant correlation between leadership and hospital performance in Jordanian hospitals.. In Sri Lanka, Kaluarachchi (2009) found that the personal values of the leader (teamwork, openness, responsiveness, forgiveness, practical orientation, and continuation) had positive impact on the successful implementation of the TQM practices in hospitals of Sri Lanka. In Turkey, Dilber et al., (2005) reported a strong correlation between top management commitment to implementation of TQM and business performance in healthcare industry in Turkey. In India (Talib et al., 2010) noted that top-management commitment for TQM practices was positively correlated with quality performance in Indian service organizations. In Malaysia, Idris (2011) also found positive impact of leadership on any effort to improve the quality of work in Malaysian firms.

The findings of this study support the findings of several researchers in different countries. For example, Ali et al., (2012) reported a significant positive correlation between continuous improvement and hospital performance in Jordanian hospitals. Irfan et al., (2012), revealed a positive impact of continuous improvement on effective implementation of TQM in public hospitals in Pakistan. Kaluarachchi

(2009) found that continuous improvement had positive impact on the successful implementation of the TQM practices in hospitals of Sri Lanka. Sadikoglu and Zehir, (2010) found that continuous improvement helped in reducing the process variability and continuously improving the output performance. Dilber et al., (2005) indicated a strong positive correlation between continuous improvement and hospital performance in small and medium size hospitals in Turkey. Other studies by Baghal and Bhuiyan, (2005); Juergensen, (2000); and Corbett and Rastrick. (2000) found that the culture of continuous improvement generated creativity among employees, led to innovations, reduction in delivery time, costs associated with repair, rework, yielded cost competitiveness and resulted in competitive excellence.

The study reveals a significant association between different staff positions and quality management practice with p-value (0.0024). The results show non-significant association of quality management practice and the other variables including gender, age, education, and experience (p-value >0.05). While nurses and physicians reported the lowest scores in their perception to TQM with mean ±SD (146.32 ± 35.96 and 151.28 ± 34.57) respectively, the other categories reported higher scores that vary from (158.20 ± 30.45 to 183.50 ± 2.12). These findings mean that the perceptions of hospital managers, physicians, nursing, and non-clinical staff on the implementation of TQM in their hospitals are strongly diverge. The findings also reveal that the MOH hospitals are having difficulties in integrating physicians and nurses into their total quality management (TQM) program.

The findings of this study support the findings of Berwick et al., (1990) who reported that the challenge of involving clinical staff in TQM was pervasive and troublesome for healthcare organizations. Many other reports indicated that physicians were reluctant to participate in QI projects (Blumenthal and Edwards

1995; Shortell, 1995; Shortell et al., 1995a). Weiner et al., (1997) noted that while 11% of active staff physicians at TQM hospitals had received formal QI training, only 8 percent had participated in a QI project team (Weiner, 1997). Huarng et al., (2002) described the experiences of involving clinical staff in TQM in Taiwanese hospitals. They studied the interaction with physicians to build a TQM relationship between hospitals and physicians. They found that, physicians would not view TQM as an acceptable strategy in the absence of a positive working relationship with hospital managers. McCarthy (1993) noted that physicians must see hospital managers as colleagues who can help improve their medical practices both in efficiency and patient care. In contradiction to these findings, Weiner et al., (2006) reported that the percentage of physicians participating in QI teams was not associated with better values on the hospital-level quality indicators studied.

Patwardhan and Patwardhan (2007) reported that nurses were discouraged and puzzled between their real functions and functions the system required from them. However many authors believe that the lack of clinical staff involvement represents the single most important obstacle to the success of clinical QI (Berwick, Godfrey, and Roessner 1990; Board 1992; Health Care Advisory Board 1992; McLaughlin and Kaluzny 1994; Blumenthal and Edwards 1995; Shortell 1995). They concluded that, clinical staff and especially physicians play a central role in clinical resource allocation decisions and possess the clinical expertise needed to differentiate appropriate from inappropriate variation in care processes.

The argumentation of the diverge perceptions of the hospital staff on the implementation of TQM can be developed along multiple directions of thought: the highly departmentalized and the functional-hierarchical structure of the hospital; the bias of physicians towards personal technical performance; the lack of a common quality culture in the hospital; shortage of staff; insufficient budget and

the lack of effective hospital leadership. In addition, physicians in particular are reluctant to participate in TQM activities because of distrust of hospital motives, lack of time, and fear that reducing variation in clinical processes will compromise their autonomy and ability to vary care to meet individual need of their patients (Blumenthal and Edwards 1995; Shortell, 1995; Shortell et al., 1995a).

The practical implication of this divergent pattern of findings has implications for TQM practice. As noted earlier, quality experts emphasize that TQM requires organization-wide commitment and involvement because most, if not all, vital work processes require many individuals, disciplines, and departments. Debate exists, however, about the best approach for encouraging organization-wide participation in QI. Hospitals will need to overcome these barriers in order to create a more uniform perception on quality management, which is needed if implementation of TQM is to gain hospital-wide adoption. More interaction with clinical staff especially physicians is necessary to build a TQM relationship between the top management and clinical staff. The first step to be taken by the top management to involve physicians in TQM is by creating an environment that enhances physician relationships. The hospital director should be actively involved with the physicians, the senior medical managers and the medical director to enhance physician relationships. It is equally important that, rather than attempting to engage most of the medical staff in time consuming quality projects, hospital leaders could perhaps secure needed physician input by involving selected physicians on an as-needed basis (Weiner et al., 2006), It is important that the leadership demonstrates its commitment to the hospital processes and to provide the necessary resources to permit employees to participate in quality improvement activities. The hospital has to adopt a TQM culture to make the public hospital

more responsive to customers' needs while also improving its efficiency and effectiveness.

The fourth important finding of this study is that it reveals that accredited hospitals applied TQM practices more significantly than unaccredited hospitals as shown by Tuckey test (see Table 3). Accreditation is a process whereby an organization is assessed by external peer reviewers on a set of pre-determined standards (Klazinga, 2000; Montagu, 2003). While accreditation is desired by key stakeholders, it is expensive and time consuming. Stakeholders thus are seeking evidence that accreditation is associated with better quality and safety. Ideally, it would also be associated with improvement in hospital performance over time.

The findings show that TQM implementation among the four hospitals is significantly divergent. There is significant difference between King Khaled hospital (mean ± SD, 177.19 ± 26.74) and the other three hospitals: (i) King Fahad hospital (131.60 ± 36.70) with p-value (0.0001); (ii) Maternity hospital (155.45 ± 31.78) with p-vale (0.0002); and (iii) Hagel General hospital (151.84 ± 23.81) with p-value (0.0001). This means that King Khaled hospital; as the only CBAHI-accredited hospital in Tabuk region; has better implementation of the TQM practices than the other three hospitals which are still under the accreditation process. The findings confirm our hypothesis that accredited hospitals have better implementation of TQM practices than non-accredited hospitals. Non-accredited hospitals performed more poorly than accredited hospitals on most of the TQM practices. These results are consistent with other studies that have looked at both process and outcome measures and accreditation. Accredited hospitals have larger gains over time, and are significantly more likely to have high performance in the future.

The study confirms the results of Al-Qahtani et al., 2012, who found that, accredited hospitals performed favorably compared with non-accredited hospitals in almost all quality practices in public hospitals in Dammam, Saudi Arabia. Al Awa et al., (2011), indicated that, accreditation had an overall highly significant improvement on quality of patient care and patient safety in a hospital in Jeddah, Saudi Arbia. Al-Awa (2011), who found that, accreditation has generated a positive impact on the quality of patient care and patient safety in King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia.

Internationally, Malone (2011) found that accredited U.S. acute care and critical access hospitals outperformed non-accredited hospitals on evidence-based measures of quality. In addition, Schmaltz et al., (2011) found that hospitals accredited by The Joint Commission outperformed non-accredited hospitals on publicly reported quality measures and their performance level continued to increase every year.

5.2 CONCLUSION

"Medicine used to be simple, ineffective, and relatively safe. Now it is complex, effective, and potentially dangerous."

Sir Cyril Chantler

This part introduces the conclusion of the research in relation to the aims, objectives and research questions. Recommendations have also been developed concerning the role of managers and employees in supporting the implementation of TQM practices in Saudi hospitals. Both the conclusions and recommendations were developed based on the literature review and the discussion of the results of the quantitative investigations.

The problem of poor quality hospital care, serious medical errors and inefficient healthcare processes can be solved or even eliminated. Hospitals can be made safer for people who trust doctors and nurses with their lives and the lives of their families. However, this requires effective implementation of Total Quality Management (TQM) practices and a combined effort of management and employees to improve the processes and systems of care.

The impact of TQM practice on several aspects of hospital performance such as desired clinical outcomes, effectiveness, efficiency, productivity, and operation flexibility have been well documented in previous studies. This reflects the importance of TQM in the context of hospitals where quality and safety standards are highly needed since they deal with lives of people. Failure to adhere to the accepted standards of practice and care may lead to severe permanent harm to patients or even death. Therefore, as seen in this thesis, TQM is fairly implemented in the Saudi MOH hospitals particularly those accredited by the Central Board for Accreditation of Healthcare Institutions (CBAHI).

The present study employed both descriptive and quantitative analysis and presented a significant positive correlation between independent variable (TQM practices) and dependent variable (hospital performance) and a causal relationship was determined between the two variables with the help of multiple regression analysis. A total of 8 TQM practices consisting of 43 items are used to measure TQM implementation, while four outcome measures including 23 items are used to assess hospital performance. The study reveals that, if TQM practices are applied in true essence in the context of Saudi public hospitals, it will contribute in their performance in terms of quality and profitability.

It is hoped that the important facts addressed in this thesis will help managers and researchers to investigate the TQM problems in Saudi hospitals with better

awareness. It is important for Saudi hospitals to establish quality resource centers and quality management councils to provide training and oversight of all TQM activities within the hospital. The continuous search for excellence should be seen as "ibadaha" and a religious value by all managers and employees, following the Messenger of Allah (peace and blessings be upon him) who said, “Verily, Allah loves that when anyone of you does a job he should perfect it” (Al-Bayhaqi).

5.3 RECOMMENDATIONS

The findings of this empirical research provide many practical implications for Saudi hospitals to improve their performance. This study also provides a wide functional experience to the managers in their current roles and emphasizes continuous training and education in the TQM area. The findings also provide some insights as to how the managers of the Saudi hospitals can improve their service performance and how they can implement TQM practices successfully in their hospitals. Following are some of the potential implications for the Saudi hospitals:

- The findings of this study provide a practical understanding of TQM practices and their applicability in the Saudi hospital context for improved performance. They would be very useful for the policy makers in evaluating the effectiveness of their current TQM practices.
- The findings support the argument that the TQM practices should be implemented holistically rather than on a piecemeal basis to get the full potential of the identified TQM practices. Managers in Saudi hospitals must focus on the implementation of these critical practices to achieve higher levels of performance in the healthcare services.

- The findings suggest that top management in Saudi hospitals should focus more on increasing the awareness of TQM practices among the top managers to ensure leadership commitment to the culture of excellence.
- The top management must accept their responsibility for quality. They must engage all employees in continuous quality improvement, through creating and communicating a vision focused quality culture. The importance of quality culture and involvement of the entire workforce in the hospital is essential for the successful implementation of TQM and improving the hospital performance.
- Top management in Saudi hospitals must regularly review their services and design new processes or redesign their current ones in response to the ever rising customer expectations. They should also focus on developing good relationship with their suppliers to achieve sustainable benefits in terms of efficiency, revenue increases and knowledge acquisition.
- The top managers in Saudi hospitals must show great attention to the employees. It is necessary to adopt TQM principles from the top management to frontline staff. Beside this, continuous training and education in new and emerging quality tools and techniques will constantly encourage the workers to continuously improve the product and services of the hospital. Training and education is an essential part of TQM implementation and should be given from time to time through programs and workshop to ensure that all employees acquire the relevant knowledge and experience to implement TQM.
- Further, because Saudi hospitals are more likely to be interactive with customers, the quality problems may occur at any point during the service to patients. It is necessary to enhance teamwork and effective communication

to solve the problems in the shortest time in any service process. As noted earlier, quality experts emphasize that TQM requires organization-wide commitment and involvement because most, if not all, vital work processes in hospitals require input from many individuals, disciplines, and departments. It is important that the leadership provides the necessary resources to permit employees to participate in quality improvement activities. This supports the findings of the survey that leadership support is considered as the most important practice for the implementation of TQM in the healthcare industry.

- The findings of this study suggest that Saudi hospitals can improve the engagement of physicians in the quality initiative by creating an environment that enhances physician relationships. Hospital leaders should have more interaction with physicians as it is necessary to build a TQM relationship between the top management and clinical staff. The hospital director should be actively involved with physicians, senior medical managers and the medical director to enhance physician relationships. It is equally important that, rather than attempting to engage most of the medical staff in time consuming quality projects, hospital leaders could perhaps secure needed physician input by involving selected physicians on an as-needed basis,
- It is important for Saudi hospitals to seek CBAHI accreditation to achieve sustained improvements in their clinical, governance, managerial and support services rather than working towards obtaining the accreditation certificate as the ultimate goal.
- Quality and patient safety should be taught in faculties of medicine and health sciences.

5.4 LIMITATIONS

Since this study is considered as the first attempt to investigate the adoption of the critical Total Quality Management practices in the Saudi Ministry of Health hospitals, it has a number of limitations. Three important study limitations should be noted.

The first limitation is that the sample is not statistically representative of the population of the Ministry of Health hospitals in Saudi Arabia. The second limitation is the non-random selection of participants. Hence, while the sample appears to be formally representative of the population with respect to several organizational and environmental characteristics, the possibility of sampling bias cannot be discounted. This suggests that caution should be exercised in generalizing our study findings to a specific hospital population. Therefore, the results cannot be simply generalized to all public hospitals in Saudi Arabia or in other countries.

The third limitation is the use of the quantitative approach with the questionnaire as the primary tool for data collection. The use of this approach is not entirely without difficulty. In particular in this study, as in many studies of this type, it is difficult to find perfect instruments. The instrument used is likely to produce useful results and the statistical tests are consistent with their validity because if the instrument was imperfect the results from the questionnaire estimation might also be inaccurate.

Finally, limits of the ability to measure actual hospital performance and quality of care is explicitly acknowledged. The literature on hospital performance and quality of care clearly underscores the difficulty of measuring hospital performance in a valid and reliable fashion. Each approach to assessing hospital performance is subject to criticism, regardless of whether measures derive from

customer feedback, patient medical charts or from clinical indicators. The study does not suggest that the hospital performance measures used here and in many similar studies in the international literature are the only measures, or even the best measures. Moreover, using the term ‘‘quality of care’’ in describing the dependent variables has been avoided. Instead the study emphasizes the term ‘‘hospital performance.’’ The measures have been considered as indicative of possible problems of overuse, underuse or misuse of health services, rather than quality of care per se, in order to take a conservative position on these issues.

Despite these limitations, it is believed that the breadth and depth of the data, coupled with reliable, validated measures for both TQM practice and hospital performance, this study represents an advance over previous small-sample studies of hospital performance and provides a solid basis for subsequent research. The study meets the requirements of multiple stakeholders who demand data and evidence from providers regarding the effectiveness of TQM in improving the quality and safety of health service. The present study provides multiple stakeholders with information about the relationship of TQM practice and overall hospital performance.

5.5 FUTURE STUDY

Given the recent shift in attention toward clinical outcomes, there has not been an equal shift in efforts to examine why variations in clinical outcomes exist, and perhaps more importantly, what organizational practices and procedures are associated with improved quality indicators at an institutional level. Future research could further explore the relationship between TQM practices and the clinical indicators newly introduced by the Ministry of Health. A contemporary replication of this study using these quality indicators to assess hospital performance would be valuable. Another area of interest is the relationship

between Total Quality Management implementation and patient safety. In addition, future research could also identify the organizational and market conditions under which specific TQM practices affect quality indicators.

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APPENDICES

APPENDIX 1
Questionnaire (English Version)

The Impact of Critical Total Quality Management (TQM) Practices on Hospital Performance in the Ministry of Health Hospitals in Tabuk Region: (Managers and Employees' Perspectives)

This survey asks for your opinions about the implementation of total quality management and its relation to your hospital performance. It will take about 15 to 20 minutes of your time to complete.

If you do not wish to answer a question, or if a question does not apply to you, you may leave your answer blank.

I. Background Information

This information will help in the analysis of the survey results.

1. Gender?

☐ a. Male ☐ b.Female

2. How long have you worked in your current hospital work area/unit?

☐ a. Less than 2 years ☐ d.11 to 15 years
☐ b. 2 to 5 years ☐ e.16 to 20 years
☐ c. 6 to 10 years ☐ f. 21 years or more

3. What is your highest education level? Select one answer.

☐ a. Less than diploma ☐ d.Bachelor
☐ b. Diploma ☐ e.Postgraduate

4. What is your staff position in this hospital? Select ONE answer that best describes your staff position.

☐ a. Physician
☐ b. Nurse
☐ e. Technician (e.g., Radiology, Lab ….)
☐ f. Technician
☐ g. Administrator/Manager
☐ j. Other, please specify: _____

5. How long have you worked in your current specialty or profession?

☐ a. Less than 1 year ☐ d. 11 to 15 years

☐ b. 1 to 5 years ☐ e. 16 to 20 years

☐ c. 6 to 10 years ☐ f. 21 years or more

Please indicate your agreement or disagreement with the following statements about your hospital.

II. Leadership Commitment to quality in your hospital

Think of the role of your hospital leaders in supporting the implementation of TQM	**Strongly Disagree** ▼	**Disagree** ▼	**Neither** ▼	**Agree** ▼	**Strongly Agree** ▼
1. All major department heads within our hospital accept their responsibility for quality	☐1	☐2	☐3	☐4	☐5
2. Hospital management provides personal leadership for quality services or quality improvement	☐1	☐2	☐3	☐4	☐5
3. All major department heads within our hospital work towards encouraging fast service	☐1	☐2	☐3	☐4	☐5
4. Our top management strongly encourages employee involvement in the service process	☐1	☐2	☐3	☐4	☐5
5. Hospital management creates and communicates a vision focused on quality improvements	☐1	☐2	☐3	☐4	☐5
6. Hospital management is personally involved in quality improvement projects	☐1	☐2	☐3	☐4	☐5

II. Education and Training

Think of the knowledge of the staff about quality in your hospital	**Strongly Disagree** ▼	**Disagree** ▼	**Neither** ▼	**Agree** ▼	**Strongly Agree** ▼
7. Specific work-skills training (technical and vocational) is given to employees throughout the hospital	☐1	☐2	☐3	☐4	☐5

8. Quality-related training is given to all staff throughout the hospital	☐1	☐2	☐3	☐4	☐5
9. Quality-related training is given to managers and supervisors throughout the hospital	☐1	☐2	☐3	☐4	☐5
10.Training in the "total quality concept" (i.e. philos	☐1	☐2	☐3	☐4	☐5

III. Employee Management

Think of involvement of staff and teams in quality activities	**Strongly Disagree ▼**	**Disagree ▼**	**Neither ▼**	**Agree ▼**	**Strongly Agree ▼**
11.During problem solving sessions, we make an eff	☐1	☐2	☐3	☐4	☐5
12. ..... Our hospital forms teams to solve p	☐1	☐2	☐3	☐4	☐5
13.In the past 3 years, many problems have been sol	☐1	☐2	☐3	☐4	☐5
14.Problem solving teams have helped improve serv	☐1	☐2	☐3	☐4	☐5
15.Employee teams are encouraged to try to solve th	☐1	☐2	☐3	☐4	☐5
16. .....Ideas from hospital employees are activ	☐1	☐2	☐3	☐4	☐5
17.In this hospital, teamwork is commonplace-the e	☐1	☐2	☐3	☐4	☐5
18.In this organization, everyone participates in imp	☐1	☐2	☐3	☐4	☐5
19.Employees do not hesitate to voice their opinions	☐1	☐2	☐3	☐4	☐5

VI. Information and Analysis

Think of the availability and use of data in quality improvement	**Strongly Disagree ▼**	**Disagree ▼**	**Neither ▼**	**Agree ▼**	**Strongly Agree ▼**
20.Quality data (cost of quality, defects, errors, scra	☐1	☐2	☐3	☐4	☐5
21.Quality data are used widely to evaluate supervis	☐1	☐2	☐3	☐4	☐5
22.Thoroughness of new service design is reviewed	☐1	☐2	☐3	☐4	☐5
23.Service specifications and procedures (examples	☐1	☐2	☐3	☐4	☐5
24.Implementation of medical service is considered	☐1	☐2	☐3	☐4	☐5

V. Supplier Management

Think about how supplies are acquired, managed and allocated	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Think about monitoring and improving the processes of work	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
29.A large percent of the equipments or processes ir	☐1	☐2	☐3	☐4	☐5
30.A statistical technique to reduce variance in proc	☐1	☐2	☐3	☐4	☐5
31.Charts are used to determine whether our service	☐1	☐2	☐3	☐4	☐5
32.Our processes are being monitored using statistic	☐1	☐2	☐3	☐4	☐5
33.Training is given in the basic statistical technique	☐1	☐2	☐3	☐4	☐5
34.Training in advanced statistical techniques (e.g. r	☐1	☐2	☐3	☐4	☐5
25.Quality of medical materials is highly emphasize	☐1	☐2	☐3	☐4	☐5
26.Commitment to quality in supplier selection is hi	☐1	☐2	☐3	☐4	☐5
27.Process capability (supply of medical materials o	☐1	☐2	☐3	☐4	☐5
28.Commitment to continuous improvement in supp	☐1	☐2	☐3	☐4	☐5

VI. Process Management

VII. Customer Focus.

Think about how patiensts' needs are identified and met	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
35. Customer requirements are disseminated and un	☐1	☐2	☐3	☐4	☐5
36. .....We know our customers' current and futu	☐1	☐2	☐3	☐4	☐5
37. .... We are frequently in close contact with our cu	☐1	☐2	☐3	☐4	☐5
38. .....Our customers frequently visit ou	☐1	☐2	☐3	☐4	☐5

38.Managers and supervisors encourage activities th	☐1	☐2	☐3	☐4	☐5
40.Satisfying our customers and meeting their expec	☐1	☐2	☐3	☐4	☐5
41.Senior executives behave in ways that increases t	☐1	☐2	☐3	☐4	☐5

VIII. Continuous Improvement.

Think about the continuity of quality improvement efforts	**Strongly Disagree**	**Disagree**	**Neither**	**Agree**	**Strongly Agree**
42.Many of our services have been improved in the	☐1	☐2	☐3	☐4	☐5
43.This hospital has received recent accreditation fo	☐1	☐2	☐3	☐4	☐5

IX. Dimensions of Hospital Performance

Think about statistical indicators of hospital performance	**Strongly Disagree**	**Disagree**	**Neither**	**Agree**	**Strongly Agree**
44. .....General mortality rate decreased la	☐1	☐2	☐3	☐4	☐5
45. .....Outpatients' satisfaction increased la	☐1	☐2	☐3	☐4	☐5
46.Readmission rate within 24 hours in emergency d	☐1	☐2	☐3	☐4	☐5
47. .....Length of stay decreased la	☐1	☐2	☐3	☐4	☐5
48. ..... Services lead-time has d	☐1	☐2	☐3	☐4	☐5
49. .....Patient's complaints have	☐1	☐2	☐3	☐4	☐5

X. Staff and Work System Results

Think about the productivity and satisfaction of staff	**Strongly Disagree**	**Disagree**	**Neither**	**Agree**	**Strongly Agree**
50.Employees hours spent in education and training	☐1	☐2	☐3	☐4	☐5
51. ....The productivity of per employee per month in	☐1	☐2	☐3	☐4	☐5
52. ..... Employee satisfaction has in	☐1	☐2	☐3	☐4	☐5
53. .....Turnover rate of employees has d	☐1	☐2	☐3	☐4	☐5

54. .....Information sharing has i	☐1	☐2	☐3	☐4	☐5

XI. Hospital Efficiency and Effectiveness Results

Think of statistical indicators and service results	**Strongly Disagree** ▼	**Disagree** ▼	**Neither** ▼	**Agree** ▼	**Strongly Agree** ▼
55. .....Numbers of outpatients has i	☐1	☐2	☐3	☐4	☐5
56. .....Numbers of inpatients have i	☐1	☐2	☐3	☐4	☐5
57. .....Number of general anesthesia surgery has i	☐1	☐2	☐3	☐4	☐5
58. .....General occupancy rate has i	☐1	☐2	☐3	☐4	☐5
59. ..... The productivity has i	☐1	☐2	☐3	☐4	☐5
60. ..... The hospital's reputation has i	☐1	☐2	☐3	☐4	☐5
61.Number of service defects, medical errors, or bre	☐1	☐2	☐3	☐4	☐5
62. .....Cost of quality has c	☐1	☐2	☐3	☐4	☐5

XII. Flexibility Performance Result

Think of the hospital capabilities to response to changes	**Strongly Disagree** ▼	**Disagree** ▼	**Neither** ▼	**Agree** ▼	**Strongly Agree** ▼
63. ..... The waste has	☐1	☐2	☐3	☐4	☐5
64.. The competitive position of hospital's has strer	☐1	☐2	☐3	☐4	☐5
65.Capacity to develop unique competitive profile h	☐1	☐2	☐3	☐4	☐5
66.Capability to provide specially health care and se	☐1	☐2	☐3	☐4	☐5

IVX. Your Comments

Please feel free to write any comments about quality management in your hospital.

THANK YOU FOR COMPLETING THIS SURVEY.

APPENDIX 2
Questionnaire (Arabic Version)

تأثير تطبيق عناصر إدارة الجودة الشاملة على أداء مستشفيات وزارة الصحة بمنطقة تبوك (من منظور المدراء والعاملين)

هذا الاستبيان يهدف لمعرفة رأيكم في العلاقة بين تطبيق مفاهيم الجودة الشاملة والأداء العام للمستشفى. تعبئة هذا الاستبيان تستغرق حوالي 15 – 20 دقيقة من وقتكم الغالي. نأمل التكرم لطفاً باستيفاء المطلوب للمساهمة في تحقيق أهداف هذه الدراسة.

إذا كنت لا ترغب في الإجابة على أي سؤال من الأسئلة التالية، يمكنك أن تدع الخيارات فارغة دون تحديد أي خيار.

I. ما هو اسم المستشفى الذي تعمل فيه؟

☐ مستشفى الملك خالد ☐ مستشفى الولادة والأطفال

☐ مستشفى الملك فهد ☐ مستشفى حقل العام

II. المعلومات الشخصية:

هذه المعلومات ضرورية وتساعد في تحليل النتائج.

1- الجنس؟

☐ ذكر ☐ أنثى

2- العمر؟

☐ أقل من 30 سنة ☐ 40 – 49 سنة

☐ 30 – 39 سنة ☐ 50 سنة فأكثر

3- الدرجة العلمية؟ رجاء اختيار إجابة واحدة فقط

☐ أقل من دبلوم ☐ بكالوريوس

☐ دبـــــــلوم ☐ ماجستير/دكتوراة

4- ماهي وظيفتك في المستشفى؟ رجاء اختيار إجابة واحدة فقط

☐ طبيب ☐ فني صحي (أشعة، مختبر ...)

☐ ممرض/ممرضة ☐ إداري (كاتب/سكرتير/ناسخ ...)

☐ أخصائي صحي غير طبيب ☐ مدير إدارة/رئيس قسم

م	الوصف	أعارض بشدة	أعارض	لا أعارض ولا أوافق	أوافق	أوافق بشدة
	فكر في دورالقيادات العليا بالمستشفى في دعم جهود تطبيق الجودة الشاملة	▼	▼	▼	▼	▼
1	جميع رؤساء الأقسام في المستشفى يتحملون مسؤوليتهم عن الجودة	☐1	☐2	☐3	☐4	☐5
2	الإدارة العليا للمستشفى توفر نموذجاً يحتذى بمشاركتهم الشخصية في قيادة جهود تحسين جودة الخدمات بالمستشفى	☐1	☐2	☐3	☐4	☐5
3	جميع رؤساء الأقسام في المستشفى يشجعون سرعة تقديم الخدمة للمستفيدين	☐1	☐2	☐3	☐4	☐5
4	الإدارة العليا للمستشفى تشجع بشدة إشراك العاملين في تصميم وتقييم ومراقبة العمليات والإجراءات المتعلقة بخدمات المستشفى	☐1	☐2	☐3	☐4	☐5
5	الإدارة العليا للمستشفى لديها رؤية واضحة ترتكز على تحسين جودة الخدمات وتقوم بنشر هذه الرؤية بين جميع العاملين في المستشفى	☐1	☐2	☐3	☐4	☐5
6	الإدارة العليا للمستشفى تشارك مشاركة شخصية في مشاريع تحسين الجودة بالمستشفى	☐1	☐2	☐3	☐4	☐5

☐ أخصائي إداري ☐ أخرى (تذكر: .....

5- كم عدد سنوات خبرتك في المستشفى؟ رجاء اختيار إجابة واحدة فقط

☐ أقل من سنتين ☐ 10 سنوات إلى أقل من 15 سنة

☐ سنتين إلى أقل من 5 سنوات ☐ 15 سنة إلى أقل من 20 سنة

☐ 5 سنوات إلى اقل من 10 سنوات ☐ 20 سنة فأكثر

رجاء تحديد مدى إتفاقك أو أختلافك مع الوصف التالي:

III- التزام الإدارة العليا بالجودة في المستشفى

م	الوصف	أعارض بشدة	أعارض	لا أعارض ولا أوافق	أوافق	أوافق بشدة
	فكر في معرفة العاملين بالمستشفى بمفاهيم الجودة الشاملة	▼	▼	▼	▼	▼

7	يتم تدريب كل فرد من الأفراد العاملين في المستشفى على المهارات الفنية والمهنية لوظيفته	☐1	☐2	☐3	☐4	☐5
8	يتم تدريب جميع العاملين بالمستشفى على مفاهيم وأسس الجودة	☐1	☐2	☐3	☐4	☐5
9	يتم تدريب جميع المدراء والرؤساء والمشرفين على مفاهيم وأسس الجودة	☐1	☐2	☐3	☐4	☐5
10	يتم تدريب جميع العاملين على فلسفة الجودة الشاملة (مثلاً أن الجودة مسؤولية كل فرد من أفراد المستشفى)	☐1	☐2	☐3	☐4	☐5

IV- التعليم والتدريب في المستشفى

V- إدارة الأفراد

م	**الوصف**	**أعارض بشدة**	**أعارض**	**لا أعارض ولا أوافق**	**أوافق**	**أوافق بشدة**
	فكر في إشراك العاملين في تحسين الجودة بالمستشفى	▼	▼	▼	▼	▼
11	أثناء جلسات حل مشاكل العمل فإننا نهتم بمعرفة آراء وأفكار ومقترحات جميع أعضاء الفريق قبل اتخاذ أي قرار	☐1	☐2	☐3	☐4	☐5
12	مستشفانا يقوم بتشكيل فرق عمل لحل مشاكل العمل بالمستشفى	☐1	☐2	☐3	☐4	☐5
13	خلال السنوات الثلاث الماضية تم حل العديد من مشاكل العمل في المستشفى من خلال فرق عمل صغيرة تعاملت مع هذه المشاكل وحلتها	☐1	☐2	☐3	☐4	☐5
14	فرق العمل ساعدت في تحسين الإجراءات والخدمات في هذا المستشفى	☐1	☐2	☐3	☐4	☐5
15	يتم تشجيع فرق العمل لمحاولة حل المشاكل بقدر المستطاع	☐1	☐2	☐3	☐4	☐5
16	تتم الاستفادة من مقترحات وأفكار العاملين في المستشفى وتوظيفها بطريقة فعالة	☐1	☐2	☐3	☐4	☐5
17	في هذا المستشفى تعتبر فرق العمل هي الطريقة المثلى لأداء العمل	☐1	☐2	☐3	☐4	☐5
18	في هذا المستشفى كل فرد يساهم ويعمل من أجل تحسين الخدمات والإجراءات	☐1	☐2	☐3	☐4	☐5
19	في هذا المستشفى لا يتردد العاملون في الجهر بأرائهم ومقترحاتهم أو الاستفسار عن أي نشاط من أنشطة المستشفى	☐1	☐2	☐3	☐4	☐5

VI- المعلومات والتحليل

م	الوصف	أعارض بشدة	أعارض	لا أعارض ولا أوافق	أوافق	أوافق بشدة
	فكر في دور القيادات العليا بالمستشفى في دعم جهود تطبيق الجودة الشاملة	▼	▼	▼	▼	▼
20	تستخدم بيانات الجودة (تكلفة عدم تطبيق الجودة، تكلفة الأخطاء، تكلفة العيوب، إعادة أداء العمل .. الخ) لتحسين جودة الخدمات في المستشفى	☐1	☐2	☐3	☐4	☐5
21	تستخدم بيانات الجودة على نطاق واسع في تقييم أداء المشرفين ورؤساء الأقسام	☐1	☐2	☐3	☐4	☐5
22	يتم إجراء مراجعة شاملة لتصميم وإجراءات أي خدمة جديدة قبل تنفيذها على الواقع في المستشفى	☐1	☐2	☐3	☐4	☐5
23	السياسات والإجراءات المتعلقة بأي خدمة من خدمات المستشفى (مثل إجراءات الدخول، رعاية المريض، إجراءات المختبر، إجراءات تحويل المرضى)واضحة تماماً	☐1	☐2	☐3	☐4	☐5
24	التطبيق العملي لكل خدمة من الخدمات الطبية يتم أخذه في الاعتبار عند تصميم أي عملية من العمليات المتعلقة بالخدمات الطبية	☐1	☐2	☐3	☐4	☐5

VII- إدارة الإمدادات والتجهيزات

م	الوصف	أعارض بشدة	أعارض	لا أعارض ولا أوافق	أوافق	أوافق بشدة
	فكر في كيف يتم توفير وإدارة وتوزيع التجهيزات والإمدادات	▼	▼	▼	▼	▼
25	يتم اختيار المورد المناسب لتوريد الإمدادات والتجهيزات الطبية للمستشفى وذلك على أساس مواصفات الجودة لا على أساس السعر	☐1	☐2	☐3	☐4	☐5
26	الالتزام بجودة الإمدادات والتجهيزات يجد الاهتمام الأكبر من الإدارة والعاملين في المستشفى	☐1	☐2	☐3	☐4	☐5

27	يهتم المستشفى كثيراً باختيار المورد الذي لديه القدرة والالتزام بتوفير الإمدادات والتجهيزات الطبية بجودة عالية وفي الوقت المحدد	☐1	☐2	☐3	☐4	☐5
28	يتم الاهتمام بالتحسين المستمر في نوعية ومواصفات الإمدادات والتجهيزات التي يتم توريدها للمستشفى	☐1	☐2	☐3	☐4	☐5

VIII- إدارة العمليات

م	**الوصف**	**أعارض بشدة**	**أعارض**	**لا أعارض ولا أوافق**	**أوافق**	**أوافق بشدة**
	فكر في مراقبة وتحسين العمليات والإجراءات في المستشفى	▼	▼	▼	▼	▼
29	نسبة كبيرة من التجهيزات والعمليات وإجراءات العمل في المستشفى يتم التحكم في جودتها إحصائياً	☐1	☐2	☐3	☐4	☐5
30	المستشفى يستخدم طريقة إحصائية على نحو واسع لتقليل الاختلافات بين الأداء الفعلي والأداء المتوقع لمختلف العمليات بالمستشفى	☐1	☐2	☐3	☐4	☐5
31	يتم استخدام المخططات الإحصائية (مثل مخطط باريتو) لعرض بيانات والتأكد من أن العمليات المختلفة تحت السيطرة	☐1	☐2	☐3	☐4	☐5
32	يتم مراقبة أداء العمليات المختلفة في المستشفى باستخدام الرقابة الإحصائية	☐1	☐2	☐3	☐4	☐5
33	يتم تدريب العاملين في المستشفى على أساسيات الطرق الإحصائية (مثل المدرج الإحصائي ومخطط التحكم)	☐1	☐2	☐3	☐4	☐5
34	يتم تدريب العاملين على الطرق الإحصائية المتقدمة (مثل تحليل الانحدار)	☐1	☐2	☐3	☐4	☐5

IX- التركيز على المستفيد من الخدمة

م	**الوصف**	**أعارض بشدة**	**أعارض**	**لا أعارض ولا أوافق**	**أوافق**	**أوافق بشدة**
	فكر في احتياجات المريض وتوقعاته وأهمية تلبيتها في المستشفى	▼	▼	▼	▼	▼
35	يتم تحديد احتياجات المستفيدين وفهمها ونشرها بين العاملين	☐1	☐2	☐3	☐4	☐5

36	نحن على علم باحتياجات المستفيدين الحالية والمستقبلية	☐1	☐2	☐3	☐4	☐5
37	نحن في معظم الأوقات على تواصل مباشر مع المستفيدين من خدماتنا	☐1	☐2	☐3	☐4	☐5
38	المستفيدون من خدماتنا يراجعون المستشفى كثيراً	☐1	☐2	☐3	☐4	☐5
39	المدراء والرؤساء والمشرفين يشجعون الأنشطة التي تزيد رضا المستفيد	☐1	☐2	☐3	☐4	☐5
40	اهتمامنا الأكبر هو أن نحقق رضا المستفيدين ونلبي احتياجاتهم وتوقعاتهم	☐1	☐2	☐3	☐4	☐5
41	سلوك الإدارة العليا بالمستشفى يبرز الأهمية الكبيرة التي يمثلها المستفيدون	☐1	☐2	☐3	☐4	☐5

X- التحسين المستمر

م	**الوصف**	**أعارض بشدة**	**أعارض**	**لا أعارض ولا أوافق**	**أوافق**	**أوافق بشدة**
	فكر في استمرارية جهود تحسين الجودة في المستشفى	▼	▼	▼	▼	▼
42	هناك تحسن في معظم خدمات المستشفى خلال الفترة الماضية	☐1	☐2	☐3	☐4	☐5
43	حصل مستشفانا على شهادة الاعتماد نتيجة تحسن الخدمات	☐1	☐2	☐3	☐4	☐5

XI- أبعاد أداء المستشفى

م	**الوصف**	**أعارض بشدة**	**أعارض**	**لا أعارض ولا أوافق**	**أوافق**	**أوافق بشدة**
	فكر في مؤشرات أداء المستشفى	▼	▼	▼	▼	▼
44	نَقصَ معدل الوفيات العامّ خلال السَنَة الماضية	☐1	☐2	☐3	☐4	☐5
45	زاد رضا مراجعي العيادات الخارجية خلال السنة الماضية	☐1	☐2	☐3	☐4	☐5
46	نقص معدل رجوع المرضى للطوارئ خلال 24 ساعة خلال السنة الماضة	☐1	☐2	☐3	☐4	☐5
47	نقص متوسط مدة إقامة المرضى المنومين في المستشفى خلال	☐1	☐2	☐3	☐4	☐5

	السنة الماضية					
48	نقص وقت انتظار الخدمات	☐1	☐2	☐3	☐4	☐5
49	نقصت شكاوى المرضى	☐1	☐2	☐3	☐4	☐5

XII- نتائج أداء العاملين وأداء النظام

م	الوصف	أعارض بشدة	أعارض	لا أعارض ولا أوافق	أوافق	أوافق بشدة
	فكر في الإنتاجية ورضا العاملين	▼	▼	▼	▼	▼
50	زادت الساعات التي يقضيها العاملين في التعليم والتدريب	☐1	☐2	☐3	☐4	☐5
51	زادت إنتاجية الموظف في الشهر	☐1	☐2	☐3	☐4	☐5
52	زاد رضا الموظف	☐1	☐2	☐3	☐4	☐5
53	قل إحلال وإبدال الموظفين	☐1	☐2	☐3	☐4	☐5
54	زاد تبادل المعلومات بين الموظفين	☐1	☐2	☐3	☐4	☐5

XIII- نتائج كفاءة وفعالية المستشفى

م	الوصف	أعارض بشدة	أعارض	لا أعارض ولا أوافق	أوافق	أوافق بشدة
	فكر في المؤشرات الإحصائية لخدمات المستشفى والإنتاجية والأخطاء	▼	▼	▼	▼	▼
55	زاد عدد مراجعي العيادات الخارجية	☐1	☐2	☐3	☐4	☐5
56	زاد عدد المرضى المنومين	☐1	☐2	☐3	☐4	☐5
57	زاد عدد العمليات الجراحية تحت التخدير العام	☐1	☐2	☐3	☐4	☐5
58	زاد المعدل العام لإشغال الأسرة	☐1	☐2	☐3	☐4	☐5
59	تحسنت الإنتاجية	☐1	☐2	☐3	☐4	☐5

60	تحسنت سمعة المستشفى	☐1	☐2	☐3	☐4	☐5
61	نقص عدد عيوب الخدمات، والأخطاء الطبية، والأعطال	☐1	☐2	☐3	☐4	☐5
62	نقصت تكلفة الجودة (التكلفة الناشئة عن عدم تطبيق الجودة)	☐1	☐2	☐3	☐4	☐5

IVX- نتائج مرونة الأداء

م	**الوصف**	**أعارض بشدة**	**أعارض**	**لا أعارض ولا أوافق**	**أوافق**	**أوافق بشدة**
	فكر في قدرة المستشفى على الاستجابة والتأقلم مع التغيرات	▼	▼	▼	▼	▼
63	نقص هدر الموارد	☐1	☐2	☐3	☐4	☐5
64	زادت قدرة المستشفى على المنافسة مع المستشفيات الأخرى	☐1	☐2	☐3	☐4	☐5
65	زادت قدرة المستشفى على التميز في مجال المنافسة	☐1	☐2	☐3	☐4	☐5
66	زادت قدرة المستشفى على تقديم رعاية صحية وخدمات مميزة	☐1	☐2	☐3	☐4	☐5

VX - الملاحظات

هذا المربع أدناه ترك لك لإضافة أي تعليق أو ملاحظات تراها عن إدارة الجودة في مستشفاكم

شاكرين ومقدرين لكم حسن تعاونكم وتكرمكم واهتمامكم بإكمال بيانات هذا الاستبيان

APPENDIX 3
Survey Cover Letter (English)

QUESTIONNAIRE TO THE HOSPITAL MANAGERS AND EMPLOYEES (English)

Dear Respondent

It is my pleasure to inform you that I am conducting a field study for the purpose of making a scientific research in order to be awarded the Master degree in Total Quality Management in Healthcare from the Sudan University of Science & Technology (SUST). The title of the study is "The Impact of Critical Total Quality Management (TQM) Practices on Hospital Performance in the Ministry of Health Hospitals in Tabuk Region".

You are kindly requested to answer the questions on the attached questionnaire as your cooperation in this respect will be of great effect in concluding valuable results from this study.

The researcher would like to give every assurance that all information given in this Questionnaire will remain, and dealt with confidentially and will be used solely for the purpose of scientific research.

Thanking your co-operation,

Researcher:

Mohammad Shamsuddin Mohammad

APPENDIX 4
Survey Cover Letter (Arabic)

سعادة ..... الموقر

السلام عليكم ورحمة الله وبركاته

أفيد سعادتكم أنني أقوم بدراسة ميدانية بغرض البحث العلمي في (أثر تطبيق مبادئ الجودة الشاملة على أداء المستشفى) في مستشفيات وزارة الصحة بمنطقة تبوك، للحصول على درجة الماجستير في الجودة الشاملة في الرعاية الصحية.

الرجاء التكرم بالإجابة على أسئلة الاستبيان المرفقة، وسوف يكون لتعاونكم أكبر الأثر في الوصول لنتائج قيمة لهذه الدراسة.

ويود الباحث أن يؤكد لسعادتكم أن جميع المعلومات الواردة في هذا الاستبيان سوف يتم معالجتها بطريقة سرية ولن تستخدم إلا في أغراض البحث العلمي فقط.

شاكرين لسعادتكم حسن تعاونكم معنا،،،،

الباحث

محمد شمس الدين محمد

Appendix 5
Deming 14-point Approach for Quality Management

SN	Point	Explanation
(1)	Create constancy of purpose toward improvement of product and service.	The point stresses the need for a mission statement which must be understood by all employees, suppliers, and customers. The strategic plan should look for the long term payback with the aim to become competitive and stay in business, and to provide jobs.
(2)	Adopt the new philosophy.	Management must learn the responsibilities and take on leadership for change. It is possible for things to be done right the first time through effective training. Poor workmanship, defective products, or bad service are not acceptable.
(3)	Cease dependence on mass inspection to quality.	Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
(4)	End the practice of awarding business on the basis of price tag alone .	Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
(5)	Improve constantly and forever the system of production and service.	The improvement of product and service is an ongoing process aiming to improve quality and productivity, and thus constantly decrease costs.
(6)	Institute training on the job.	Employees are an institution's most precious assets and must be led, not driven, by management. Train employees to know what the job is , why it is being done, and how to improve it.
(7)	Institute leadership.	The aim of leadership should be to help people and machines and gadgets to do a better job. Leading consists of helping people do a better job and of learning by objective methods who is in need of individual help.
(8)	Drive out fear.	This helps every one to work effectively for the company. It is necessary for better quality

		and productivity that people feel secure.
(9)	Break down barriers between departments.	Emphasize teamwork, not competition. Every healthcare delivery system is made up of interconnected processes, each of which has a supplier of input and a customer to receive the output. Every employee must strive to meet the needs and expectations of customers, those internal as well as external.
(10)	Eliminate slogans, exhortations, and targets for the workforce.	These never helped anybody do a good job. Concentrate on improving the system to make it easier for the worker to do a better job.
(11)	Eliminate numerical quotas for the work force and numerical goals for management.	Emphasize quality and methods, not quantity, to increase employee productivity. Substitute leadership.
(12)	Remove barriers that rob people of pride of workmanship.	Eliminate the annual rating or merit system. Too often, misguided supervisors, faulty equipment, and defective materials or processes stand in the way. Financial remuneration tied to isolated performance assessment may ignore the worker's sense of pride in a job well done.
(13)	Institute a vigorous program of education and self-improvement for everyone.	Quality begins and ends with education. Keep minds working.
(14)	Take action to accomplish the transformation.	Put everybody in the company to work to accomplish the transformation. Quality improvement means all employees trying every day to do their jobs better, not merely trying to attain or maintain a minimal level of competence to satisfy the manager or the quality management department. The transformation is everyone's job.

Source: Deming, W. Edwards, *Out of the Crisis*, pp. 23–24, c_ 2000, Massachusetts Institute of Technology, MIT Press.

Appendix 6
The "deadly" and "dreadful diseases"

The Deadly Diseases

1. Lack of constancy of purpose.
2. Emphasis on short-term profits, short-term thinking.
3. Evaluation of performance, merit rating, or annual review.
4. Mobility of management; job hopping.
5. Management by use of visible figures only.
6. Excessive medical costs.
7. Excessive costs of liability.

The Dreadful Diseases or Obstacles

1. Search for examples of how to solve problems of quality.
2. Creative accounting.
3. Purchasing standards that assume a certain percentage of defects.
4. Management's delegation of its responsibilities to others.
5. The supposition that problems are the fault of the work force.
6. The attempt to safeguard quality by inspecting goods already produced.
7. False starts: modest, ad hoc efforts to bring about change.
8. Hope for instant pudding.
9. The supposition that automation will transform industry.
10. The supposition that it is only necessary to meet specifications.

Source: Deming, 1986, Chapter 3

Appendix 7
Trilogy of Juran for Managing Quality

Quality Planning	• Establish quality goals • Identify who are the customers. • Discover customer needs • Develop product features • Develop process features • Establish process controls and transfer to operations
Quality Improvement	• Prove the need for improvement • Identify the improvement projects • Organize project improvement teams • Diagnose the causes • Provide remedies, prove remedies are effective • Deal with resistance to change • Control to hold the gains
Quality Control	• Choose control subjects • Establish Measurement • Establish standards of Performance • Measure actual performance • Compare to Standards (interpret the difference) • Take action on the difference

Source: Juran, 1981

Appendix 8
Juran's Ten Steps to Quality Improvement

Ten Steps to Quality Improvement

1. Build awareness of the need and opportunity for improvement
2. Set goals for improvement
3. Organize to reach the goals (establish a quality council, identify problems, select projects, appoint teams, designate facilitators)
4. Provide training
5. Carry out projects to solve problems
6. Report progress
7. Give recognition
8. Communicate results
9. Keep score
10. Maintain momentum by building improvement into the company's regular systems and processes.

Source: Juran's Quality Control Handbook *by Joseph M. Juran. Fifth edition (1998).* Publishers; *McGraw-Hill, New York, USA.*

Appendix 9
Crosby 14 Steps to Quality Improvement

SN	Step	Description
(1)	Management commitment	To make it clear where management stands on quality.
(2)	The quality improvement team	To run the quality improvement program.
(3)	Quality measurement	To provide a display of current and potential nonconformance problems in a manner that permits objective evaluation and corrective action.
(4)	Cost of quality	To define the ingredients of the cost of quality, and explain its use as a management tool.
(5)	Quality awareness	To provide a method of raising the personal concern felt by all personnel in the company toward the conformance of the product or service and the quality reputation of the company.
(6)	Corrective action	To provide a systematic method of resolving forever the problems that are identical through previous action steps.
(7)	Zero defects planning	To investigate the various activities that must be conducted in preparation for formally launching the Zero Defects program.
(8)	Quality education	To define the type of training that supervisors need in order to actively carry out their part of the quality improvement program.
(9)	Zero Defects Day	To create an event that will make all employees realize, through a personal experience, that there has been a change.

(10)	Goal setting	To turn pledges and commitment into actions by encouraging individuals to establish improvement goals for themselves and their groups.
(11)	Error causal removal	To give the individual employee a method of communicating to management the situation that makes it difficult for the employee to meet the pledge to improve.
(12)	Recognition	To appreciate those who participate.
(13)	Quality councils	To bring together the professional quality people for planned communication on a regular basis.
(14)	Do it over again	To emphasize that the quality improvement program never ends.

Source: Crosby, 1987.

Appendix 10
Similarities between the approaches of Deming, Juran and Crosby

Similarities

1. Top management support and commitment are essential.
2. Education and training must be continuous.
3. Measurement is critical.
4. Improvements are not viewed in terms of final products.
5. Most problems associated with quality can be attributed to management policy or action.
6. Implementation is applicable to any organization.
7. Post-production inspection needs to be minimized.
8. Effective communication and teamwork at all levels are essential.
9. Managers need to provide workers with the means to do a good job.
10. There are no shortcuts to quality.
11. Suppliers must be involved in the quality effort.
12. The pursuit of quality must be a continuous effort.