

Impact of Applying Total Quality Management on Medical Services Quality (An Empirical Study on Saudi Arabia Hospitals)

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Abstract

This study investigates the impact of applying total quality management on the quality of medical services at Saudi Arabian Hospitals. The purpose of this research is motivated by a descriptive research design to describe the impact of applying total quality management on medical services quality at Saudi Arabian hospitals using qualitative data. The sample size around 100 respondents. This study uses a simple linear regression model to examines the relationship between the role of applying total quality management and medical services quality. The results of the regression model demonstrated that there was a significant relationship between applying total quality management and medical services quality. The study revealed a high level of total quality management used for medical services quality; the quality of the medical services was high; the levels of total quality standards usage due to training as one of the dimensions of total quality were high; the levels of the total quality standards' usage due to responsiveness as one of the dimensions of total quality were high; the levels of the total quality standards' usage due to safety as one of the dimensions of total quality on the quality were high. Based on the study's findings, the study recommends to train the administrative teams in hospitals well, including practical methods for applying total quality standards, to reach the optimal level of quality of services that the hospital provides to patients at all times. And work to benefit from the experiences of developed countries in the areas of applying total quality standards and monitoring and follow-up software.

Keywords: Quality management, medical services, Hospitals, Quality standards, medical services

1. Introduction:

Total quality management focuses on meeting the requirements and expectations of beneficiaries, whether these beneficiaries are inside or outside the organization. By knowing their requirements and needs, then meeting them, performing them correctly, and carrying out continuous improvement and development, the management reaches the highest levels of performance. Total quality management includes all employees of the organization, all departments, and all levels of employees (Brand, 2023). Given the intense competition facing hospitals, in dire need to follow total quality management, so that these hospitals provide excellent medical service. Total quality management is the basic pillar upon which hospitals in Saudi Arabia depend to constantly improve and develop the quality of medical services, especially considering the increasing intensity of competition between government hospitals, to apply all approved quality standards that are consistent with national plans and visions, especially the Kingdom's Vision 2030.

Implementing a total quality management system in hospitals helps identify wasted resources related to time, human resources, and material resources. Then work to eliminate the factors that waste these resources. At the same time, the total quality management system is a motivational system, as it provides the opportunity for employees to recognize their capabilities, grants them powers according to the capabilities they have and encourages them to excel and be creative (McDaniel, 2021).

1.1. Research Problem:

The medical services provided in all hospitals in the Kingdom of Saudi Arabia have developed over the past years and decades, as their quality levels have advanced due to their benefiting from technical developments, their introduction into the work of all hospitals, the development in the field of health personnel, and the use of local and foreign skills and competencies. However, these hospitals need to apply total quality management standards to ensure obtaining the best-planned results regarding the level of medical services provided in these hospitals. Therefore, this study seeks to monitor and measure the impact of applying total quality management standards at a hospital in Jeddah on the level of medical services provided to patients.

1.2. Research Question:

The main research question is formulated as; What is the impact of applying total quality management on the quality of medical services at Saudi Arabian Hospitals?

The following sub-questions branch out from this main question:

1. What is the role of training as one of the dimensions of total quality management on the quality of medical services from the point of view of employees at Saudi Arabian hospitals?
2. What is the role of responsiveness as one of the dimensions of total quality Management on the quality of medical services from the point of view of employees at Saudi Arabian hospitals?
3. What is the role of empathy as one of the dimensions of total quality management on the quality of medical services from the point of view of employees at Saudi Arabian hospitals?
4. What is the role of safety as one of the dimensions of total quality management on the quality of medical services from the point of view of employees at Saudi Arabian hospitals?

1.3. Research Objectives:

This study seeks to achieve the following objectives:

1. Identifying the role of training as one of the dimensions of total quality management in the quality of medical services from the point of view of employees at Saudi Arabian hospitals.
2. Identifying the role of response as one of the dimensions of total quality management in the quality of medical services from the point of view of employees at Saudi Arabian hospitals.
3. Identifying the role of empathy as one of the dimensions of total quality management in the quality of medical services from the point of view of employees at Saudi Arabian hospitals.
4. Identifying the role of safety as one of the dimensions of total quality management in the quality of medical services from the point of view of employees at Saudi Arabian hospitals.
5. Measuring the level of impact of implementing total quality management at Saudi Arabia hospitals on the level of medical services provided to patients.

1.4. Research Methodology:

This research follows the descriptive analytical method, given that it is the most appropriate method of scientific research, which enables the researcher to accurately describe the phenomenon of applying total quality management, collect information, using the study tool, and analyze it statistically, to measure the impact of applying total quality management on the level of medical services provided at Saudi Arabia hospitals.

2. Literature Review

Total Quality Management (TQM) was defined as a shift in the way the organization is managed, which includes focusing the energies of the organization on the continuous improvements of all

processes and functions, and above all the different stages of work, as quality is nothing more than knowledge of customer desires and converting these into specifications that fulfill customer's needs (Anil & Satish, 2019). Achieving customer satisfaction "superiority in performance to delight consumers through working mechanisms and procedures among workers regardless of their administrative position in order to provide consumers with quality value by performing the correct work from the first time and permanently that is, the goal of improvements in the organization's functions and operations is to provide products and services achieve consumer satisfaction and happiness (Rebelo & Gomes, 2017). According to the standard ISO 9001:2015, TQM concerns the client's satisfaction and expectations via the operating system, process quality, service quality, and product quality.

Literature has emphasized that there are four key factors that determine patient loyalty to healthcare organizations from a service quality perspective; quality, interaction quality, environmental quality, and outcome. The definition of total quality management that this research will adopt is; TQM is an effective system combining the quality development, quality protection, and quality enhancement efforts of different groups in an organization to provide production and service at the most economical level based on patient satisfaction (Holmes, 2021). The definition of medical services quality that that this research will adopt is: The extent to which healthcare services increase the required health outcomes for individuals and populations and are consistent with current professional knowledge (Creech, 2020). The meaning of TQM has evolved over time, considering changes in business and various perspectives and interests. The American Society for Quality, for instance, has defined TQM as the management-driven operation and process that meets the organization's desired objectives, focusing on higher levels of customer satisfaction and loyalty (Holmes, 2021). To achieve this, TQM requires the comprehensive and productive involvement of all members of an organization to maximize the quality of outputs, resulting in a positive impression that meets or exceeds expectations (Van Kemenade, 2019). Tobin (1990) introduced the TQM concept, defining it as the complete integration of efforts to gain a competitive edge by continuously developing organizational service processes (Creech, 2020).

Various scholars have defined the concept of TQM from different perspectives and interests. The American Society for Quality views TQM as a management approach that aims to meet the organization's objective by maximizing customer satisfaction and loyalty through the comprehensive involvement of all individuals in the organization.

Tobin (1990) however, defined TQM as the integration of efforts to achieve a competitive advantage through continuous development of organizational processes. Roosevelt (1995) defined TQM as a strategic asset that involves evaluating and improving service methods to meet customer expectations. While TQM was initially designed for production settings, it has been extended to the service sector and has received attention as a tool for enhancing organizational competitiveness. Recent studies have emphasized the importance of customer focus and continuous improvement in TQM practices and have recognized the need for adaptation and change to meet growing demands and experiences. Research in this area focuses on understanding these changes and developing solutions to address deficiencies (Holmes, 2021).

In recent years, healthcare organizations have used outdated operational systems for their internal processes. This method has faced several challenges and limitations that have significantly affected various aspects of organizational operations, including infrastructure, cost, and quality. Consequently, there has been an increasing focus on the use of quality systems and the TQM approach in healthcare operations, particularly regarding quality features and how healthcare managements have established their quality systems (Balasubramanian, 2016). TQM in the healthcare industry has become an important topic, focusing on patient care, managerial behaviors, and service delivery matters (Creech, 2020).

The studies that examine the effects of TQM approaches and methods face significant challenges, not only due to limited organizational resources but also because organizations aim to achieve greater competitive advantage and expand their market shares (Turkyilmaz et al., 2015). For instance, paper-based registration systems, which are part of traditional management systems, increase the risks and likelihood of errors occurring. Therefore, healthcare providers currently focus on modern operations that ensure service quality, which is a crucial factor in the healthcare industry (Faloudah et al., 2015). The use of different TQM systems and applications in healthcare has enabled decision-makers to consider changes in various aspects of daily organizational processes, such as standardizing documentation systems and creating added value to their services, ultimately resulting in positive recommendations for their services (Rouf et al., 2017).

The impacts of quality management on health sector services have been studied from different angles, many authors focus on this issue (the importance of quality management in improving the services in medical organizations) (Jonge et al., 2021; Goldstein and Lossifova, 2022; Chang et al., 2021; Bautista-Marín et al., 2022; Kima et al., 2022; Alolayyan, 2022).

Healthcare organizations encounter many challenges accompanied by new requirements, namely, customer dissatisfaction, the increasing cost of health services, competition, and reduced reimbursement for services (Ovretveit and Al Serouri, 2020). All these factors force health organizations to embrace a system that can meet the requirements, dealing with continuous changes, technological changes, increase in health services costing, increase in competitive position, and gaining customer satisfaction (Ta'amneh, 2017; Alolayyan et al., 2021). Customers' satisfaction can be attributed to many factors such as: Participation in deciding the health services needed. Increasing customers' awareness of their rights and health that serve as a kind of surveillance on the health services.

The customer is the center of all health services, so customer satisfaction must be the basic principle for any health system in order to be able to evaluate its services and keep its competitive position (Diane, 1994; Asubonteng and Bae, 2022). TQM is a system that can cope with all these challenges and resolve most of the problems faced by healthcare service providers (Al-Omar, 2016; Al-Ahmadi, 2017; Ta'amneh, 2017; Al-kahtany, 1993; Diane, 1994). In the past, quality was defined by hospitals as an adherence to the predetermined standards, which started as a peer review in 1912 by the American College of Surgeons (Stamatis, 2016). The Joint Commission on Accreditation of Hospitals, which was established in 1950, also adopted the peer review process for evaluation. Later, in the 1970s, the process expanded and was named quality assurance (QA), focusing on the structure, the process, and the outcome (JCI, 2020). TQM and QA differ in that QA is a reactive system of problem-solving, wherein the quality department in hospitals, for instance, uses mechanisms such as inspections to meet the quality criteria. Transferring quality definition of meeting standards to confirm the requirements and fitness includes customer satisfaction and expectations, focusing on improving input, process, and output (services or output) (Al-Ahmadi, 2017). Traditional quality focuses on products and services to meet the standards. It used methods like inspection, peer review, and quality assessment (Al-kahtany, 1993).

According to Laurie (1993), TQM is a way of life for an organization as a whole, committed to customer satisfaction through a continuous improvement process through the contribution and involvement of individual employees. Several principles have been advocated regarding TQM; however, no agreement was made about the number of principles to use while exploring TQM in an organization. Despite the above notion, there is almost experts' agreement on the fundamental principles, which consist of customer focus, continuous improvement, and teamwork (Paula, 2014; Danny and Vincent, 2022; Idris et al., 2020).

In addition, principles such as top management commitment, the quality culture, participation of employees, and focus on process, training, quality responsibility of all, the role of quality department, empowerment, and benchmarking were proposed by many scholars such as Bayazit (2018), Nair (2020), Sadikoglu and Zehir (2020), Samat et al. (2016), Saraph et al. (1989) and Stamatis (2016). Organizations depend on their customers, and therefore, they should understand deeply the current and future customers' needs, meet these needs, and try to exceed their expectations through a strategic and developed working process (Asubonteng and Bae, 2022; Stamatis, 2016).

Quality experts and specialists such as Deming and Juran play a vital role and contribution to the development of the total quality framework in which they all agreed through their studies on the following principles; organizational commitment, culture, formation, continuous improvement, satisfaction of the clients, use of systems for measuring performance and communication (Susan et al., 2016).

Similarly, in their exciting study, Saraph et al. (1989) identified eight dimensions of TQM practices, which include the role of top management, the quality department, training, product design, supplier quality management, process management, quality data, and employee relations. A review of several studies that adopted and replicated Saraphs' instrument of TQM practices in the USA (Saraph et al., 1989), India (Motwani et al., 1994), in United Arab Emirates (Badri et al., 1995; Danny and Vincent, 2022) all indicated that the instrument is reliable and valid across nations. In their analyses of various surveys published in research-based articles between 1989 and 2017, Sila and Ebrahimpour (2018) revealed the most frequently covered TQM constructs in the literature which consist of 18 constructs or factors as a framework, namely; top management commitment and leadership, customer focus, information and analysis, training, supplier management, strategic planning, employee involvement, human resource management, process management, teamwork, product and service design, process control, benchmarking, continuous improvement, employee empowerment, QA, social responsibility and employee satisfaction. Thus, eight principles were adopted by the researchers in this study, which are mainly captured from the findings of the studies conducted by Saraph et al. (1989), Samat et al. (2016), Sadikoglu and Zehir (2020) and Alolayyan et al. (2021).

H1: There is a statistically significant relationship between the role of training as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.

1. Top management commitment and leadership: Pheng and Teo (2015) mentioned that a high degree of visibility in the top management's commitment is critical for the success of TQM implementation (Alolayyan et al., 2021).
2. Employee management: Significant contributions can come from non-managerial employees when they are empowered, and so, employee suggestions and participation are encouraged in a total quality setting (Sadikoglu and Zehir, 2020; Alolayyan et al., 2021).
3. Information analysis: Samson and Terziovski (2022) stated that the philosophy of TQM stresses decision-making through the analysis of information on customer needs, operational problems, and the success of improved attempts (Alolayyan et al., 2021).
4. Employee education and training: Newman et al. (2016) found that positive recourses in nurse training (such as more training places, availability of more posts, and inclusion of flexible and family working practices) improved nurse retention and satisfaction (Alolayyan et al., 2021).
5. Customer focus: Juran and Gryna (1993) classified customers into two types: the external customer like clients, government bodies, and the public sector, and the internal customer such as employees who will determine the quality of service (Psychogios and Priporas, 2014; Alolayyan et al., 2021).
6. Continuous improvement: Continuous improvement is deemed to be the very spirit of quality, and it encompasses five dimensions, namely: process focus, customer focus, employee empowerment, data-based decision-making, and organization-wide scope. Further, there are three distinct elements in effective quality improvement: executive leadership, strategic orientation, and commitment to cultural change (Buchbinder and Shanks, 2014; Alolayyan et al., 2021).
7. Process management: Kujala et al. (2020) proposed that process improvement plays an important role in the adoption of new production techniques. Specifically, in the health care service provision, process improvements are derived from procedures, medical breakthroughs, and development of new medical technologies (Alolayyan et al., 2021).
8. Supplier management: In service organizations, supply and procurement management has a crucial role in effecting TQM and requires a huge effort towards continuous quality

improvement (for instance) by choosing materials based on quality, to reduce costs (Sadikoglu and Zehir, 2020; Alolayyan et al., 2021).

According to some researchers, institutions need a quality system and culture to provide the core assumptions of TQM as a management philosophy that plans, organizes, and continuously improves activities in which management and employees must be involved to improve processes and outcomes. Thus, TQM is presented differently from different points of view, as there is no common and formal definition of TQM that can fit all organizations within all fields. TQM is defined differently in each region and each country, based on national and organizational culture perception of quality, and the requirement of that culture. In general, however, it is preserved as a management philosophy, and the majority of authors relate the main role of TQM implementation to the management's level of commitment towards quality improvement. The impact of each quality management principle on organizational effectiveness and performance is still debated. Various research has studied the impact of applying TQM principles on overall organizational effectiveness and performance. A large number of these studies have indicated a strong and positive relationship with Quality performance (Terziovski and Samson, 2017; Hendricks and Singhal, 2017; Brah et al., 2016; Kaynak, 2018; Prajogo and Sohal, 2018; Rahman and Bullock, 2019; Nair, 2020). Kaynak (2018) stressed that TQM practices are related to the indicators of quality performance. Likewise, Kumar et al. (2015) concluded that quality improvement in process, product, and service quality results from TQM activities, also Abdullah et al. (2016) emphasized that organizational performance increases upon TQM practices implementation.

In addition, there are empirical studies that measure organization performance by TQM criteria (Wilson and Collier, 2017; Fynes and Voss, 2017; Montes et al., 2018; Sila and Ebrahimpour, 2019). These studies investigate a variety of theoretical and empirical issues. If TQM activities are implemented in a proper way, they produce an impact on organizational performance, including improved customer satisfaction, enhanced internal communication, better problem-solving, and fewer errors. In a study by Hendricks and Singhal (2017), the researchers empirically investigated a causal link between applying TQM and organizational performance by demonstrating the significant performance difference between the organizations that implemented TQM and the organizations in the control group; the result showed a significant relationship between applying quality management practices and organizational performance.

Patient Satisfaction:

Customer satisfaction, as defined simply by Gustafsson et al. (2019), is the overall evaluation of a product or a service by the customer after he/she has experienced it. PS is a consequence deemed essential in evaluating healthcare services and assessing their quality (Hojat et al., 2019). It is a measure, from the patient's perspective, of the deviation of the actual outcome of service from what was expected of it (Engelbrecht, 2015). According to Mohsan et al. (2018), satisfaction deals with the extent to which a service or a product meets customers' needs and expectations. In order to assess customer satisfaction, different questions can be asked from customers to judge their evaluation of service regarding the extent to which their needs and expectations were met and the joy or disappointment that followed the use of the service. According to Pekkaya et al. (2019), measures of satisfaction include the service's perceived quality and customer expectations. Al-Azzam et al. (2015) explored various dimensions that have an overall effect on customer satisfaction. According to Agyapong et al. (2018), customer satisfaction has a mediating effect on both PSQ and Behavior Intentions. The positive influence of PSQ on customer satisfaction is approved by Almsalam (2014), while its influence on loyalty as a mediating factor is granted by Mahamad and Ramayah (2020).

Behavior Intentions (BIs):

It is popularly believed that experience of quality and satisfaction stimulates Behavior Intentions. The BIs of a patient constitute the potential behavior that is, perhaps, provoked by the quality of the service used and the subsequent satisfaction (Aliman & Mohamad, 2014). In the case of online customers, loyalty can be used as a measure of BIs; as Mohsan et al. (2018) explained, customer loyalty is the likelihood of customers' involvement in repeated business and/or other relationships with the service provider. Other BIs that every service provider longs for include service referrals by existing customers to other potential customers, customers' intention to spend on other offers, and loyalty (Shapor et al., 2019; Parasuraman et al., 2015).

Service Quality:

In general, perception denotes the process of understanding and noticing a sense of information; clients utilize perception to assess the outcome of a service provided to them. Service quality is defined as a measure of the level of quality provided to the expectations of the customer; providing quality service means that, in the end, the service is consistent with the expectations of customers (Kotler, 2018).

Previous research has shown that PSQ has a strong influence on the BIs of consumers and, hence, their satisfaction and loyalty. Indeed, perceived quality of service is a vital component of consumer loyalty, as the company that provides superior quality services attracts new consumers in addition to maintaining its existing customers (Agyapong et al., 2018; Cronin & Taylor, 1994, Al-Borie & Damanhour, 2019).

H2: There is a statistically significant relationship between the role of responsiveness as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.

The customer's satisfaction enhances their loyalty and affects their intentions to repeat the purchase and their behavior in the Future. In the healthcare industry, PSQ is the patient's awareness of the quality of the health service provided to them by the hospital, that is, the patient's understanding of the quality of healthcare services provided to them (Shaikh & Rabbani, 2015). The medical service provided in the hospital is essentially intangible and does not possess it, but different tools, devices, and equipment can be used to provide the service to the patient and then recover, and it may take a short or long time period. The previous literature indicated that there are five vital elements affecting the perceived quality of service (Obeidat et al., 2022, Mahamad & Ramayah, 2020); tangibles, reliability, responsiveness, assurance, empathy.

Hospital Performance:

Hospitals today work to fulfill several objectives that are geared toward serving customers efficiently and effectively, as presented by Minvielle et al. (2016). With the present technological advancement, high clinical performance is needed in the sector so as to increase productivity within limited budgets under close scrutiny and continual recruitment of experts and skilled health professionals, which will serve as a strategy for attracting patients for health services. It has also become more flexible, for instance, by promoting ambulatory care through inter-organizational networks providing continuity of care. Goldstein et al. (2016), in their study regarding hospital performance measures, demonstrated that four measures are associated with hospital performance: the clinical measures, such as adjusted patient length of stay in the hospital and adjusted mortality rate; secondly the financial measures, such as operating cost and operating margin.

Samson and Terziowski (2022), in their contribution, revealed the importance and significance of leadership, people management, and customer focus as elements of TQM on operational performance in an organization. In order to be in line with all other service-providing firms,

all awards frameworks for service quality such as the Malcolm Baldrige National Quality Award (MBNQA), the ISO 9000 model, and the European Foundation for Quality Management (EFQM) used by healthcare institutions as a means of measuring hospital performance in achieving customers' satisfaction and retention (Lai, 2018). Hospital performance clearly shows the outcome of the medical services, which are reflected clearly and effectively on the patients, medical staff, and then in the hospital's corporate name. In this regard, measurements of performance is necessary tool for evaluating overall healthcare service quality, which should be practiced in every department of the hospital because it reflects the overall level of service quality (Duggirala et al., 2016).

Yavas and Romanova (2019) selected and identified eleven factors in order to investigate hospital performance. These factors were less tensioned between physicians and hospital management, better position in negotiating with insurance companies, finding and accessing new markets, increased occupancy rate, decreased number of personnel per occupied bed, lower total expense per occupied bed, decrease in duplication of services and facilities, containment of operating costs, increased clinical effectiveness, lower procurement costs, and shared risks. However, Griffith et al. (2016) evaluated hospital performance through nine multi-dimensional constructs derived from Medicare reports. The evaluation was based on occupancy, change in occupancy, percentage of revenue from outpatient care, cash flow, asset turnover, mortality, complications, length of inpatient stay and cost per case. Correspondingly, 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 (Griffith et al., 2020).

Assessing the performance of the health service has become an important task for the public and healthcare industry. According to Li and Collier (2017), recent data show that the USA spends more than 14% and 38% of the budget on the domestic product and hospitals accounting, respectively; their target for performance improvement is to provide quality care at a low and reasonable cost. Joint Commission on Accreditation of Health Care Organizations (JCAHO) has focused on performance assessment and investigative methodologies directed towards improved patient care outcomes. The JCI (2020) defined performance improvement in healthcare as:

“Performance Improvement is a continuous change to improve processes through measuring services, identifying areas for improvement, and developing improvements through

multidisciplinary teamwork. PI aims to promote a collaborative approach to patient-centered care that focuses on improving safety, performance, and patient outcomes by identifying and promoting best practices.”

Abu Bakar et al. (2020) expressed that several authors have proposed performance measurement frameworks which prescribe that performance dimension organizations should consider monitoring. Hospital performance dimensions are best assessed through questions on patient results, financial and market results, staff and work system results, hospital efficiency and effectiveness results, and flexibility performance (Demirbag et al., 2020; Goldstein et al., 2016; Lai, 2018; Yusuf, et al. 2014; Alolayyan et al., 2022).

The research gap covered by this study:

This study is an empirical study through which theoretical standards are applied to reality in Saudi Arabia Hospitals. In order to measure the role of applying total quality on the level of quality of medical services provided to patients in this hospital specifically. This realistic measure benefits decision-makers, public and private entities interested in health care, and all stakeholders regarding the level of services provided to patients in Saudi Arabia.

SERVQUAL quality measurement tool:

SERVQUAL is a multi-dimensional research tool designed to represent customer expectations and perceptions through five dimensions that represent service quality. The instrument is built on the expectancy-disconfirmation paradigm, which simply means that service quality is perceived as the extent to which consumers' expectations prior to receiving the service. When the SERVQUAL questionnaire was first published in the 80s by a team of academic researchers, A. Parasuraman, Valarie Zeithaml and Leonard L. Berry to measure the service sector quality, it represented a revolution for service quality research measurement methods used. (Parasuraman, 2021).

H3: There is a statistically significant relationship between the role of empathy as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.

There is a statistically significant relationship between the role of empathy as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.

The instrument has been widely applied in a variety of contexts and cultural settings and found to be relatively robust. It has become the dominant measurement scale in the area of service quality.

In spite of the long-standing interest in SERVQUAL and its myriads of context-specific applications, it has attracted some criticism from researchers (Buttle, 2018).

The questionnaire consists of matched pairs of items - 22 expectation items and 22 perceptions items - organized as five dimensions which are believed to align with the customer's psychological map of service quality dimensions. Both the expectations and the perceptions component of the questionnaire consist of a total of 22 items, comprising 4 items to capture tangibles, 5 items to capture reliability, 4 items for responsiveness, 4 items for assurance and 5 items to capture empathy (Souca, 2019).

The questionnaire may be administered as a paper, web, or physical interview. Known studies have published high validity and reliability scores with different sample size. In practice, the instrument can be customized to add extra items such as demographics, prior experience with the brand or category, and behavioral intentions to revisit/ repurchase. (Johnson, 2018).

H4: There is a statistically significant relationship between the role of safety as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.

Performance improvement in healthcare was defined by JCI as: “Performance Improvement is a continuous change to improve the process by measuring the services, identifying areas for improvement and developing enhancements through multidisciplinary teamwork. Performance improvement aims to support a collaborative approach to patient-centered care that focuses on improving patient safety, organizations performance, outcomes and identifying and promoting best practices.” JCI.(2014)

Healthcare institutions have tried several approaches or modules for quality improvement to document their effectiveness. These days, hospitals work to fulfill several goals that are directed toward serving customers effectively and efficiently, as stated by Minvielle et al. (2016). Hospital performance clearly shows the outcome of the health care services which are reflected effectively on the patients. Performance measures is an important instrument for evaluating the overall quality of health care service, which should be carried out in all units and hospital department as it reflects the overall quality (Duggirala et al., 2016).

Deborah (2020) stressed that healthcare managers effects performance of the hospitals to create stability within the organizational structure and to develop, implement, and sustain an environment of growth and competitive advantage.

Moreover, Shipton et al. (2016) stated that "Organizational leaders shape effective quality performance outcomes by determining a vision and developing a commitment by health care individuals and teams which influences positive performance on quality activities set by the health care organization." There is a common agreement that a successful TQM implementation is leading to improved organization performance success (Hendricks and Singhal, 2017; Hansson and Eriksson, 2016; Brah et al., 2016; and Kaynak, 2018). The successful implementation of TQM in manufacturing has encouraged healthcare leaders to study whether it can be implemented in the healthcare sector. The TQM activities lead to high-quality healthcare services; for example, it leads to improving patient satisfaction and increased productivity and profitability, improved healthcare organization performance (Alexander et al., 2020).

The model of service quality:

SERVQUAL model, known as the gaps model, was developed by a group of Western authors, A. Parasuraman, Valarie A. Zeithaml, and Len Berry, in a systematic research program. The model identifies the main dimensions of service quality, suggesting possible causes of service quality problems (Parasuraman, 2021).

The model's founders originally identified ten dimensions but were reduced to five dimensions after testing and retesting; the dimensions are reliability, assurance, tangibles, empathy, and responsiveness. These five dimensions or components are believed to represent service quality dimensions across a range of sectors and settings. In the marketing sector, the mnemonic RATER is an acronym from the first letter of each of the five dimensions (Parasuraman, 2021).

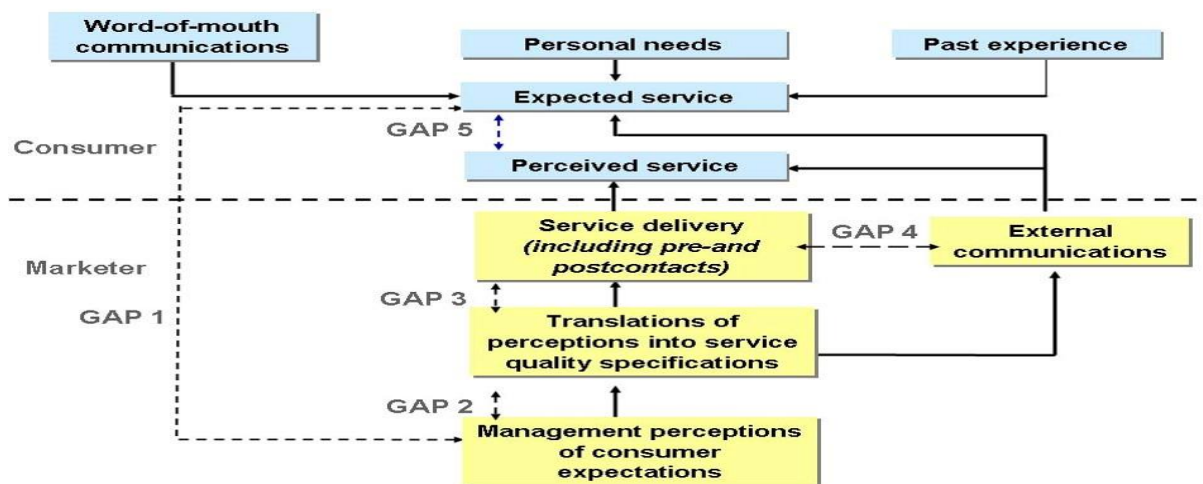


Figure No. (2.1) A simplified model of service quality

Businesses use the SERVQUAL tool to measure potential service quality problems and the service quality model to help diagnose the problem's possible causes. The instrument of service quality is built on consumers perception of quality in terms of how well a given service delivery meets their expectations. Thus, service quality can be conceptualized as a simple equation: $SQ = P - E$ where. SQ is service quality. P is the individual's perception of a service. E is the individual's expectations of the service.

When customer expectations are greater than their perceptions, service quality is considered low. When perceptions surpass expectations then service quality is considered high. The model identifies five gaps that may cause customers to experience low service quality. In this model, gap 5 is the service quality gap, the only one that can be directly measured. In other words, the SERVQUAL instrument was specifically designed to capture gap 5. In contrast, Gaps 1-4 cannot be measured, but have diagnostic value (Parasuraman, 2021).

Development of the instrument and model:

The development of the model of service quality involved systematic research that began in the early 80s, and after various developments, the model was published in 1988. The model's founders started with a detailed literature search to identify items believed to impact perceived service quality. This initial search identified hundreds of items used in consumer testing rounds. Using a factor analysis (also known as principal components analysis), the introductory data analysis showed ten service quality dimensions (or components). The initial ten components that were believed to reflect service quality were:

- Competence is possessing the required skills and knowledge to deliver the service.
- Courtesy is the consideration for the customer's property and contact personnel's clean and neat appearance, manifesting politeness, respect, and friendliness.
- Credibility includes factors such as trustworthiness, belief, and honesty. It involves putting the customer's best interests in a prime position. It may be influenced by company name, company reputation, and the personal characteristics of the contact personnel.
- Security enables the customer to feel free from danger, risk, or doubt, including physical safety, financial security, and confidentiality.
- Access is approachability and ease of contact. For example, convenient office operation hours and locations.

- Communication means informing customers in a language they can understand and listen to the customers. A company may need to adjust its language for the varying needs of its customers. Information might include, for example, an explanation of the service and its cost, the relationship between services and costs, and assurances as to the way any problems are effectively managed.
- Knowing the customer means trying to understand the customer's individual needs, providing individualized attention, recognizing the customer when they arrive and so on. This in turn helps to delight the customers by rising above their expectations.
- Tangibles are the physical evidence of the service, for instance, the appearance of the physical facilities, tools, and equipment used to provide the service, the appearance of personnel and communication materials, and the presence of other customers in the service facility.
- Reliability is the ability to perform the promised service in a dependable and accurate manner. The service is performed correctly on the first occasion, the accounting is correct, records are up to date and schedules are kept.
- Responsiveness is the readiness and willingness of employees to help customers by providing prompt timely services, for example, mailing a transaction slip immediately or setting up appointments quickly (Johnson, 2018).

Further testing suggested that some of the ten preliminary dimensions of service quality were closely related or autocorrelated. Thus, the ten initial dimensions were reduced, and the labels were amended to accurately reflect the revised dimensions. By the early 1990s, the authors had refined the model to five factors, which, in testing, appear to be relatively stable and robust.

- Reliability: the ability to perform the promised service dependably and accurately.
- Assurance: employees' knowledge and courtesy and ability to convey trust and confidence.
- Tangibles: the appearance of physical facilities, equipment, personnel, and communication materials.
- Empathy: the provision of caring, individualized attention to customers.
- Responsiveness: the willingness to help customers and to provide prompt service.

These five dimensions of service quality form the basis of the individual items in the SERVQUAL research instrument (questionnaire). The acronym RATER, is often used to help students of marketing remember the five dimensions of quality explicitly mentioned in the research

instrument. These five dimensions are believed to represent the consumer's mental checklist of service quality (Parasuraman, 2021).

Through the above study questions, the study hypotheses can be formulated as follows:

1. There is a statistically significant relationship between the role of training as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.
2. There is a statistically significant relationship between the role of responsiveness as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.
3. There is a statistically significant relationship between the role of empathy as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.
4. There is a statistically significant relationship between the role of safety as one of the dimensions of total quality management and the quality of medical services from the point of view of employees at Saudi Arabian hospitals.

3. Methodology

3.1. Study Design and Approach:

The purpose of this research is motivated by a descriptive research design to describe the impact of applying total quality management on medical services quality at Saudi Arabian hospitals using qualitative data. The main reason for using this approach is to explore the relationship between the total quality standards and medical services.

3.2. The Study Population and Data Collection:

This descriptive study collected information about the total quality standards and their impact on the quality of medical services quality at Saudi Arabia hospitals, which can affect the level of medical service quality. The research utilized the questionnaire distributed to the study sample participants, and those data were analyzed using the SPSS program. In order to determine the effects of the total quality standards on the medical services quality at Saudi Arabia hospitals, in addition to extracting research results, formulating recommendations, and clearly answering the questions of this study. This study designed a questionnaire, and the questionnaire was distributed to the 164 study sample members by sharing the electronic link through What's up and LinkedIn applications, and the responses were received electronically.

The population sizes were 50,2189 healthcare employees working in Saudi Arabia, which were taken from statistics posted on the Saudi Ministry of Health website. The sample size was calculated using an electronic sample size calculator at a confidence level of 80% with a 5% margin of error from the calculator.net website.

A multi-sampling technique was employed, consisting of random snowball and purposive sampling techniques. This purposive sampling technique was appropriate as it ensures flexibility and gives quick insight. A purposive sampling technique was used to get respondents who have access to information on the research problem to answer the questionnaire. This is intended to ensure that respondents, who are automatically liable to thesis questions, are made to give responses. Stratified random sampling was also employed. The heterogeneous nature of the respondents of this study required dividing the respondents into nonoverlapping homogeneous units.

Using the Excel program, these responses were arranged mathematically, and all the variables were coded in the questionnaire responses in preparation for conducting the statistical analysis using the SPSS program. With respect to the responses given, some changes were made to the questionnaire item before the final form was printed for the main data collection. In the researcher's attempt to test the reliability of the questionnaire for the study, a test was conducted on a sample of the population. The significance and insignificance of the results indicate that the questionnaire was reliable. Data covering mainly qualitative evidence obtained through questionnaire inquiry was analyzed.

All questionnaires were checked to ensure that the required answers were obtained in preparation for analysis. These answers were sorted and categorized in accordance with their meaning. Both data analysis outputs were predominantly descriptive in which tables and expected values were used to establish the meanings of the responses and their implications pertaining to the objectives and research problem of this study. The statistical analysis included a study of the stability of the questionnaire and a study of statistical frequencies, for each question of the questionnaire, and a statistical study was carried out for the axes of the questionnaire, from the first to the fourth axis and the values of the weighted averages (Mean) and standard deviations (Std.) were extracted for each one of the themes of the questionnaire.

Questionnaire Design:

A questionnaire's design can affect response rates and the accuracy and dependability of the data gathered. As a result, while creating a questionnaire, it is essential to craft each question carefully, lay out the questionnaire form clearly, clearly explain the goal of the questionnaire, and, whenever possible, conduct a pilot test. To accomplish the study's goals, the questionnaire was created clearly and straightforwardly to help participants comprehend it while also drawing from the study's theoretical framework and literature review.

Response Rate:

According to Rowley (2019), a study's response rate is related to the distributed questionnaires, and it entails a percentage representation of the filled questionnaires out of the total distributed. It is calculated by dividing the number of respondents by the total number of surveys or questionnaires distributed by the researcher. In this study, the response rate was 61% since 164 questionnaires were distributed and returned out of the total 100. Below is a table showing this study's response rate:

Table (3.1): Response Rates in the Survey

Invited	Responded	Response rate
164	100	61%

In the above table, the response rate is 61%. This response rate was chosen due to time and other logistics constraints. According to Selvaraja (2020), the acceptable response rate for a survey is 50% or more, making the findings more relevant and helps to conclude the research objectives. Therefore, this study's 61% response rate was adequate to derive adequate data and to attain the research's objectives.

Internal consistency validity of the scale items:

This study calculated internal consistency validity (construct validity) by calculating Pearson's correlation coefficients between the impact of applying total quality standards on the medical services quality scale and all items of the scale. The correlation coefficients are shown in the following table. These correlation coefficients appear statistically significant, indicating that the scale items are related to each other. The scale is considered true to what it was designed to measure.

The internal consistency validity of the first axis (The role of training as one of the dimensions of total quality in the quality of medical services from the point of view of hospital workers.):

Table (3.2): Pearson's correlation coefficients between each statement and the total score for the first axis

No.	Pearson's correlation coefficient with total statements
1	0.794
2	0.751
3	0.698
4	0.562
5	0.639
Total score: 0.726	

It is clear from the previous table that the correlation coefficients between each statement and the total score for the first axis range between (0.562) and (0.794), and most of them were high and statistically significant, which means a high degree of internal consistency validity for the first axis.

The internal consistency validity of the second axis (The role of responsiveness as one of the dimensions of total quality in the quality of medical services from the point of view of hospital workers.):

Table (3.3): Pearson's correlation coefficients between each statement and the total score for the second axis

No.	Pearson's correlation coefficient with total statements
1	0.817
2	0.762
3	0.592
4	0.528
5	0.743
Total score: 0.741	

It is clear from the previous table that the correlation coefficients between each statement and the total score for the second axis range between (0.592) and (0.817), and most of them were high and

statistically significant. Which means a high degree of internal consistency validity for the second axis.

The internal consistency validity of the third axis (The third axis: The role of empathy as one of the dimensions of total quality in the quality of medical services from the point of view of hospital workers.):

Table (3.4): Pearson's correlation coefficients between each statement and the total score for the third axis

No.	Pearson's correlation coefficient with total statements
1	0.815
2	0.783
3	0.680
4	0.534
5	0.761
Total score: 0.732	

It is clear from the previous table that the correlation coefficients between each statement and the total score for the third axis range between (0.534) and (0.815), and most of them were high and statistically significant. Which means a high degree of internal consistency validity for the third axis.

The internal consistency validity of the fourth axis (The fourth axis: The role of safety as one of the dimensions of total quality in the quality of medical services from the point of view of hospital workers.):

Table (3.5): Pearson's correlation coefficients between each statement and the total score for the fourth axis

No.	Pearson's correlation coefficient with total statements
1	0.925
2	0.745
3	0.795
4	0.624
5	0.703
Total score: 0.754	

It is clear from the previous table that the correlation coefficients between each statement and the total score for the fourth axis range between (0.624) and (0.925), and most of them were high and statistically significant, which means a high degree of internal consistency validity for the fourth axis.

Validity of the search tool:

The internal consistency validity of the questionnaire (construct validity) was calculated by calculating Pearson correlation coefficients on the study axes of the scale. The correlation coefficients, as shown in the following table, were statistically significant. This indicates that the research axes are related to each other, and the scale is considered true to what it was designed to measure.

Table No. (3.6): Pearson's correlation coefficients between each axis and the overall rate

Axis	Pearson's correlation coefficient	Significance level
The first axis	0.726	0.001
The second axis	0.741	0.001
The third axis	0.732	0.001
The fourth axis	0.754	0.001

It is clear from the previous table that all correlation coefficients of the statements with the total score are statistically significant. The correlation coefficient values for all statements, with the total score of the axes, range between positive (0.726 and 0.754). That is, the correlation is very high. Since all correlation values are positive, the statements contribute positively to the overall score of the questionnaire. In general, the items have a high degree of internal consistency, enabling them to measure the phenomenon under investigation with a high degree of stability.

Stability of the study tool:

The stability of the study tool means ensuring that the answer will be approximately the same if it is repeatedly applied to the same people at different times. The researcher conducted reliability steps on the same sample, using the split-half coefficient (Pearson) and Cronbach's alpha coefficient.

Cronbach's alpha coefficient:

The tool's stability was verified using the Cronbach alpha coefficient equation, which depends on the variations of the test questions related to the impact of applying total quality standards on

medical services quality. The test items are required to measure only one trait, and this step aims to verify the stability of the results if the research is repeated on another sample under the same conditions. This factor depends on measuring the internal consistency of the questionnaire questions, the value of which ranges between (0 and 1). This study calculated the reliability coefficient for each paragraph of the questionnaire separately. Then, calculate the reliability coefficient of the overall scale, as shown in the following table:

Table (3.7). Results of reliability coefficients for participants' answers to the questionnaire

Axis	Number of Items	Cronbach's alpha coefficient
The first axis:	5	0.841
The second axis:	5	0.872
The third axis:	5	0.864
The fourth axis:	5	0.859
Overall average of the scale	20	0.864

It is clear from the previous table that the Cronbach alpha coefficients range between (0.841 - 0.872) with an overall rate of (0.864). We conclude from the above that the research tool met the psychometric conditions for a good test, and that it fulfills the purposes of the research.

Table (3.8): Values of Cronbach's alpha reliability coefficients (n=20)

Scale	Number of items	Stability coefficient
Stability of the scale tool	20	0.864

It is clear from the previous table that the reliability coefficients for the scale, using the Cronbach alpha method, are high, and the overall reliability coefficient for the scale reached (0.864). This indicates a high degree of stability for the scale.

4. Data Analysis and Discussion

This chapter presents and discusses the study's findings in detail. The questionnaire was distributed to the 100 study sample members by sharing the electronic link, and the responses were received electronically. Using the Excel program, these responses were arranged mathematically, and all the variables were coded in the questionnaire responses in preparation for conducting the statistical analysis using the SPSS program. The statistical analysis included a study of the reliability of the questionnaire and a study of statistical frequencies for each question of the questionnaire, and a statistical study was carried out for the axes of the questionnaire, from the first to the fourth axis.

The values of the weighted averages (Mean) and standard deviations (Std.) were extracted for each one of the themes of the questionnaire. In the following detail:

Questionnaire Variables:

The questionnaire included the following variables; Independent Variables: Applying total quality standards. The dependent variables: It is represented in the response of the study sample to the items of the questionnaire, which consisted of 22 items. Of which 4 paragraphs are demographic variables and 18 paragraphs represent the three axes.

The statistical treatment:

The following statistical treatments were used:

1. Questionnaire reliability.
2. Frequencies and percentages.
3. Arithmetic mean.
4. Standard deviation.

Table No. (4.1): A judgmental scale according to a Likert scale

Response	Weighted average	General trend
I strongly disagree	From 1 to 1.80	Strongly disagree
I do not agree	From 1.81 to 2.60	Disagree
I don't know	From 2.61 to 3.40	Neutral
I agree	From 3.41 to 4.20	Agree
I strongly agree	More than 4.20	Strongly agree

Accordingly, the weighted average of the participant's answers was used to the questions, using the five-point Likert scale, in order to find out the direction of the participants' opinions.

5. Presentation and discussion of the results:

The variable of age group:

Table No. (4.2): The age group variable of the respondents

No.	Age group	Frequencies and percentages		Arrangement
		Frequency	%	
1	From 20 – 30 years.	28	28.0%	2
2	From 30 – 40 years.	51	51.0%	1

3	From 40 – 50 years.	13	13.0%	3
4	More than 50 years.	8	8.0%	4
Total		100	100%	

Based on the above table, it becomes clear that the age group from 30 years old to 40 years old came in first place with a rate of 51.0%. The age group between 20 and 30 years came in second place, with a rate of 28.0%. The percentage of participants in the age group from 40 years old to 50 years old came in third place, with a percentage of 13.0%. In the last place came the age group of more than 50 years, with a participation rate of only 8.0%. This is confirmed by the following chart:



Figure No. (4.1) Age group

The variable of gender:

Table No. (4.3): The gender variable of the respondents

No.	Gender	Frequencies and percentages		Arrangement
		Frequency	%	
1	Male	35	35.0%	2
2	Female	65	65.0%	1
Total		100	100%	

Based on the above table, it becomes clear that the percentage of the female participants came in first place, with a percentage of 65.0%, with a total number of 65 participants. The percentage of the male participants came in second place, with a percentage of 35.0%, with a total of 35 participants. This is confirmed by the following chart:

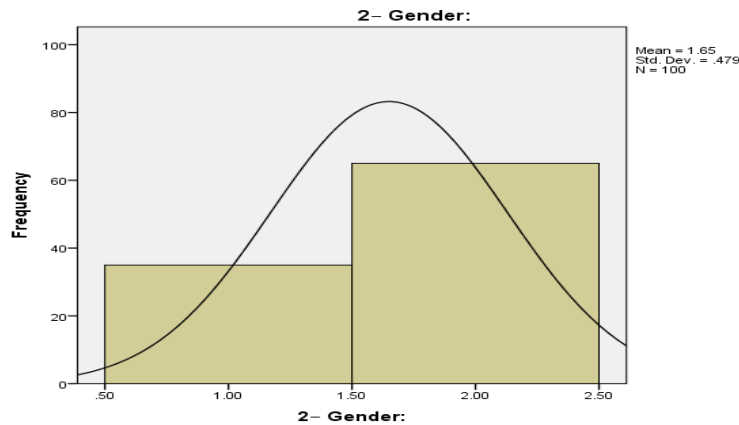


Figure No. (4.2) Gender

The variable of marital status:

Table No. (4.4): The educational level variable of the respondents

No.	Marital status	Frequencies and percentages		Arrangement
		Frequency	%	
1	Single.	38	38.0	2
2	Married.	56	56.0	1
3	Separate.	6	6.0	3
Total		100	100%	

Based on the above table, it becomes clear that:

Most of the respondents are married, with a percentage of 56.0%. The single respondents came in second place, with a percentage of 38.0%. The last category came from the separated respondents, with a rate of 6.0%. This is confirmed by the following chart:

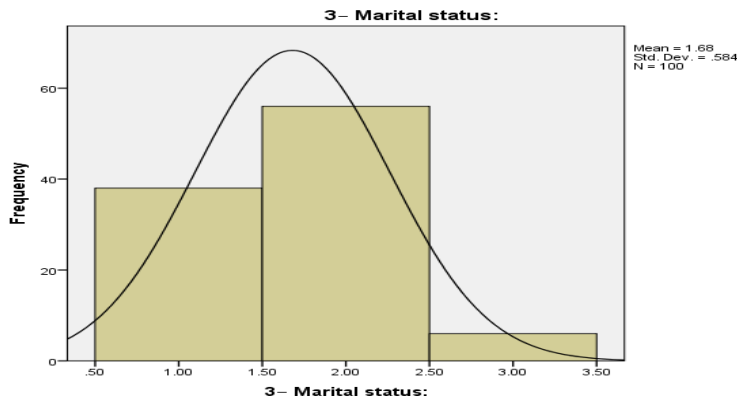


Figure No. (4.3) Marital status

The variable of educational level:

Table No. (4.5): The educational level variable of the respondents

No.	Educational level	Frequencies and percentages		Arrangement
		Frequency	%	
1	Secondary.	0	0.0%	4
2	Bachelor’s degree.	52	52.0%	1
3	Master's degree.	32	32.0%	2
4	Ph.D.	16	16.0%	3
Total		100	100%	

Based on the above table, it becomes clear that most of the respondents had bachelor’s degree, with a percentage of 52.0%. Master holders and secondary holders came in second place, with a percentage of 32.0%. The third category came from PhD holders, with a rate of 16.0%. The last category came from secondary holders, with a rate of 0.0%. This is confirmed by the following chart:

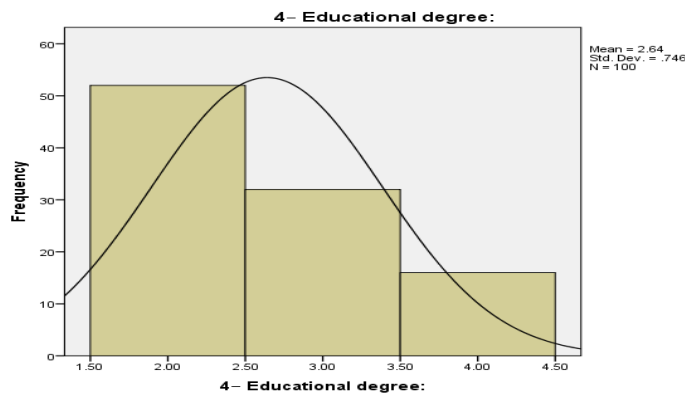
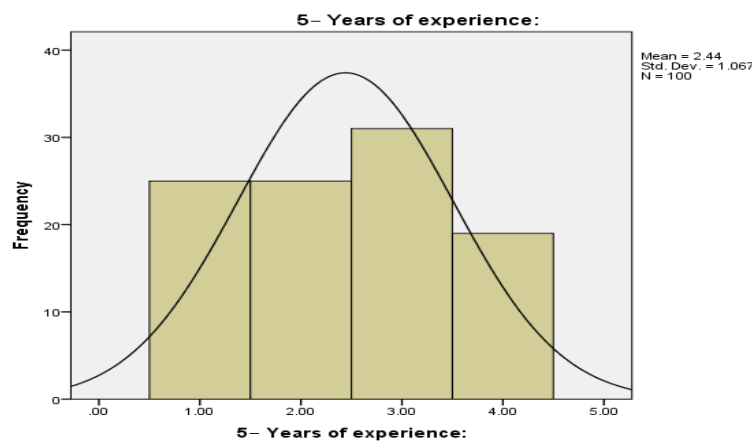


Figure No. (4.4) Educational Level

The variable of years of experience:**Table No. (4.6): The experience variable of the respondents**

No.	Years of experience	Frequencies and percentages		Arrangement
		Frequency	%	
1	Less than 5 years.	25	25.0%	2
2	From 5 – 10 years.	25	25.0%	2
3	From 10 – 15 years.	31	31.0%	1
4	More than 15 years.	19	19.0%	3
Total		100	100%	

Based on the above table, it becomes clear that most of the respondents have 10 to 15 years of experience, with a percentage of 31.0%. the respondents of 5 to 10 and less than 5 years of experience came in second place, with a percentage of 25.0%. The last category came from the respondents with experience of more than 15 years, with a rate of 19.0%. This is confirmed by the following chart:

**Figure No. (4.5) Years of experience****The variable of the specialization:****Table No. (4.7): The specialization variable of the respondents**

No.	Specialization	Frequencies and percentages		Arrangement
		Frequency	%	
1	Physician	15	15.0	3
2	Nurse	15	15.0	3
3	Pharmacist	38	38.0	1

4	Dietitian	3	3.0	4
5	X-ray technician	0	0.0%	5
6	Respiratory therapist	0	0.0%	5
7	Other	29	29.0%	2
Total		100	100%	

Based on the above table, it becomes clear that most of the respondents are of pharmacist specialization, with a percentage of 38.0%. The specialization of others came in second place, with a percentage of 29.0%. The specialization of physicians and nurses came in third place, with a percentage of 15.0%. The specialization of dietitians came in fourth place, with a percentage of 3.0%. The last category came from the specialization of x-ray technicians and respiratory therapists, with a rate of 0.0%. This is confirmed by the following chart:

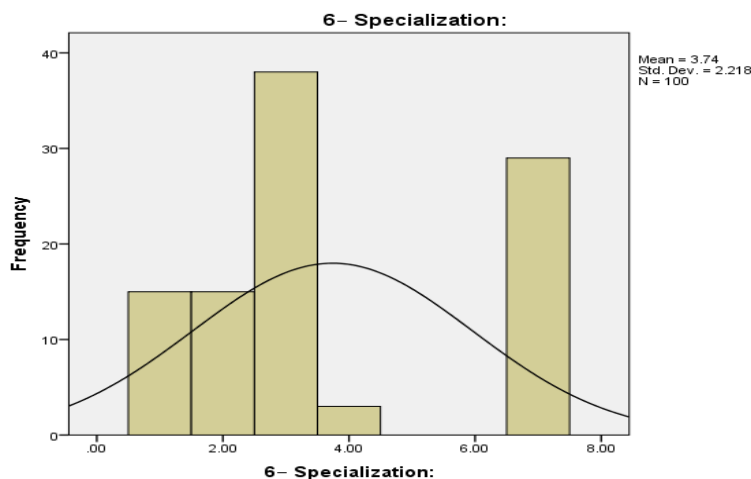


Figure No. (4.6) Specialization

The first axis: The role of training in the quality of medical services from the point of view of hospital workers.

Table No. (4.8): The first axis: The role of training in the quality of medical services from the point of view of hospital workers

The role of training	Mean	Std. Deviation	Range	General trend
Periodic training is held for hospital staff in order to increase their abilities to use technological programs.	4.01	0.89324	3.00	Agree

Hospital employees benefit from training courses organized by the administration.	4.01	0.83479	4.00	Agree
Training contributes to increasing the employees' ability to provide services to patients.	4.43	0.70000	3.00	Agree
One of the results of the training was to speed up the procedures for accepting and discharging patients from the hospital.	3.97	0.94767	4.00	Agree
Training employees contributes to managing and following up patient files using modern technical means.	4.05	0.85723	3.00	Agree

Based on the above table, the following appears paragraph No. (3) "Training contributes to increasing the employees' ability to provide services to patients." came in the first rank among the paragraphs, with the highest mean of 4.43. While paragraph No. (4) "One of the results of the training was to speed up the procedures for accepting and discharging patients from the hospital." came last, with a mean of 3.97. The arithmetic mean for the first axis was 4.1, which is represented on the five-point Likert scale rating scale: Agree.

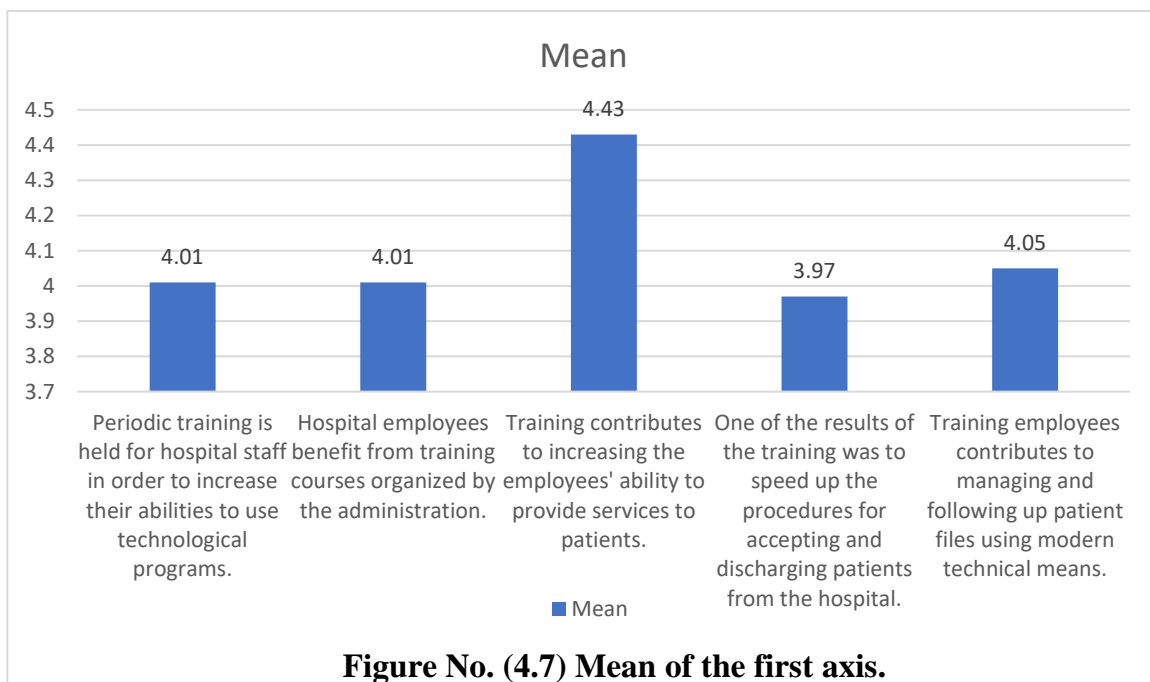


Figure No. (4.7) Mean of the first axis.

The second axis: The role of responsiveness in the quality of medical services from the point of view of hospital workers.

Table No. (4.9): The second axis: The role of responsiveness in the quality of medical services from the point of view of hospital workers

Role of responsiveness	Mean	Std. Deviation	Range	General trend
The services provided by the hospital are characterized by speed, accuracy, and compliance with approved standards.	3.90	1.01005	4.00	Agree
Patient inquiries are answered quickly and in a timely manner, regardless of the means of communication.	3.59	95447.	4.00	Agree
The hospital provides means of communication with patients and their families using all modern means of communication.	3.84	1.01225	4.00	Agree
Patients' conditions are followed up carefully and in a timely manner according to medical instructions.	3.84	83750.	3.00	Agree
There are no complaints from patients and their families regarding the delay in providing services at the hospital.	2.64	1.21871	4.00	I don't know

Based on the above table, the following appears paragraph No. (1) "The services provided by the hospital are characterized by speed, accuracy and compliance with approved standards." came in the first rank among the paragraphs, with the highest mean of 3.90. While paragraph No. (5) "There are no complaints from patients and their families regarding the delay in providing services at the hospital." came last, with a mean of 2.64. The arithmetic mean for the second axis was 3.7, which is represented on the five-point Likert scale rating scale: Agree.

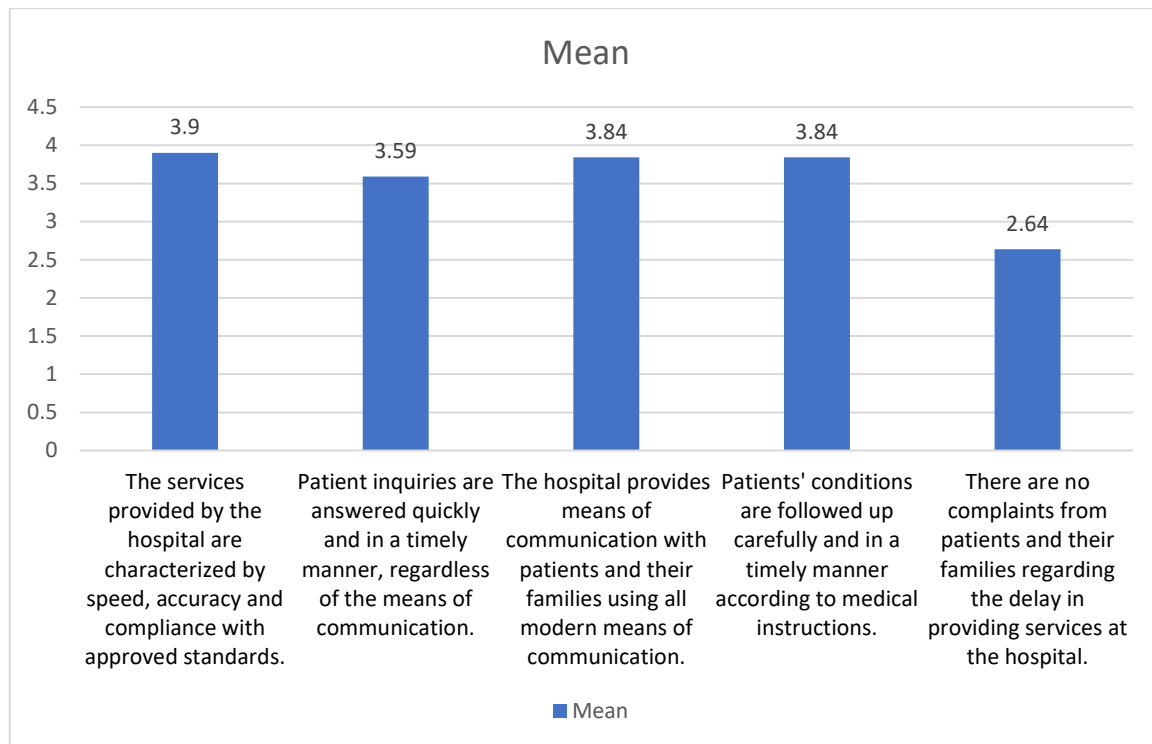


Figure No. (4.8) Mean of the second axis.

The third axis: The role of empathy in the quality of medical services from the point of view of hospital workers.

Table No. (4.10): The third axis: The role of empathy in the quality of medical services from the point of view of hospital workers

Role of empathy	Mean	Std. Deviation	Range	General trend
The hospital administration is concerned with the psychological care of patients at all stages of the treatment process.	3.54	1.06761	4.00	Agree
The hospital's work teams are characterized by complete cooperation among themselves, among patients, and among themselves.	3.72	0.94367	4.00	Agree
Hospital staff are trained in psychological rehabilitation for patients.	2.97	1.08670	4.00	I don't know.

The hospital administration is keen to treat patients with kindness ensuring that they feel safe.	3.91	0.90000	4.00	Agree
During the patients' stay in the hospital, they feel as if they have gained a new family.	3.45	0.97830	4.00	Agree

Based on the above table, the following appears paragraph No. (4) "The hospital administration is keen to treat patients with kindness ensuring that they feel safe." came in the first rank among the paragraphs, with the highest mean of 3.91. While paragraph No. (3) "Hospital staff are trained in psychological rehabilitation for patients." came last, with a mean of 2.97. The arithmetic mean for the third axis was 3.65, which is represented on the five-point Likert scale rating scale: Agree.

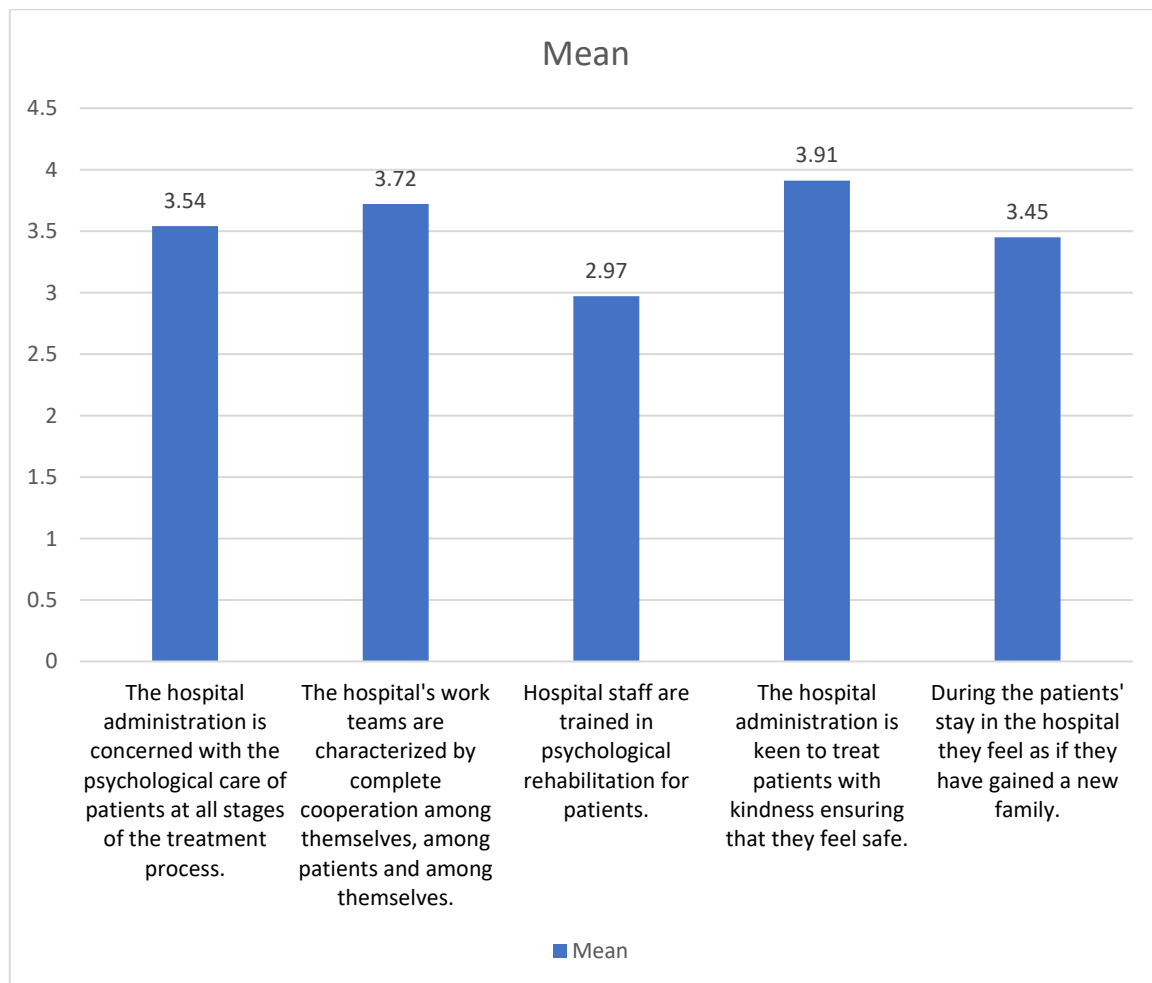


Figure No. (4.9) Mean of the third axis.

The fourth axis: The role of safety in the quality of medical services from the point of view of hospital workers.

Table No. (4.10): The fourth axis: The role of safety in the quality of medical services from the point of view of hospital workers.

Role of safety	Mean	Std. Deviation	Range	General trend
The hospital is equipped with the latest professional security and safety methods against all types of accidents.	3.86	0.98494	4.00	Agree
The hospital has an emergency team well-trained in crisis and emergency management.	4.17	0.92174	4.00	Agree
Hospital workers are well-trained to follow all preventive measures to ensure patient safety.	3.98	0.99473	4.00	Agree
The administration conducts security and safety inspections on scheduled dates.	3.95	0.93609	4.00	Agree
Periodic reports are prepared regarding security and safety methods and procedures in the hospital in accordance with applicable standards.	3.96	0.89803	4.00	Agree

Based on the above table, the following appears paragraph No. (2) "The hospital has an emergency team well trained in crisis and emergency management." came in the first rank among the paragraphs, with the highest mean of 4.17. While paragraph No. (1) "The hospital is equipped with the latest professional security and safety methods against all types of accidents." came last, with a mean of 3.86. The arithmetic mean for the fourth axis was 3.92, which is represented on the five-point Likert scale rating scale: Agree.

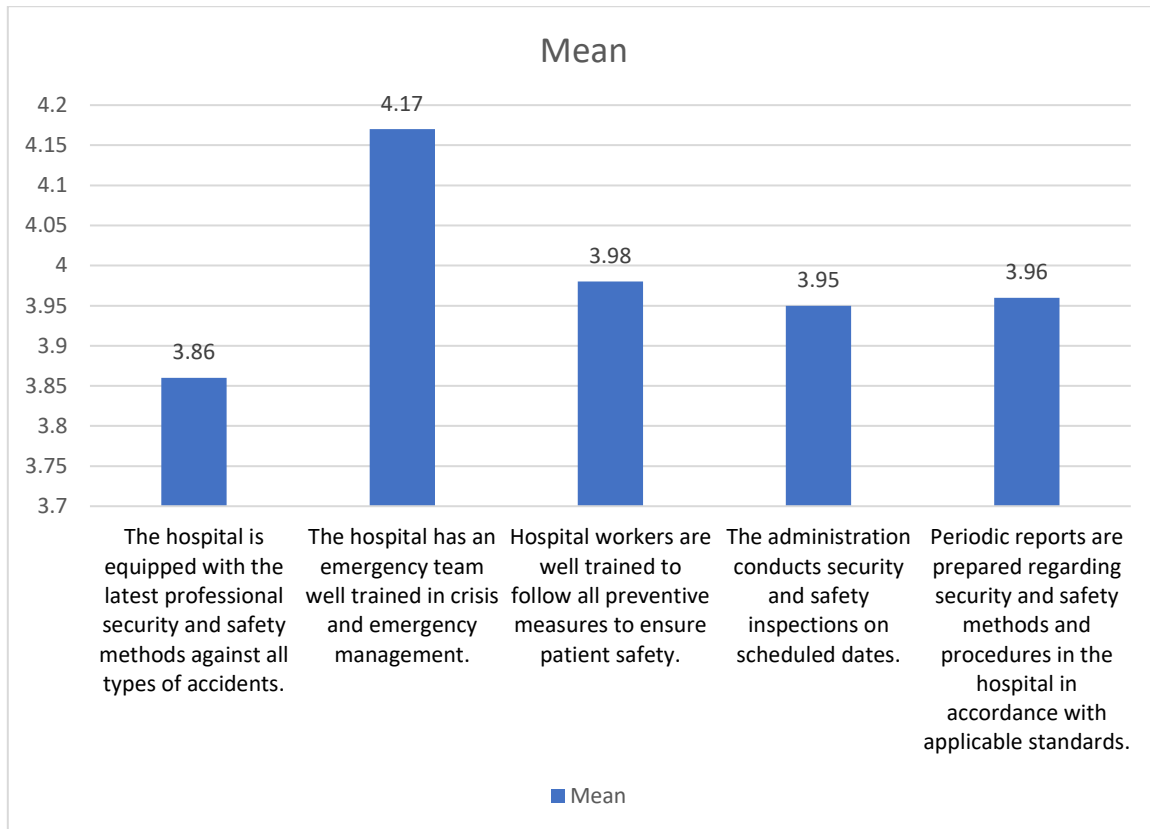


Figure No. (4.10) Mean of the fourth axis.

Regression analysis results:

Table No. (10) Regression Results

R Square	0.997
F Value	22595.981
F (Significance)	0.000
Beta of Constant	0.07
Beta of work environment	0.488
VIF factor	1.00

To find out the relationship between applying total quality and medical services quality, a simple linear regression model was used in which applying total quality management was considered as the explanatory variable and medical services quality as the dependent variable. The results of the regression model demonstrated that there was a significant relationship between applying total quality management and medical services quality. This can be inferred from the t-value and its associated p-value.

The explanatory variables explain 28.5% of variations in medical services quality, showing moderate strength of the relationship between medical services quality and the explanatory variables. By referring to the F value and its p-value, the model is valid and there is a correlation between medical services quality and the explanatory variables. A multicollinearity test was carried out to verify the existence of the mentioned relationship. The result revealed the VIF factor of the model was ($1.00 < 3$), indicating the nonexistence of the collinearity problem.

6. Conclusion, Results, Limitation and Recommendations

Total quality management is the fundamental pillar upon which hospitals in Saudi Arabia depend to constantly improve and develop the quality of medical services, especially in light of the increasing competition between government hospitals, to apply all approved quality standards that are consistent with national plans and visions, especially the Kingdom's Vision 2030. Given the intense competition hospitals face, they are in dire need of total quality management so that these hospitals can provide excellent medical service. This study discussed the impact of applying total quality management standards at Saudi Arabia hospitals on the level of medical services provided to patients. It reached many results and recommendations, such as the following.

The current research contributes to interest in the correlation that may extend between the total quality standards and medical services quality. The current study revealed a high level of total quality management used for medical services quality. Second, the quality of the medical services was high. Third, the levels of total quality standards usage due to training as one of the dimensions of total quality were high. Fourth, the levels of the total quality standards' usage due to responsiveness as one of the dimensions of total quality were high. Fifth, the levels of the total quality standards' usage due to safety as one of the dimensions of total quality on the quality were high.

Based on the study's findings, work must be done to train the administrative teams in hospitals well, including practical methods for applying total quality standards, to reach the optimal level of quality of services that the hospital provides to patients at all times. And work to benefit from the experiences of developed countries in the areas of applying total quality standards and monitoring and follow-up software, which ensures continuous improvement in the application of these standards, to improve the level of services provided to patients, in all government and private hospitals throughout the Kingdom of Saudi Arabia.

Despite its contribution to some intriguing contribution, the study has several limitations that should be considered and may be solved in subsequent research. First, based on the findings of this study, it is recommended to have it duplicated in other nations or do a comparison study between two or more countries. Second, more factors can be handled by research to analyze how total quality management affects the quality of medical services. Third, for time-related concerns, the sample size was limited to 100. As a result, it is debatable to what extent the findings can be applied to the entire population, so we suggest looking into a study with a significant sample size to see if this is possible.

It is suggested that hospitals in Saudi Arabia should concentrate on total quality standards localization capability. While employing the total quality standards, localization capability is a novel strategy. However, to get the most out of this new medium, it is suggested that managers combine the proper timing, location, and message relevance when developing medical service quality. Hospitals must develop their management systems to keep pace with the rapid development of applying total quality standards. Hospitals must rely on advanced administrative systems to be able to achieve the planned results in a record period.

The current study's impact of applying total quality standards on medical services quality at a Saudi Arabia hospital. Future research may investigate the total quality standards and medical services quality separately. Moreover, more factors can be handled by research to analyze the impact of the total quality standards on the quality of medical services. Several factors could increase the quality of medical services, and each one has a corresponding amount of coverage. Therefore, the researchers conducting follow-up research should review other publications to choose different variables and dimensions and provide a more comprehensive examination.

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