

# The Role of the Principles of Total Quality Management in Improving the Quality of Health Service: An Analytical Study in the Iraqi Ministry of Health<sup>1</sup>

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DOI:10.37648/ijrssh.v13i01.032

*Received: 15 January 2023; Accepted: 16 February 2023; Published: 06 March 2023*

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## ABSTRACT

The current research aims to provide a theoretical and practical framework linking the requirements of total quality management and the dimensions of health service quality, as well as spreading awareness of the concepts of total quality management and customer satisfaction in an Iraqi service environment, represented by the Iraqi Ministry of Health by describing the variables of the study and diagnosing those variables represented by principles (Total quality management and dimensions of health service quality) in the ministry under study, and for the purpose of collecting data, a questionnaire was designed from two axes. Tangibility, response, sympathy, dependability, and that through the ready-made measures for both variables, and for the purpose of analyzing the data, the statistical program (SPSS V.26) was used by relying on the statistical tools represented by arithmetic mean, standard deviation, simple linear regression, regression multi-linearity, Kropenach alpha, relative importance, and a number of conclusions were reached, the most important of which is the presence of positive indicators that the requirements of general quality management. All matters are necessary to achieve the quality of service in the ministry under study. Accordingly, the researcher recommends the Ministry of Health to pay attention to the requirements of total quality management, as these requirements are necessary to achieve the quality of health service in the ministry, and thus achieve patient and employee satisfaction.

## INTRODUCTION

Total quality management has gained great importance during the past two decades, due to the impressive and remarkable successes it has achieved in many service and production organizations, and quality management has become, at present, the talk of the hour in business circles, because its meaning has begun to become clear to various workers in the administrative and industrial field, as it is the axis. The main one around which the branches of social, economic and technological sciences revolve, and it has become one of the administrative divisions included in the organizational structure in many organizations.

In the face of these developments, Total Quality Management has become a preoccupation for every company whose requirements set by its theorists Deming, Juran, Feigenbaum, and Ishikawa are still being discussed and admired, for what companies that work on achieve putting the requirements of total quality management into practice in terms of positive results in its performance and increasing its competitiveness while providing products that satisfy the customer's needs and requirements, and meet his desires to gain his satisfaction.

In a related context, the quality of service has gained great importance during the past two decades, due to the remarkable successes achieved by organizations that provide high-quality services in many service and production organizations, and the quality of service has now become the talk of the hour in business circles, and the customer has become the master (Customer is Master). After the organizations were subject to the requirements of production and the sound of the machine, it became natural to think that the voice of the customer must be louder than the voice of the machine under the influence of intense competition, and competition in order to attract the customer for the first time, and then maintain it, leading to his loyalty. As the quality of service is one of the important and basic measures

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<sup>1</sup> *How to cite the article:* Mezban R.M., The Role of the Principles of Total Quality Management in Improving the Quality of Health Service: An Analytical Study in the Iraqi Ministry of Health, *International Journal of Research in Social Sciences and Humanities*, Jan-Mar 2023, Vol 13, Issue 1, 377-394, DOI: <http://doi.org/10.37648/ijrssh.v13i01.032>

in judging the distinction of goods or services alike, and therefore the superiority of the organization or not, whether it is a service or production organization, and in order to judge the quality of service, there must be indicators and dimensions that can be relied upon to measure it.

Therefore, based on the foregoing, the current research deals with measuring the effect of the principles of total quality management in improving the quality of health service in the Iraqi Ministry of Health, and in order to cover the aspects of the research, it was divided into four sections, the first deals with the research methodology, the second the theoretical framework, the third the practical aspect, and the fourth topic deals with conclusions and recommendations.

## **FIRST TOPIC: RESEARCH METHODOLOGY**

### **First: Research Problem**

The adoption of modern administrative methods that have proven their sufficiency in achieving the required results, such as the philosophy of total quality management, and the lack or weakness of their application in the Iraqi environment, is a case that deserves research and study, especially in light of the health conditions of the Corona crisis that swept Iraq and the whole world. Taking into account the quality of the service it provides, it is therefore of great importance that the quality of the health service provided by the Iraqi Ministry of Health be disclosed as it is the impenetrable wall in front of any potential health crisis. And distinguished for the ministry in question. And through field coexistence by the researcher in the ministry, in addition to being one of its staff, it was noticed that there is weakness or lack of knowledge of the managers in the ministry under study about the nature of the relationship between the requirements of total quality management and the dimensions of health service quality, and based on the foregoing, the following questions should be asked It can contribute to clarifying the research problem:

1. What is the extent of the perception that the managers in the ministry under study have about the requirements of total quality management?
2. What is the size of the perception that the citizen (customer) has about the dimensions of health service quality?
3. What is the nature of the requirements of total quality management (effective leadership - commitment of management and employees - formation of work teams - product (service) design - continuous improvement) in the ministry?
4. Do customers have a clear vision of the appropriate arrangement for the dimensions of health service quality?
5. Do managers in the ministry under study have a clear vision of the impact of the requirements of total quality management on the dimensions of health service quality?

### **Second: Importance of the Study**

The importance of the study is highlighted by:

1. Presenting a theoretical and applied framework linking the requirements of total quality management and the dimensions of health service quality, as the case of linking may represent an important scientific addition to the Arab library in this field, especially if it is confirmed that the scarcity of such studies is indicated according to the researcher's knowledge of Arab studies.
2. Presenting the scientific bases on which the Ministry under study can depend on determining the relationship and impact between the requirements of total quality management and the dimensions of health service quality in an Iraqi service environment represented by the Iraqi Ministry of Health.
3. Providing information that helps all administrative officials in the ministry under study to develop the ministry's services to make it capable of fulfilling its obligations towards patients.

### **Third : Study Objectives**

In light of defining the study problem and its importance, the study seeks to achieve the following objectives:

1. Spreading awareness of the concepts of total quality management and customer satisfaction in an Iraqi service environment, represented by the Iraqi Ministry of Health.

2. Description of the study variables and diagnosis of those variables represented by (the principles of total quality management and the dimensions of health service quality) in the ministry under study.

3. Testing the correlation between the principles of total quality management and the dimensions of health service quality in the ministry under study.

4. Testing the impact of the principles of total quality management and dimensions of health service quality in the ministry under study.

#### Fourth: Hypothetical Scheme of the Research

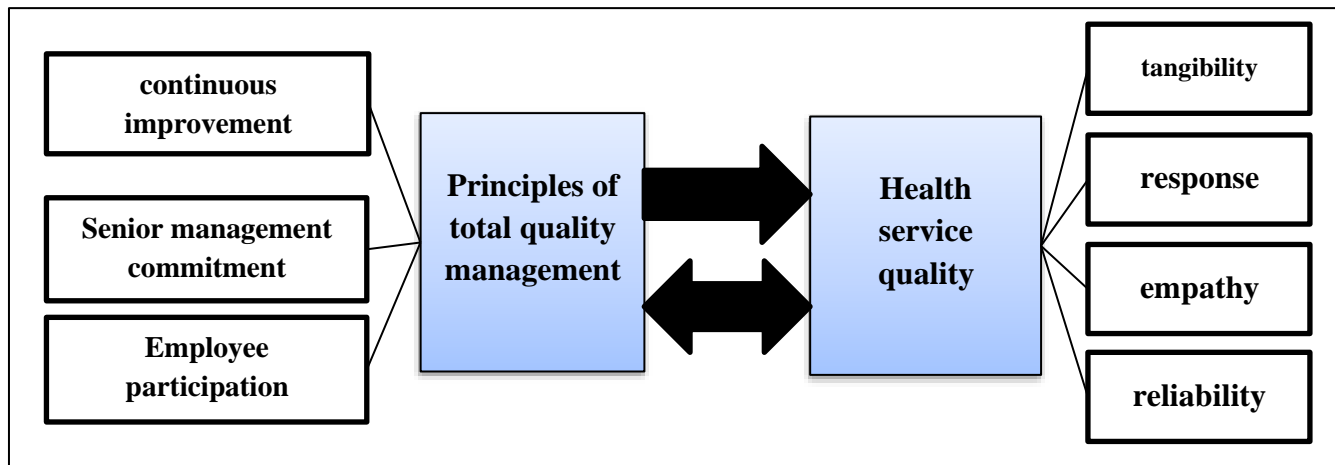


Figure (1) The hypothetical scheme of the research

Source: prepared by the researcher

#### Fifth : Research Hypotheses

The current research hypotheses were formulated according to the research problem, its objectives, and its hypothetical scheme, as it tries to answer the questions contained in the problem, and that testing the hypotheses statistically later will determine the quality and level of the relationship between the research variables, and the research hypotheses can be clarified as follows:

**The first main hypothesis:** There is a significant correlation between the principles of total quality management and its dimensions and the quality of health service, and the following sub-hypotheses emerge from it:

There is a significant correlation between the dimension of continuous improvement and the quality of health service.

There is a significant correlation between the commitment dimension of senior management and the quality of health service.

There is a significant correlation between the dimension of employee participation and the quality of health service.

**The second main hypothesis:** There is a significant impact of the principles of total quality management in its dimensions on the quality of health service, and the following sub-hypotheses emerge from it:

There is a significant effect of continuous improvement in the quality of health service.

There is a significant effect of the commitment of senior management in the quality of health service.

There is a significant effect of the participation of workers in the quality of health service.

#### Sixth: Research Methodology

The current research has taken the historical, analytical and experimental approach, as the historical approach emphasizes an intellectual theoretical review of the topics dealt with that relied on the available Arab and foreign references and sources, and the most important writings in the previous literature on these topics were presented by others. And then the analytical approach has been adopted for the current research by tabulating and classifying this

knowledge and information into categories according to their time, conceptual and definitional frameworks, as well as tabulating them in specific models. Relationship, impact, compatibility and complementarity among them, and access to results that prove the fact that there is a logical link between its variables.

### Seventh : Research Limits

**1. Spatial boundaries :** The Iraqi Ministry of Health.

**2. Human limits:** The human limits are represented by the senior and middle leaders in the ministry, the research community, represented by (general director, assistant general director, department director, assistant department director, directors, and unit officials).

**3. Temporal limits:** The time limits are represented by the period starting from the date of distributing the questionnaire to the research community and its retrieval and data dumping, which is represented by the completion stage.

### Eighth: Coding the research variables and its dimensions mentioned in the questionnaire

The research questionnaire included two main variables (principles of total quality management, quality of health service), and the first part was measured through three dimensions (continuous improvement, senior management commitment, employee participation) of the principles of total quality management as an independent variable, while its second part was measured through four Dimensions (tangibility, response, empathy, reliability) represented the quality of health service as a dependent variable, and the number of items in the questionnaire was (32) items, and they were taken from approved sources from previous studies, according to Table (1) :

**Table (1) Coding of the questionnaire according to the criteria and model chosen for the research**

variable	The dimension	paragraphs	coding	Source
Principles of total quality management	continuous improvement	5	X1	(Kazem, 2016)
	Senior management commitment	5	X2	
	Employee participation	5	X3	
Health service quality	tangibility	4	Y1	(Akhlaghi et al., 2021)
	response	4	Y2	
	empathy	4	Y3	
	reliability	5	Y4	

Source: prepared by the researcher.

## THE SECOND TOPIC: THEORETICAL SIDE

### First: The Principles of Total Quality Management

#### 1. The Concept of Total Quality Management

Total Quality Management (TQM) is an approach to improving the effectiveness and resilience of the business as a whole. It is basically a way to organize and involve the entire organization, all departments, every activity and every person at every level. TQM ensures that management adopts a strategic overview of quality, focuses on prevention rather than inspection, and has a vital drive for continuous improvement in the organization to improve its performance. Over the past few decades, quality gurus such as Juran & Gryna, 1988 and Crosby, 1986 have developed and (Deming, 1980) and (Ishikawa, 1985) the initial building blocks of total quality management, so they proposed certain proposals in the field of total quality management, which were widely accepted all over the world (Toke & Kalpande, 2020: 159).

Total quality management means managing all elements of organizational processes, practices, systems, methodologies and all stakeholders. The main goal of total quality management is to create a climate in the organization where all resources are used creatively and effectively, which gives employees confidence in management (Khurniawan et al., 2020: 46). The application of total quality management is a form of strategy to compete with the improvement of all aspects of the organization such as products, people and the environment, through the implementation of total quality management, as the organization's management will focus more on implementing continuous improvement so that the organization becomes better, when applying total quality management to the organization's strategy, the strategy will always change every period, changes in the very frequent

strategy will cause confusion to the current human resources, in addition to that the management will always change its work system and retrain it according to the goals to be achieved (Arifin et al., 2022: 17).

There have been many definitions of total quality management according to the perspectives of researchers and their personal opinions that serve their research and studies, so table (2) shows the concept of total quality management, as follows:

**Table (2) The concept of total quality management, according to some researchers**

No	Researcher & Year	Total Quality Management
1	(Yu et al., 2017 : 1)	Apply quantitative methods and human resources that improve all processes within the organization and exceed current and future customer needs.
2	(Suitima, 2020 : 56)	A customer-focused (customer-centered) quality management system that involves all levels of employees in making continuous improvements.
3	Abu Daqar & Constantinovits, ) (2020 : 65	A method that raises the level of culture, attitude, and work style of any organization, especially one that tries to increase its customers by offering new products and services that meet their needs and desires.
4	(Faraj et al., 2021 : 3839)	Integrated manager and staff in the organization to continually improve product/service and process quality to meet customer needs and expectations. Therefore, having such practices seems to enhance employee performance and lead to effective performance.
5	(Al-Shorah, 2021 : 68)	The philosophy of striving to meet customer needs, constantly improve quality, and improve performance.

*Source: prepared by the researcher.*

Through the definitions contained in the table, the researcher notices a difference in the researchers' opinions about the concept of total quality management, so he defines it as an administrative approach that requires commitment from senior management to focus on the quality of performance in all aspects and disciplines of the organization, so that the focus is not only on the quality of final outputs.

## 2. Importance of Total Quality Management

Quality management is the result of development in quality. It was started by Walter Shewhart in the early 1920s when product quality control was implemented using statistical theory. Then in the 1940s led by Americans such as Deming, Goran, Feigenbaum and Crosby, the concept was further developed in Japan. The focus has broadened to include all quality issues within the organization. The four evolutionary stages of quality are inspection, quality control, quality assurance, and then total quality management (Othman et al., 2020: 698).

(Sutima, 2020 : 56) indicates that the importance of total quality management comes through the use of strategy, data, and communication, and it is effective for integrating quality discipline into the culture and activities of the organization. In short, total quality management (TQM) is a managerial approach to achieving long-term success through customer satisfaction ( customers satisfaction).

The total quality management will also strive to ensure that customer satisfaction is the main priority of the organization, and with the great efforts that the organization devotes to meeting or exceeding the expectations of its customers in all transactions, the total quality management contributes to building a strong relationship with customers to identify their needs and ask for feedback, therefore, it strengthens the relationship. The organization and customers through their role in the development process and product design, and total quality management aims to provide a success model for organizations through the concept of customer satisfaction (Abu Daqar & Constantinovits, 2020: 69).

(Al-Shorah, 2021: 68) indicates that total quality management is important for health care organizations to improve the quality of health services, in addition to helping them improve their management, achieve more effective organization, increase employee satisfaction, enhance organizational commitment, and encourage teamwork between employees and management, and increase patient satisfaction as well as improve their performance.

Based on progress, the researcher believes that the importance of total quality management comes through the role it plays in increasing customer satisfaction by improving the quality of products and services with the least consumption of resources.

### 3. Dimensions of Total Quality Management

#### A. Continuous Improvement

The process of continuous improvement is an important pillar of a long-term competitive strategy for the organization because it is characterized by the fact that large results come from many (small, accumulated) changes over time, and the continuous improvement process results in small improvements as a result of the continuous coordinated efforts of all employees with management (Amri, 2014: 313). This is confirmed by (Szyrocka, 2017: 83) that the process of continuous improvement is a continuous process to empower individuals through the use of their creative ideas to improve their daily work and make corrections to the organized business problems that are expected to occur, as the effective Kaizen approach is linked to making continuous improvements.

(Lingappan, 2016:14) indicates that the process of continuous improvement is a philosophy or practices that focus on continuous improvement of operations in manufacturing, engineering and business management through improving standardized activities and processes and aiming to eliminate waste, either (Supriyanto et al, 2019: 112) He refers to it as a strategic framework for the efforts made to improve the quality of services and the quality of employees and products that aim to satisfy customers.

#### B. Senior Management Commitment

It requires senior management to recognize the basic concepts and requirements of the total quality management philosophy, to be trained, to have a correct vision and policy for its application and to be committed to applying it, and it has the effect of providing full support to all employees at the administrative levels to achieve the goals of the organization (Casas, 2011: 19). (Slack et al, 2010: 620) explained that the success of total quality management gains its prestige and strength from the commitment of senior management, which uses its programs as a competitive weapon to market its products that work to give a distinguished role to workers, and their participation, that the application of this program requires the commitment of the organization's senior management. The employees are fully committed, as the commitment and support of senior management is not limited to allocating resources to the program only, such as setting priorities throughout the organization and their commitment to applying it, as well as understanding the practical reality of quality and controlling quality requirements and techniques for the rest of the organization.

#### C. Employee Participation

The participation of employees in decision-making is related to different terms in the literature of organizational behavior, such as participation, empowerment, voice and participation, as Wikhamn et al., 2021: 4 refers to employee participation as participation in the decision-making process, and how employees can have a say regarding work activities and decision-making issues within the organization in which they work. Studies indicate that there is a growing interest in employee participation as a means of promoting commitment and well-being in the context of increasing competition and change, as employee participation covers various formal and informal arrangements in the organization that are practiced either locally or at higher levels in the organization (Philip & Arrowsmith, 2020: 1). Over the years, many scholars have studied and defined employee participation, as it has been defined as a process that allows employees to exercise some influence over their work and the conditions under which they work. It is a philosophy or method of organizational management that recognizes the need and right of employees, individually or collectively, to participate. with management in areas of organization's decision-making beyond those usually covered by the collective (Parasuraman & Rathakrishnan, 2021: 91).

### Second: Quality of Health Service

#### 1. The Concept of Service Quality

According to the Oxford dictionary, quality is the degree of distinction and preference. Within the service quality literature, the measure of service quality is one of the most widely accepted and used tools for measuring service quality, so much so that even competitors of the service quality model recognize that for some time the dominant implementation of service quality was the quality of service measure. The service developed by Parasurman et al. (1988) (Viraiyan et al., 2016: 90). Service quality refers to the use of the organization's resources to provide a set of products, including the essential characteristics of tangible products and intangible services that meet the requirements of the beneficiaries, and depends mainly on the beneficiaries' perception of the level of service provided by the organization, as the tangible service covers the environmental elements that provide services facilities and equipment support, and intangible service covers customer realization of prevailing elements such as added value of human capital, and improvement of the atmosphere in the facilities of the organization (Wei & Lin, 2015: 174-175).

The concept of quality of service is an evaluation factor for the perception of the beneficiaries of that service provided by its providers, whether governmental or non-governmental (Kurniawan & Ratnaningsih, 2021: 126). The researchers differed in setting a single definition of the quality of customer service, due to the different aspects through which the subject was addressed, and Table (3) shows a number of definitions of the quality of customer service according to the opinion of some researchers, taking into account the chronology of each of them, as follows:

**Table (3) definitions of customer service quality**

No	Researcher & Year	Quality of health service
1	(Susanti et al., 2015 : 78)	The sense of satisfaction felt by the internal customer from the internal service providers in the organization.
2	(Siwantara & Sugiarta, 2017 : 48)	A measure of the quality of service delivery, and the extent to which the service provided meets the expectations of beneficiaries.
3	(Pintilie, 2017 : 759)	The degree of excellence that has been achieved and controlling the variables in achieving this excellence in meeting the desires of the consumer.
4	(Omidian & Nia, 2018 : 58)	A particular style of service delivery that comes as a result of a series of specific actions, which respond to specific social needs in a given period and place.
5	(Syam & Arifin, 2019 : 2)	The extent of the difference between reality and the customer's expectation of the service they receive from the service provider, which is achieved by meeting the needs required by consumers as well as delivery decisions to compensate for the expectations that consumers want from service providers.

Source: Prepared by the researcher based on the sources mentioned above.

On this basis, the researcher defines the quality of service as the outcome of the total quality that relates to the organization, and each of the administrative quality, the quality of public facilities, the quality of products and the quality of the infrastructure of the organization, and the interaction of these factors leads to obtaining quality in the service provided to the customer.

## 2. Importance of Quality of Service

The service industry and service quality have become common areas of research in a range of research areas, and this trend can be directly linked to the increasing importance of service quality in human life today, and consumers in developed countries as well as in developing countries have become more aware and seek quality in the products and services they desire. Therefore, there has been a growing interest among researchers in measuring and improving service quality (Atsan, 2015: 527).

Today, quality has become the most important feature that creates value, whether for a product or service, and it is the means by which the leaders of organizations distinguish their services from their competitors (Lutz et al, 2002:9). Researchers in this field assert that quality is one of the main factors for business excellence because it has a significant impact on the sustainability of the organization, and is part of its strategy to maintain customer loyalty, as well as improve overall performance (Rombe & A.Tolla, 2016: 99). (Zeng, 2018: 1060) believes that the importance of quality of service is highlighted by the following:

1. The quality of customer service affects the development of the comprehensive capabilities of workers.
2. The quality of customer service affects the employment of employees.
3. The quality of customer service was linked to a certain degree with the satisfaction of the beneficiaries of the organization's services.
4. The quality of customer service is linked to the self-initiative of the employees of the organization.

The researcher believes that the importance of quality of service emerges through its role in enhancing the desires of individuals and satisfying their needs, as well as its role in enhancing the reputation of the organization through its direct role in supporting and continuity in improving the quality of service.

### 3. Dimensions of Service Quality

#### A. Tangibility

Tangibility is related to the things that individuals who benefit from the service can touch, and it is related to organizations, especially service ones, in terms of devices, equipment, how to use them, physical facilities, as well as ease of access to them, and on the other hand, the work environment and its attractiveness to individuals, as well as knowing whether there are support services from its absence (Muhibis and Abdul-Hussein, 2020: 87).

(Michael, 2017: 18) sees tangibility as referring to the physical facilities of an organization, its equipment, the appearance of its employees and the appearance of communication materials used to promote its products and services. (Haji, 2017: 3) believes that tangibility is related to actual service, including the appearance of individuals in the organization and the extent to which they are tidy and elegant, and whether they have tact in speech or not.

#### B. Response

The process in which service providers react quickly to positively solve a customer's problem within a given time is called response. This dimension of customer service quality is seen through the quality of service improvement aspect. However, information technology advances such as emails, web pages, and customer service interface. Improves the response of organizations in providing quality services (Johnson & Karlay, 2018: 12).

(Daphne et al., 2021: 100) refers to the response as the ability to help provide a service (quickly responding) and appropriate to the beneficiaries by providing clear information, and on the contrary, leaving customers to deal with the organization without an apparent reason is a result of the lack of rapid response, which in turn generates Negative perceptions of customer service quality.

#### C. Empathy

The origin of the word empathy dates back to the 1880s, when German psychologist Theodor Lipps coined it to describe an emotional appreciation of the feelings of others. (Ioannidou & Konstantikaki, 2008: 119).

Empathy refers to the individual attention that the organization provides to the beneficiaries, and includes ease of access, ease of communication with service providers, and efforts to understand the needs of individuals, which is an attempt to understand the perspective of customers through individual attention (Abbas & Hussein, 2022: 324).

#### D. Reliability

Reliability is defined as the ability of the service provider to perform as promised by the organization to its beneficiaries in a complex and accurate manner, and this dimension reflects the extent of the organization's ability to commit and fulfill, and to be loyal towards the beneficiaries by providing the promised service with reliability and high accuracy from the first time (Handal and Sharan, 2021: 11). The process of reliability can be considered reliability in providing service to customers, as reliability guarantees the ability to provide service with high quality, and this in turn affects the trust and the general impression that is left in the mind of the customer after consuming the service, and the dimension of reliability in the quality of service is vital and is perceived by people in service quality (Johnson & Karlay, 2018: 11).

The level of reliability can be measured through sensory tests better by measuring the sources of error simultaneously rather than focusing on one error at a time (Haradhan, 2017: 3).

### THIRD TOPIC: APPLIED SIDE

#### First: Consistency Quality Test

The consistency quality test is a measure of any research and is a step before performing the statistical analysis needed to determine the commonness of a variable. The preferred interpretation of this test is given below.

##### 1- Building Efficiency

The use of the structural equation model to validate the construction of the scale on the research variables, the applicability and the theoretical basis of the scale paragraphs depends on the confirmatory factor analysis, and the quality of the match between the scale paragraphs depends on the criteria. These criteria can be illustrated in Table (4) :



Table (4) Indicators of good conformity to the variables under study

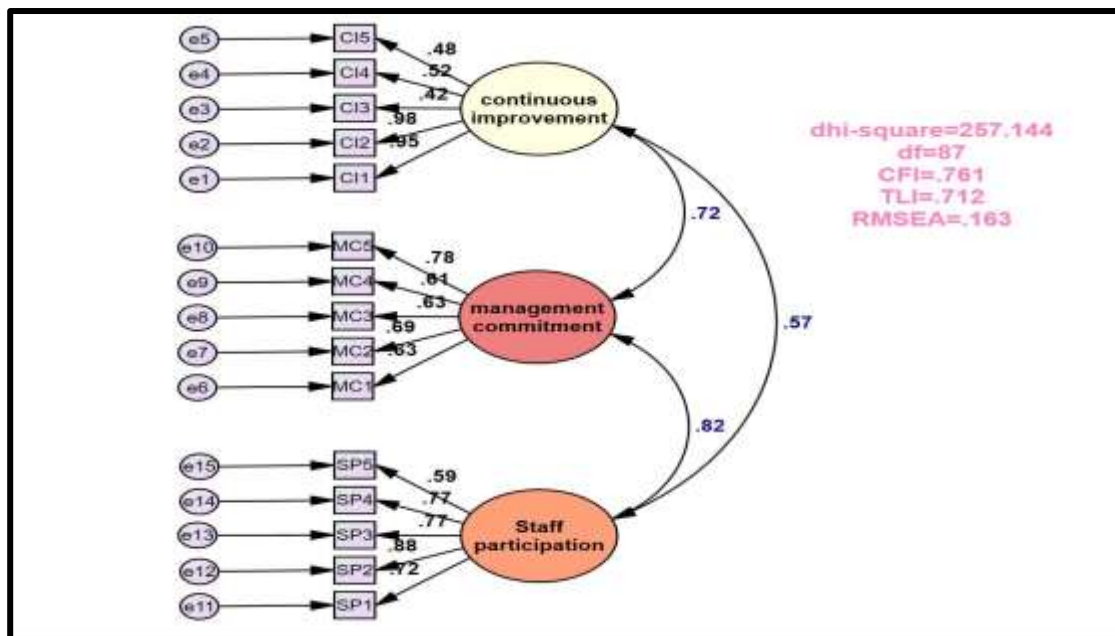
pointer	general rule or standard
Goodness of Fit Indicators	
Value $\chi^2$	-
degree of freedom (df)	-
The ratio between $\chi^2$ and (df)	less than 5
Approximate Root Mean Square Error (RMSEA) Index	between 0.05 – 0.08
Comparative Fit Index (CFI)	more than 0.90
Tucker Lewis Index (TLI)	more than 0.90

Source: prepared by the researcher

A. Analysis of the stress factor of the variables of total quality management:

Through Figure (2) the analysis of confirmatory factors for the degree of correlation between the variables of total quality management through a set of indicators as shown in the figure below :-

Figure (2) Total Quality Management Model



From the above results, we note that:

1. The value of (TLI = 0.712) is considered good and should be in the range, that is, a value greater than 0.90 indicates fit of the model.
2. The value (CFI = 0.761) is good and should be in the range, that is, a value greater than 0.900 indicates fit of the model.
3. We also noticed that the value of (RMSEA = 0.163) is not a good value, as the range should be (0.05-0.08), indicating that the models are compatible, while the lower it is 0.05, the model is suitable and a better match.

Therefore, the model must be improved by adjusting these scales and according to the recommendations of (Review of Scales), because the researcher prepares the model according to the literature or research theory, and then tries to test the compatibility of the model with the experimental model. If congruence is not sufficient, the common procedure is to modify the model by removing items with the highest covariance in the model, or to modify them by making associations between errors with higher covariance. After this procedure, the modified final model is shown in Figure (3).

We also note that the value of RMSEA is equal to (0.067), which is evidence that the quality is consistent with the TQM model.

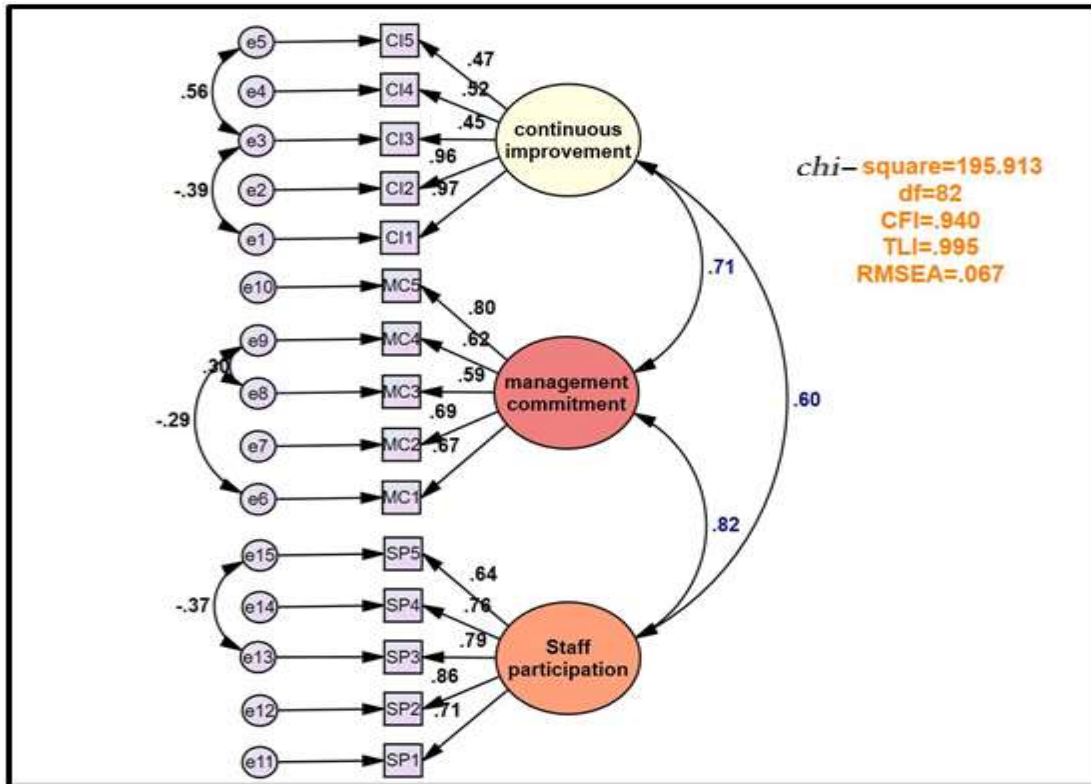
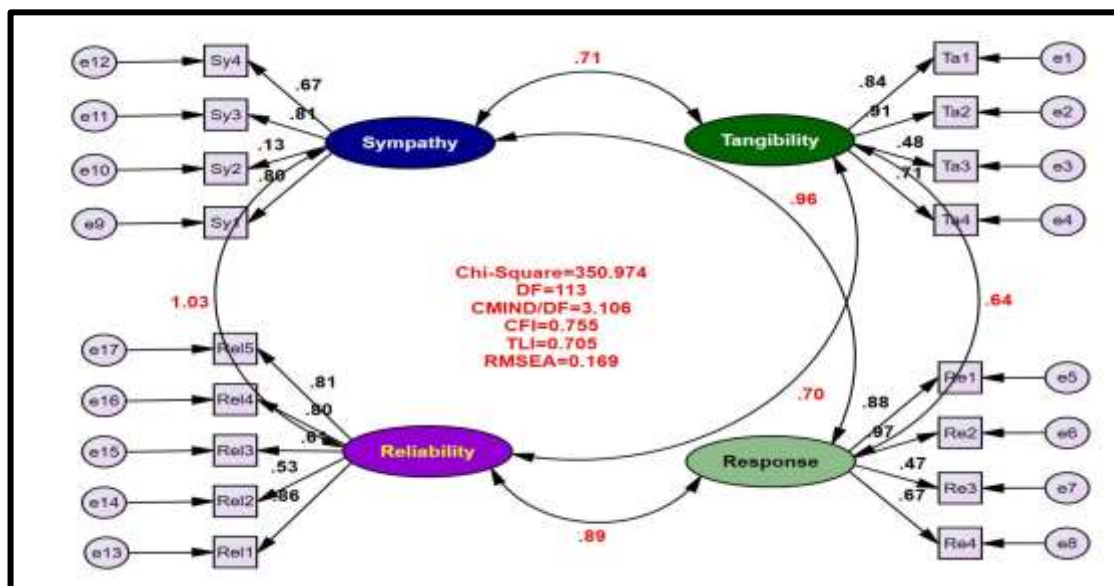


Figure (3) shows the total quality management model after modification

**B. Confirmation factor analysis of service quality variables**

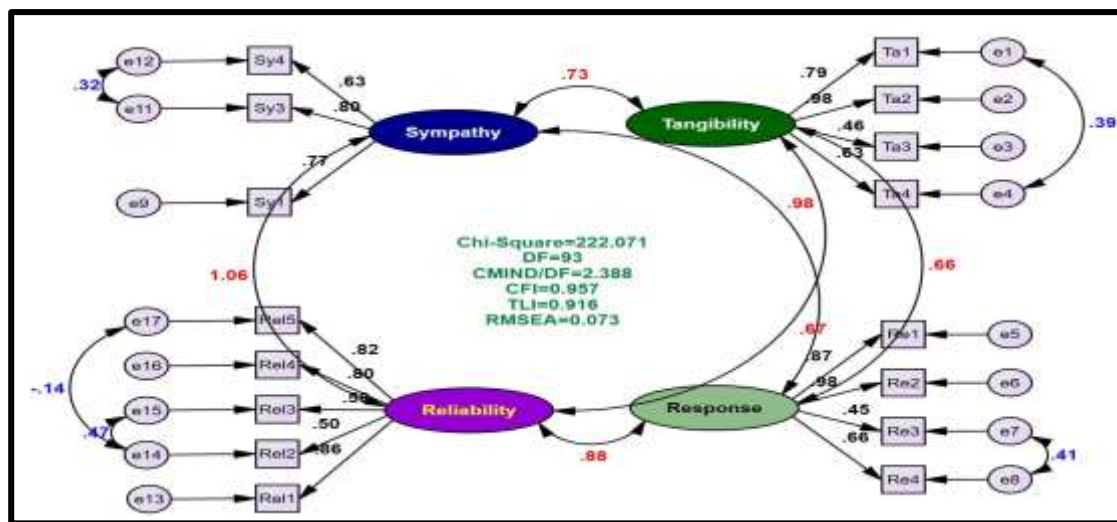
Figure (4) is the stress factor analysis of the service quality model, which consists of four basic dimensions and consists of (17) items, as shown in Figure (4), the indicators are not identical.

Figure (4) shows the quality of service model



In order to improve these indicators, we make adjustments as you suggested (Modification Indicators), because the researcher sets the model according to the literature or research theory, and then tries to test how well the model matches the criteria. For the experimental data, if the matching is not enough, the common procedure is to modify the model and delete the second paragraph of the dimension (sympathy), because the value of the correlation between it and the dimension is very weak, reaching (0.13), after this process, the modified final model appears in Figure (5)

Figure (5) shows the service quality model after modification



From the above figure (5), it can be seen that the matching quality index is within the standard required by the model, which indicates that the match is correct.

**2- The Stability of the Scale:**

In order to determine the internal consistency of the scale elements, Cronbach Alpha is used to understand the invariance of each of the scale elements. The following table (5) shows the results of the internal consistency test for this study. The variables are as follows:

Table (5) Results of the internal consistency test for variables

variable	The dimension	paragraphs	Cronbach Alpha
Principles of total quality management	continuous improvement	5	.828
	Senior management commitment	5	.794
	Employee participation	5	.855
Health service quality	tangibility	4	0.815
	response	4	0.850
	empathy	4	0.620
	reliability	5	0.851

The results in the above table show that Cronbach's alpha coefficient for the search variables is greater than 0.70, which indicates that the search items and variables have internal consistency, and that the statistical analysis is effective.

**Second: The Descriptive Analysis of the Research Variables**

In order to clarify the level of availability of dimensions in the ministry studied through analysis and interpretation of the respondents' answers, several questions were asked about these dimensions. Table No. (6) shows the items of the arithmetic mean, standard deviation, and response strength, and we note the following:

**1. Continuous Improvement:** This dimension ranked fourth with an arithmetic mean of (3.48) and a standard deviation of (0.83), which is a positive indicator indicating that the respondents see at a good level that the Ministry's administration is constantly improving work procedures by bringing in modern technologies, and this what was shown by the interview with the sample, in which he explained that the ministry's administration is working to contract with international companies to bring in modern technologies, as it adopts scientific and technological methods and tools for the purpose of improving quality.

**2. Commitment of Senior Management:** This dimension obtained an arithmetic mean of (3.61), which is higher than the hypothetical mean of (3), as it ranked first in relation to the rest of the dimensions of the variable, with a standard deviation of (0.72), which indicates that most of the sample agree that The Ministry's administration has a strong commitment to applying the principles of total quality management, as well as the senior management provides material and moral support to implement the principles of total quality management.

**3. Employee Participation:** This dimension achieved an arithmetic mean of (3.50), which is higher than the hypothetical mean (3). Transfers and others when applying total quality management, as well as using lectures to educate workers and make them aware of their role in the process of change related to quality, and take their opinion before starting the application of total quality management on how to apply the principles of quality management.

**4. Tangibility:** The tangibility dimension achieved an arithmetic mean of (2.35), which is less than the hypothetical mean of (3) and with a standard deviation of (0.89), i.e. a weak level, which indicates that the tangibility dimension is not available at the Ministry, but it needs more support.

**5. Response:** For the purpose of knowing the contents of the response dimension in the Ministry under study, the answers came regarding this dimension as in Table (3), as the arithmetic mean for it was (3.49), which is greater than the hypothetical mean of (3) and with a standard deviation of (0.78), which indicates the response dimension in the Ministry is at a good level.

**6. Empathy:** To find out the level of the Empathy dimension in the ministry under study, the results of the research sample came to refer to the Empathy paragraphs, as shown in Table (3), that the arithmetic mean for this dimension was (3.35), which is greater than the hypothetical mean of (3) and with a standard deviation of (0.84). This indicates the dispersion of the sample's answers and their agreement on the availability of a dimension of Empathy among the ministry's cadres, but at a weak level and needs more attention.

**7. Reliability:** According to the hypothetical research model, reliability was developed as one of the dimensions of service quality, as the reliability dimension achieved an arithmetic mean (3.30), which is greater than the hypothetical mean of (3) and with a standard deviation (0.80), which indicates the dispersion of the sample answers and their agreement that there is an acceptable level of some sort of accreditation enjoyed by the Ministry.

**Table (6) descriptive analysis of the research variables**

The dimension	Arithmetic mean	standard deviation	Relative importance	arrangement
continuous improvement	3.48	0.83	%69.6	4
Senior management commitment	3.61	0.72	%72.2	1
Employee participation	3.50	0.73	%69.8	2
tangibility	2.35	0.89	47.0%	7
response	3.49	0.78	69.9%	3
empathy	3.35	0.84	67.0%	5
reliability	3.30	0.80	66.1%	6

Source : Prepared by the researcher based on the outputs of the SPSS V26 program

### Third: Testing the Research Hypothesis:

#### 1- The First Main Hypothesis

This hypothesis was verified through the correlation test, which tried to verify the relationship between the main variables by testing the association between the sub-variables of the research variables, and the results are shown in Table (7):

**Table (7) the results of the association test between the sub-variables of the research**

		Correlations	
Quality of service	Pearson Correlation	1	67**8.
	Sig. (2-tailed)		.000
	N	100	100
Total Quality Management	Pearson Correlation	67**8.	1
	Sig. (2-tailed)	.000	
	N	100	100

\*\* Correlation is significant at the 0.01 level (2-tailed).

Source: Prepared by the researcher based on the outputs of the SPSS V26 program

It is clear from Table No. (7) that there is a positive correlation with statistical significance at the significant level (0.01), which indicates a strong correlation between the search variables. On this basis, the first main hypothesis is accepted, which is that there is a statistically significant positive relationship between service quality and total quality management.

### Test the sub-hypotheses related to the first main hypothesis

We note from Table (8) below that the sub-dimensions of the included service quality variable (tangibility, responsiveness, empathy, reliability) and the sub-dimensions of the included total quality management variable (continuous improvement, senior management commitment, employee participation) are all statistically significant, and on this basis. The sub-hypothesis of the first main assumption is accepted, that is, there is a statistically significant positive correlation between the dimensions of service quality and the dimensions of total quality management, that is, the percentage of achieving these hypotheses is yes (100%).

**Table (8) shows the correlations between the sub-dimensions**

		continuous improvement	Senior management commitment	Employee participation
tangibility	Pearson Correlation	.748**	.701**	.925**
	Sig. (2-tailed)	.000	.000	.000
	N	100	100	100
response	Pearson Correlation	.799**	.847**	.740**
	Sig. (2-tailed)	.000	.000	.000
	N	100	100	100
empathy	Pearson Correlation	.781**	.868**	.657**
	Sig. (2-tailed)	.000	.000	.000
	N	100	100	100
reliability	Pearson Correlation	0.715**	0.732**	0.736**
	Sig. (2-tailed)	.000	.000	.000
	N	100	100	100

Source: Prepared by the researcher based on the outputs of the SPSS V26 program

\*\* Correlation is significant at the 0.01 level (2-tailed)

### 2- Testing the Second Main Hypothesis:

A model was developed with the aim of testing the research hypothesis related to the nature of the effect against the main second hypothesis, which states (there is a statistically significant effect between total quality management and service quality).

In short, the above hypothesis can be tested as shown in the following test figure.



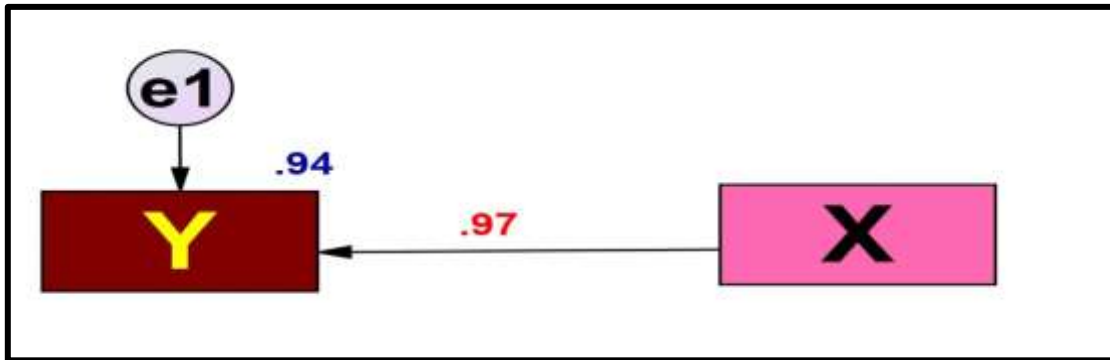


Figure (6) Standard estimates for simple regression models

The above models show standard estimates of simple regression models, where TQM variable (X) represents the independent variable and service quality variable (Y) represents the dependent variable. Moreover, the above model shows the value of the determination coefficient, which amounted to (0.94), and this ratio explains 94% of the dependent variable (quality of service) as a result of the influence of the independent variable (total quality management), while another 6% is due to other external factors, and the reason In addition to the correlation between the variables, the coefficient reaches (0.97), and this value indicates a strong direct correlation between the variables.

As for the non-standard estimates, they are shown in the figure below :

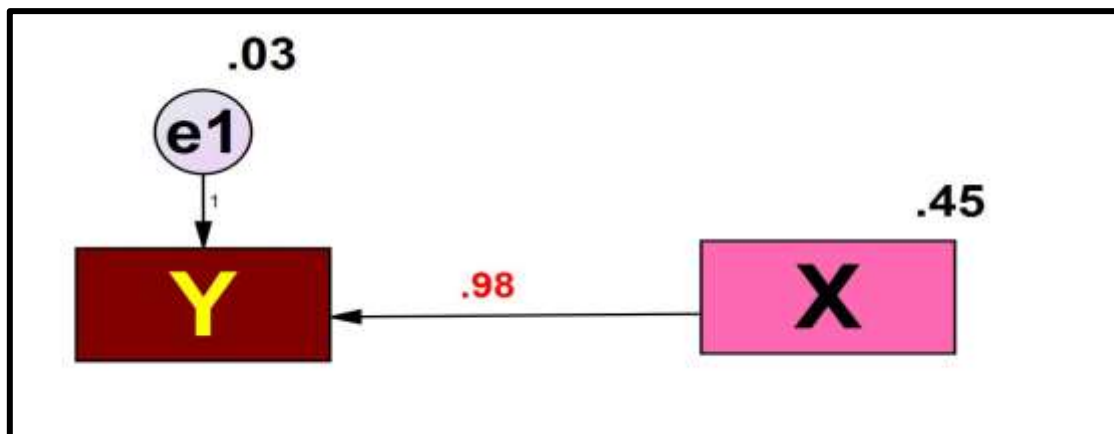


Figure (7) Nonstandard estimates of simple regression models

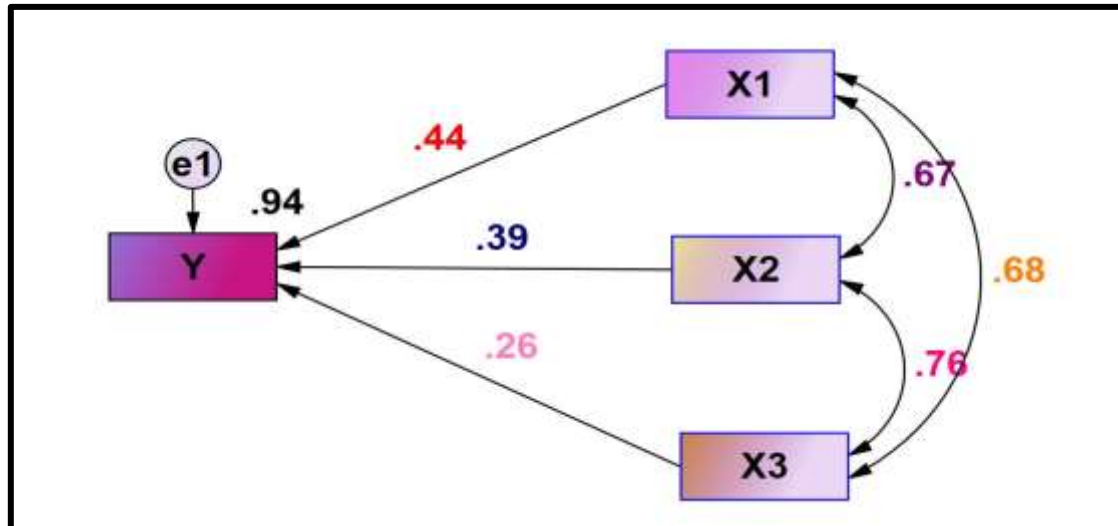
The model shows a non-parametric estimate for the simple linear regression model, where (0.98) represents the value of the regression coefficient, while the fixed limit has a value of (0.45), and the error value is (0.03). This is the proof of the importance of the model and the regression equation is as follows:

$$\text{Health service quality} = 0.45 + 0.98 (\text{Total Quality Management})$$

**Testing the sub-hypothesis of the second main hypothesis:**

A model was developed with the aim of validating the research hypothesis related to the nature of the effect against a sub-hypothesis of the second main hypothesis, which states (there is a statistically significant effect between the dimensions of total quality management and service quality).

In short, the above hypothesis can be tested as shown in the following test figure.



**Figure (8) Standard estimates of the multiple regression model**

The above model provides standard estimates for the multiple regression model, where the dimensions of total quality management (X<sub>3</sub>, X<sub>2</sub>, X<sub>1</sub>) represent independent variables (continuous improvement, senior management commitment, employee participation) respectively, while the service quality variable (Y) represents the dependent variable, we noticed The estimated values are (beta = 0.44, 0.39, 0.26), which means that the dimensions of total quality management have a significant impact and contribution to service quality. Moreover, the above model shows the value of the determination coefficient, which reaches (0.94), which is the percentage that explains 94% of the dependent variable (quality of service) affected by the independent variables (continuous improvement, senior management commitment, employee participation), while the remaining 6% is due to other external factors and causes. In addition to the large and high correlation coefficients between the variables, this result indicates a strong direct relationship between the variables.

This shows the importance of the model, and the regression equation is as follows:

$$\text{Health service quality} = 0.44 \text{ continuous improvement} + 0.39 \text{ senior management commitment} + 0.26 \text{ employee participation}$$

#### **FOURTH TOPIC: CONCLUSIONS AND RECOMMENDATIONS**

##### **First : Conclusions**

1. The availability of applying the principles of total quality management in the ministry appeared in good proportions, as the sample's answers to all questions related to this variable or its sub-variables were in good agreement, and this indicates the strength of the great correlation between the variables of total quality management as they support one another.
2. The principle of senior management commitment achieved the first rank, and this indicates that this principle is more important and contributing to the application of total quality management and that the administrative leaders in the ministry are committed to and support the application of the total quality management methodology, and after the participation of working individuals, it achieved the second rank, and this indicates that the ministry leaders are a sample Research pays less attention to this principle compared to other principles.
3. It appeared that the correlations between the sub-variables of total quality management are mostly positive and significant. This indicates the interdependence and interaction of these variables, which together constitute the positive aspect of applying this methodology, supporting the positive results that accrue to organizations through the adoption of this methodology.
4. The results of the statistical analysis showed that there are positive indications that the availability of all requirements of total quality management is necessary to achieve quality of service in the ministry under study.

**Second: Recommendations**

1. The need for senior management to discuss subordinates to present their suggestions and opinions regarding the problems they encounter, in addition to presenting their ideas regarding the future of the ministry on the grounds that they are more close to practical reality, which makes them more ready to generate creative ideas at the appropriate time.
2. The need to increase the monitoring activities in the Ministry to raise the level of participation of health care institutions in meeting patients' needs.
3. The ministry in question should realize that the requirements of total quality management in the research are an integrated system with interconnected links, so it must pay attention to training its employees to perform the health services specified for them continuously in order to obtain the best quality of health services required.
4. The Ministry of Health should pay attention to the requirements of total quality management, as these requirements are necessary to achieve the quality of health service in the Ministry, and thus achieve patients and staff satisfaction.

**REFERENCES**

1. Abbas, Bushra Abdel-Hamza, and Hussein, Mazen Nema (2022), The Impact of Agile Culture on Improving the Quality of Educational Service - An Analytical Study of the Opinions of a Sample of University Leaders in the Colleges of Al-Qadisiyah University, Published Research, *Journal of the Kufa Studies Center*, Volume 1, Issue 1, part one.
2. Al-shourah, Sultan, (2021), Total quality management practices and their effects on the quality performance of Jordanian private hospitals, *Management Science Letters*, Vol 11, doi: 10.5267/j.msl.2020.8.029.
3. Amri, Hidayat Dwi. (2014), Kaizen-six sigma to improve pipeline project performance base on balance score card framework, *International Conference on Technology and Operations Management*, 311-323.
4. Arifin, Samsul & Darmawan, Didit & Hartanto, Cahya Fajar Budi & Rahman, Abdul, (2022), Human Resources based on Total Quality Management, *Journal of Social Science Studies* Vol. 2, No. 1, January 2022, pages 17 – 20.
5. Atsan, Nuray, (2015), Measuring Educational Service Quality Using Analytic Hierarchy Process, *International Journal of Education and Research* Vol. 3 No. 2.
6. Casas, A. M., (2011), *Total Quality Management, Quality Culture, Leadership and Motivation*, MSc. Thesis, Polytechnic University of Milan, Milan, Italy, pp. 94.
7. Daphne & Yustina, Ida & Theo, Deli, (2021), The Relationship between Reliability, Responsiveness, and Empathy Aspects with Patient Satisfaction in Pharmacy Installations at Mitra Medika Amplas Hospital, *International Journal of Science and Healthcare Research*, Vol. 6, Issue 3, DOI: <https://doi.org/10.52403/ijshr.20210717>.
8. Faraj, Kawa Mohammed & Faeq, Dalia Khalid & Abdulla, Daroon F & Ali, Bayad Jamal & Sadq, Zana Majed, (2021), Total Quality Management and Hotel Employee Creative Performance: The Mediation Role of Job Embeddedment, *Journal of Contemporary Issues in Business and Government* Vol. 27, No. 1.
9. Gun Jea Yu, Minjae Park & Ki Hoon Hong (2017), A strategy perspective on total quality management, *Total Quality Management & Business Excellence*, DOI: 10.1080/14783363.2017.1412256.
10. Haji, Mona H, (2017), *Several dimension analysis at hbku students housing facilities*, A Project Submitted to the Faculty of the College of Engineering in Partial Fulfillment of the Requirements for the Degree of Masters of Science in Engineering Management.
11. Handal, Qasim Ahmed, and Sharan, Heba Rabie, (2021), The role of organizational immunity in enhancing the quality of educational services - a descriptive analytical study for a group of public and private secondary schools in Tikrit, published research, *Business Economics Journal*, Issue 2, Part One .
12. Haradhan, Mohajan, (2017), Two Criteria for Good Measurements in Research: Validity and Reliability, *MPRA Paper No. 83458*, posted 24, [www.mpra.ub.uni-muenchen.de/83458/](http://www.mpra.ub.uni-muenchen.de/83458/).
13. Ioannidou, F & Konstantikaki, (2008), Empathy and emotional intelligence: What is it really about?, *International Journal of Caring Sciences*, Vol 1, No 3, [www.internationaljournalofcaringsciences.org](http://www.internationaljournalofcaringsciences.org).
14. Johnson, Ehigie C & Karlay, Jesse S, (2018), Impact of Service Quality on customer Satisfaction, *Liberia Revenue Authority*, Faculty Of Education And Business Studies, Department Of Business And Economics Studies.
15. Khurniawan, Arie Wibowo & Sailah, Illah & Muljono, Pudji & Indriyanto, Bambang & Maarif, M. Syamsul, (2020), An Analysis of Implementing Total Quality Management in Education: Succes and Challenging Factors, *International Journal of Learning and Development*, Vol. 10, No. 2.



16. Kurniawan, Ryan & Ratnaningsih, Sri Rahayu, (2021), the effect of educational service quality and geographical pricing on customer loyalty in the development of Indonesian hotel industry after the corona virus pandemic, *Review of international geographical education*, vol 11, no (3).
17. Lalit K. Toke & Shyamkumar D. Kalpande (2020) Total quality management in small and medium enterprises: An overview in Indian context, *Quality Management Journal*, 27:3, 159-175, DOI: 10.1080/10686967.2020.1767008.
18. Lingappan, Dhamodaran(2016), Kaizen performance in an Engineering Industry in India: A Case Study, *Management Studies and Economic Systems (MSES)*, 3 (1), p:16.
19. Lutz, Kristina & Heerens, Nikki & John C. Friend-Pereira (2002), *European Student Handbook on Quality Assurance in Higher Education*, The National Unions of Students of Europe.
20. Michael, Kideest H, (2017), *Assessment of service quality and customer satisfaction: the case study of three selected private elementary schools in Addis Ababa*, St. Mary's University school of graduate studies department of marketing management.
21. Mohannad, Abu Daqar & Milan, Constantinovits (2020). The role of total quality management in enhancing the quality of private healthcare services. *Problems and Perspectives in Management*, 18(2), 64-78. doi:10.21511/ppm.18(2).2020.07.
22. Muheibis, Hossam Ali, and Abdel-Hussein, Abbas Owaed, (2020), The Role of Talent Management in the Quality of Educational Service - A Pilot Study at Sumer University, published research, *Al-Muthanna Journal of Administrative and Economic Sciences*, Volume 10, Number 4.
23. Omidian, Faranak & Nia, Zahra Golchin, (2018), Assessment of Educational Service Quality at Master's level in an Iranian university using based on HEDPERF Model, *International Journal of Applied Research in Management and Economics*, Vol 1, No 3.
24. Othman, I., Norfarahhanim Mohd Ghani, S., & Woon Choon, S. (2020). The Total Quality Management (TQM) journey of Malaysian building contractors. *Ain Shams Engineering Journal*. doi:10.1016/j.asej.2019.11.002.
25. Parasuraman, Balakrishnan; Kelly, Di; and Rathakrishnan, Balan (2021) Employee participation in the private sector in Malaysia: The Applicability of Favourable Conjunctures Model, *ASEAN Marketing Journal*: Vol. 1 : No. 2 , Article 3. DOI: 10.21002/amj.v1i2.1984.
26. Philip, K., & Arrowsmith, J. (2020). The limits to employee involvement? Employee participation without HRM in a small not-for-profit organisation. *Personnel Review*, ahead-of-print (ahead-of-print). doi:10.1108/pr-08-2019-0457.
27. Pintilie, Laura-Mirela, (2017), Quality of the Educational Service—Perceptions and Expectations of the Teachers in High Schools from Suceava County, ROMANIA, *cbu international conference on innovations in science and education*, www.journals.cz.
28. Rombe, Elimawaty & A. Tolla, Mirna (2016) What Are the Current Quality Issues in Higher Education?, *Advances in Social Science, Education and Humanities Research (ASSEHR)*, volume 65, p 98-101.
29. Siwantara, Wayan, Sugiarta, Komang, (2017), Development of quality of educational service model based on student satisfaction inventory (a case study at Bali State Polytechnic), *Proceeding International Joint Conference on Science and Technology*.
30. Slack, Nigel, and Chambers, Stuart, and Jonston, Robert, (2010), *Operations Management*, 6th Ed.
31. Supriyanto, Achmad & Rochmawati & Djum Djum Noor Benty (2019), Kaizen: Quality Improvement Innovation Higher Education in the Industrials Revolution 4.0, *Advances in Social Science, Education and Humanities Research*, volume 381, pp-112
32. Susanti, E., Sule, E. T., & Sutisna, H. (2015). The Impact of Internal and External Service Quality (A Case Study among Lecturers and Students). *Mediterranean Journal of Social Sciences*. doi:10.5901/mjss.2015.v6n5s5.
33. Sutirna, S. (2020). total quality management through lecturer assessment with students to improve graduate quality. *adi journal on recent innovation (ajri)*, 2(1), 227-242. <https://doi.org/10.34306/ajri.v2i1.55>.
34. Syam, Aldo Redho & Arifin, Syamsul, (2019), Quality of Educational Services in Islam Perspective, *WESTECH*, Medan, Indonesia, DOI 10.4108/eai.8-12-2018.2283982.
35. Szyrocka, Joanna Rosak, (2017), human resources management in kaizen aspect, *human resources management & ergonomics*, volume x, pp.83
36. Teeroovengadum, Viraiyan & T.J. Kamalanabhan & Seebaluck, Ashley Keshwar (2016) Measuring service quality in higher education Development of a hierarchical model (HESQUAL), *Quality Assurance in Education* Vol. 24 No. 2, pp. 244-258.
37. Wajda Wikhamn, Björn Remneland Wikhamn & Jonas Fasth (2021), Employee participation and job satisfaction in SMEs: investigating strategic exploitation and exploration as moderators, *The International Journal of Human Resource Management*, DOI: 10.1080/09585192.2021.1910537.
38. Wei, He & Lin, Xue, (2015), Training Modes of Traffic Engineering Professionals under the Perspective of Student Satisfaction with Educational Service Quality, *Metallurgical and Mining Industry*, No. 5.

39. Zeng, Yanqing, (2018), Analysis on the Educational Service Quality of Private Colleges and Universities in Xi'an, *4th International Conference on Arts, Design and Contemporary Education , Advances in Social Science, Education and Humanities Research*, volume 232.