

The Mediating Role of Internal Service Quality between Total Quality Management (TQM) Practices and Health Industry Performance in UAE

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Abstract

The objective of this study was to examine the role of total quality management (TQM) practices in organizational performance (OP) of the healthcare industry in the United Arab Emirates (UAE). While considering TQM practices, this study addressed the role of three practices, which include continuous quality improvement, process management, and employee involvement. Furthermore, this study considered the mediating role of internal service quality (ISQ) between TQM practices and OP. Data was collected by using a questionnaire survey from the employees working in the healthcare industry of the UAE. Three hundred and one (301) valid responses were received, which were used for data analysis. After data collection, PLS-SEM was employed for data analysis. Findings of the study revealed that TQM practices such as continuous quality improvement, process management, and employee involvement have positive contributions to promote OP. Furthermore, ISQ plays the role of a mediating variable between TQM practices and OP. This study has vital implications for academicians and practitioners to promote healthcare OP through the proper implementation of TQM practices.

Keywords

Total Quality Management, Continuous Quality Improvement, Process Management, Employee Involvement, Internal Service Quality, Organizational Performance, Health Industry

1. Introduction

The quality of healthcare services is becoming a key concern in all countries (Kesale

et al., 2023). The United Arab Emirates (UAE) is a major healthcare market in addition to other markets. One of the most economically advanced and diversified markets in the Middle East, the UAE, boasts a strong healthcare system backed by state-of-the-art technology. Opportunities in the healthcare business, particularly in the Middle East and Africa, are expected to increase to \$68.8 billion in the upcoming year (Writer, 2023). UAE outperformed the healthcare systems of 164 nations to place itself in the 27th spot in the WHO 2000 rating of the world's 191 health systems. Despite this outstanding accomplishment, the UAE falls behind other Gulf nations like Oman (ranked eighth) and Saudi Arabia (ranked 26th) in terms of global rankings (Writer, 2023). Comparatively, the UAE has more service quality issues than Oman and Saudi Arabia in terms of global rankings.

Empirically, studies have established a direct connection between TQM and service quality (Alshrbaji et al., 2022; Grossu-Leibovica & Kalkis, 2023; Khorshidi et al., 2016; Saberi & Romle, 2015), as well as between service quality and organizational performance (OP) (Al-Dhaafri & Alosani, 2023; Yang et al., 2022). However, it is very rare that any study has considered the mediation role of internal service quality between TQM and OP of the healthcare industry of the UAE. None of the previous studies have filled this literature gap. For instance, Pantouvakis and Mpogiatzidis (2013) conducted a study on internal service quality (ISQ) and clinical managers' job happiness in hospital care services; however, this study did not consider the mediating role of ISQ. Furthermore, Prakash and Srivastava (2019) considered ISQ in relation to enhancing patient centricity; however, ISQ is not considered in relation to OP, with a mediating effect. Similarly, other studies on healthcare industry, such as Jun and Cai (2010). Srivastava and Prakash (2019) and Abdullah et al. (2021) have not addressed the mediating role of internal service quality.

The integration of service quality as the mediating variable in this current study is well justified. Similarly, the significance of investigating the role of such a mediating variable is in line with Hamilton and Chervany (1981), who asserted that the effect of management activities on OP not only happens directly but also occurs indirectly through advancement in organizational processes. Considering the above issues and suggestions from previous studies, the current study employed service quality as the mediating variable in investigating the direct impact of TQM on healthcare industry performance. The objective of this study was to examine the role of total quality management (TQM) practices in OP of the healthcare industry in the United Arab Emirates (UAE). While considering TQM practices, this study addressed the role of three practices, which include continuous quality upgrading, process management, and employee involvement.

2. Literature Review

2.1. Theoretical Framework of the Study

In this study, the Resource-Based View (RBV) theory is the principal theory that focuses on the nexuses of the variables in the research of this study. However, the

Service Profit Chain (SPC) model is also used as an auxiliary theory to emphasize certain issues in the research study. RBV has long been regarded as a key theoretical framework for describing how investment in TQM creates sustainability and enables businesses to achieve improved performance (Wade & Hulland, 2004). RBV emphasizes that management should give greater priority to TQM practices to maintain a sustainable competitive influence. It was further stated that the execution of TQM practices can produce cost-based leads or product and service differentiation. Min et al. (2016) stressed that TQM is a vital organizational resource that supports theoretically and empirically the notion that TQM-oriented organizations effectively established barriers for competing organizations to replicate or emulate their operation processes.

This study aimed to observe the effect of the implementation of TQM practices on healthcare industry performance. After a thorough review of extant literature, it was seen that RBV theoretically underpins the variables used in this study. TQM, for example, is seen as a critical organizational resource for gaining and sustaining competitiveness. Similarly, other variables, e.g., service quality, are also observed as important factors for gaining a competitive advantage and enhancing organizational performance. For example, many studies (e.g., Ali et al., 2021; Arora & Arora, 2015; Durmaz et al., 2020; Essiam, 2013; Khraisat et al., 2017) found that service quality advances the performance of an organization and customer happiness. To sum up, the claims have demonstrated that the three main factors in this study—continuous quality improvement, process management, and employee involvement—may be seen as factors that determine a firm's competitive advantage, which suggests that RBV theory is a suitable foundation for this research.

Furthermore, the argument in favor of the quality drive is linked to profits. In the early 1990s, Heskett and some of his colleagues developed a conceptual framework with the goal of elucidating the correlation between employee, quality improvement, revenue growth, and profitability. The Service Profit Chain (SPC) is founded on the principles that are established in TQM and service quality research (Silvestro & Silvestro, 2000). TQM proponents argue that taking responsibility for a quality process improves work and employee satisfaction, which subsequently leads to increased productivity and OP. Furthermore, this model is based on the “satisfaction mirror”, which implies that organizational success is based on trained employees and customer satisfaction (Silvestro & Silvestro, 2000).

The SPC centers on an organization's internal functionality, or everything that occurs within the organization in terms of workplace design and employees, that helps the organization to function properly and satisfy the client's needs (Heskett et al., 1994). Based on the internal functionality of the organization, the SPC model emphasizes that quality improvement or delivery does not happen by itself, but rather demands the efforts to encourage and assist employees to provide high-quality services (Schneider & White, 2004). Simply put, organizations need to provide their personnel with the necessary instruments and resources to complete the goal of efficient and successful quality delivery (Burke et al., 1996). Consistent

with the RBV, the framework of the study is shown in **Figure 1**.

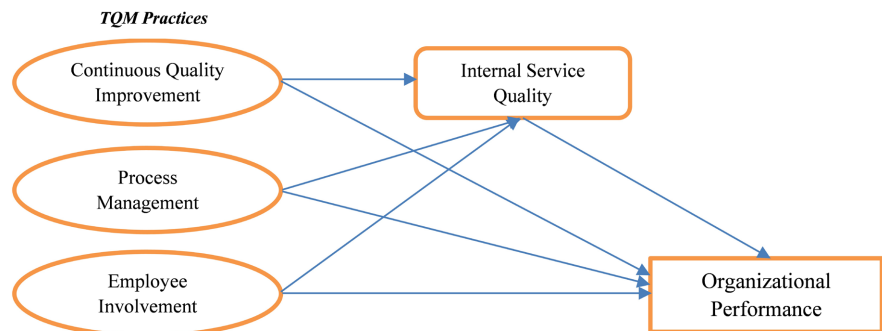


Figure 1. Conceptual framework of the study showing the relationship between TQM practices (continuous quality implementation, process management, and employee involvement), internal service quality, and organizational performance.

2.2. Hypotheses Development

2.2.1. Continuous Quality Improvement and Organizational Performance

Continuous improvement is described by Bessant and Caffyn (1997) as “an organization-wide procedure driven and continual incremental innovation”, which is regarded as an essential component in the implementation of TQM. Continuous improvement is a standardized effort by organizations in identifying novel ways of carrying out their work operational activities in order to improve the process. According to Patyal and Maddulety (2015), continuous improvement enhances the accessibility, efficiency, quality, dependability, and well-being of production equipment through the participation of all employees. It is also viewed as a proactive form of workforce and a critical element of TQM that facilitates employee participation in quality enhancement programs and guarantees better quality in all aspects of the production process (Khattak et al., 2020).

From the social viewpoint, continuous improvement depends on both employees and management cooperation because employees play an important function in continuous improvement (Galeazzo & Furlan, 2018). Since the knowledge, abilities, and skills of these employees are of the essence when it comes to recognizing the fundamental causes of issues and process improvement (Letmathe et al., 2012). Despite the employee contributions to the continuous improvement, managers also contribute significantly to the development of continuous improvement because their involvement helps in creating a shared collective goal with the employees (Galeazzo et al., 2021; Powell & Coughlan, 2020).

Continuous improvement in total quality encompasses “soft” management components, such as organizational culture, as well as “hard” components, such as administrative systems (Chang, 2005). It was also argued that continuous improvement involved identifying internal and external needs of customers, satisfying the needs, and constantly reviewing customer demands and expectations in order to identify areas where improvements are required (Chang, 2005). Extant studies agreed that continuous improvement is an evolving process that empha-

sizes improvement activities (Hamidi & Gharneh, 2017; Mosadeghrad, 2015), which further contributes to organizational efficiency (Musenze & Thomas, 2020; Talib et al., 2012). Continuous improvement is the most essential part of service, which entails seeking out and developing procedures to discover new or enhanced ways of translating input into usable outputs.

Hypothesis 1 (H₁): Continuous quality improvement has a significant and positive relationship with OP.

2.2.2. Process Management and Organizational Performance

Process management is a methodical strategy (Rodgers et al., 2023) used to guarantee that there are effective and efficient procedures in place. It is a method for coordinating operations with long-term objectives. It is crucial to comprehend the significance of process management when leading any firm (Rodgers et al., 2023). More than just facilitating smooth workflows, it makes it possible for all areas of business operations to go forward at an optimum rate, which has the potential to boost both performance and quality. By minimizing errors caused by human inefficiency and lowering time lost on repetitive tasks, processes that are executed consistently increase OP. Additionally, it eliminates data loss and skipped phases within a procedure. Additionally, it makes sure that resources are utilized effectively (Tseng et al., 2022), increasing the profitability of your company.

Similar to the other organizations, process management is the most important thing in hospitals. Among the hospitals, the management of patients is completely dependent on the process management activities. The treatment of patients is one of the complex tasks that requires management capabilities. Better capability of management in terms of process management may lead to an improvement in the performance of the hospital. As stated in the previous studies, process management has central importance among the organizations (Al Yami et al., 2022; Rodgers et al., 2023; Sahibzada et al., 2022; Tseng et al., 2022).

Management has an important relationship with the performance of the company, which is also stated by several prior studies (Hussain et al., 2023; Kaufman et al., 2020; Sreih et al., 2019); however, the specific variables, namely process management in terms of TQM practices, are very rare in the literature. It is one of the most significant parts of quality management and various organizations (Basheer et al., 2019; Klein et al., 2023; Lobo et al., 2019). Hence, this study considered the important role of process management in OP, which is most critical to fill the literature gap.

Hypothesis 2 (H₂): Process management has a significant and positive relationship with OP.

2.2.3. Employee Involvement and Organizational Performance

The practice of employee participation or involvement has long been a heated subject in the field of organizational studies, such as industrial relations, human resource management, and operations management (Beraldin et al., 2022). Employee participation broadly refers to procedures that promote staff involvement

and decision-making while also encouraging their commitment to the organizational activities (Marchington et al., 1992). Employee participation in an organization tends to increase employees' input into decisions that affect organizational performance and workers' well-being (Hussain et al., 2018). Its value has been perceived by some organizations and has been included in their workforce training programs (Bodenhausen & Curtis, 2016). Often, such training is tailored to specific employee participation functions (Zatzick & Iverson, 2011).

This element of TQM practices is regarded as the oldest and one of the most productive practices for managing organizational processes in creating sustainable competitive advantage. However, who benefits from employee participation has been a point of contention. It is nevertheless considered a win-win condition for both the employee and the organization (Appelbaum et al., 2015). Given that TQM stresses the culture of integrating employees in the operational activities and growth of an organization, managers must therefore focus on empowering employees in order to enhance organizational excellence (Mustafa & Bon, 2012). Evidence from previous studies on TQM shows that involvement, participation, and empowerment of employees in quality management practices are essential ingredients for successful implementation of TQM (Mosadeghrad, 2015).

Employee involvement also encourages justice, equity, and fairness and facilitates employee commitment for the achievement of organizational goals (Musenze & Thomas, 2020). If the employees are involved and have the skills they need, then TQM can be effectively implemented. Recently, some scholars (Bortolotti et al., 2015; Dubey, 2015; Ooi et al., 2013; Prajogo & Cooper, 2010; Zeng et al., 2017) have studied how this concept impacts organizational outcomes (Al Nahyan & Abdel All, 2017). Islam and Haque (2012) suggested that employees of all levels should be persuaded to take accountability in enhancing quality and be able to communicate effectively in all phases of organizational operations. It also revealed that involving employees in organizational practices helps in enhancing the employees' ability to make choices about their capabilities. Similarly, Kuye and Sulaimon (2011) observed that an organization that practices employee participation in organizational decision-making performs better than its competitors.

Hypothesis 3 (H₃): Employee involvement has a significant and positive relationship with OP.

Hypothesis 4 (H₄): Continuous quality improvement has a significant and positive relationship with ISQ.

Hypothesis 5 (H₅): Process management has a significant and positive relationship with ISQ.

Hypothesis 6 (H₆): Employee involvement has a significant and positive relationship with ISQ.

2.2.4. Mediating Role of Internal Service Quality

In today's world, service quality is critical to organizational success (Shahin & Janatyan, 2015). The healthcare industry is a service-based industry, and the satis-

faction of patients is an essential element to the success of the industry, just as it is in every other organization in various industries (Essiam, 2013). Patients' demand for high-quality, effective, and efficient care has become a need (Girardo et al., 2015), posing significant difficulties for industry and public institutions to improve service quality in healthcare organizations (Nasim et al., 2014). Healthcare service, on the other hand, is a complicated activities that rely on a variety of data, including information on science, specific patients, and the care offered, as well as the outcomes of care and performance (Dammaj et al., 2016). Therefore, knowing how individuals, especially patients of healthcare providers, perceive the service can help healthcare management in making qualitative and quantitative decisions that improve the service-based organization's performance (Khraisat et al., 2017).

As earlier stated, some studies (Durmaz et al., 2020; Irfan & Kee, 2013; Jyoti et al., 2017) have perceived service quality to be a process, asserting that it would be a promising direction when treated as a procedure (i.e., a predecessor influencing OP). However, some extant studies in the service quality field argue that service quality is a consequence of some organizational factors. In this study, the two viewpoints are adopted. Where service quality serves the purpose of the two schools of thought, and therefore, a procedure model of service quality is established in which service quality serves as a mediating factor. The researcher is of the perception that it is not only TQM that influences industry performance, and that there are other antecedents which may enhance the influence of TQM on performance, as it is a multi-dimensional construct. Notably, it is also believed that since TQM is a multi-dimensional practice, all its dimensions may not influence industry performance, but only some of its elements or practices. As a result, it can be proposed that service quality can perform the role of mediator in TQM practices. Consequently, the subsequent hypotheses are proposed:

Hypothesis 7 (H₇): ISQ has a significant and positive relationship with OP.

Hypothesis 8 (H₈): ISQ mediates the relationship between continuous quality improvement and OP.

Hypothesis 9 (H₉): ISQ mediates the relationship between process management and OP.

Hypothesis 10 (H₁₀): ISQ mediates the relationship between employee involvement and OP.

3. Methodology

Since Mertens (2005) defined quantitative research as variables in a quantifiable form where data are obtained using quantitative instruments like a questionnaire, this study used a quantitative approach. Besides, this study employed a cross-sectional approach to collect data from the respondents. The cross-sectional design has its advantages, as data collection can be done relatively quickly and more cost-effectively. Time was deemed inadequate, so a cross-sectional design was used. For this study, the cross-sectional research approach was determined to be the

most suitable since it could offer a descriptive examination of particular hypotheses.

The population of the study, therefore, consists of 113,000 medical employees in the UAE health industry (Statista, 2022). The population of the study only comprises the medical employees in the industry. These medical employees include management-level employees such as directors, managers, and principals. Furthermore, these employees also include doctors, including assistant professors, associate professors, and professors of different fields. Additionally, these employees also include the staff of hospitals carrying out daily hospital activities. However, this study considered only permanent employees. On the other hand, according to Krejcie and Morgan (1970), if the population is higher than 100,000, the sample size should be 384. In the current study, the population is 113,000 (Statista, 2022). However, this study considered 700 sample size for more accuracy because larger samples produce more certainty (Kutzner et al., 2017).

The continuous quality improvement was assessed using a 5-item scale that was adapted from Claver et al. (2003). The process management was assessed using an 11-item scale that is adapted from Saraph et al. (1989). The employee involvement was assessed by using a 6-item scale that was adapted from Rangus and Slavec (2017). The ISQ was assessed by using a 17-item scale adapted from Pantouvakis and Mpogiatzidis (2013). Finally, the health sector performance was determined by using an 8-item scale that was adapted from Klein et al. (2023). Scale items are reported in the Appendix.

This study considered simple random sampling by considering the nature of the population. Every member of the population has an equal probability of getting chosen in a simple random sample (Adam et al., 2022; Rahman et al., 2022). Simple random sampling is ideal for this study as it confirms that every employee in the hospital has an equal chance of being selected, minimizing bias in the sample. This method improves the representation of the population, ensuring that the findings of the study can be generalized across all hospital employees. Finally, out of 700 questionnaires distributed, 301 valid responses were received.

4. Data Analysis and Findings

This study considered data screening before examining the connection between variables. Prior to analyzing the relationship between variables, data screening entails identifying and correcting any flaws in the data (AlAnazi et al., 2016; Won et al., 2017). The purpose of screening is to determine the missing data, outliers, and normality of the data. Besides that, the screening process is also involved in assessing normality and checking for common method variance to confirm the validity of the results. Data statistics reported in Table 1 highlighted that the data are free from missing values, outliers, and non-normality.

The measurement model was evaluated first, and the structural model was evaluated afterward. Validity and the reliability of each variable were inspected to evaluate the measurement model. Validity is referred to as a series of measures that re-

flect the concept of the study accurately, which shows that it is free from any systematic error (Hair et al., 2009). In this study, the construct validity is evaluated by PLS-SEM to ensure the measurements are valid. Construct validity refers to whether a set of determined items is exposed in the theoretical perspective of the latent construct (Hair et al., 2009). The construct validity is measured by convergent validity as well as discriminant validity, which are the most widely accepted forms of validity. PLS outer model is shown in Figure 2, and the results are given in Table 2. Factor loading is higher than 0.5, composite reliability is higher than 0.7, and average variance extracted (AVE) is more than 0.5, which confirms the convergent validity.

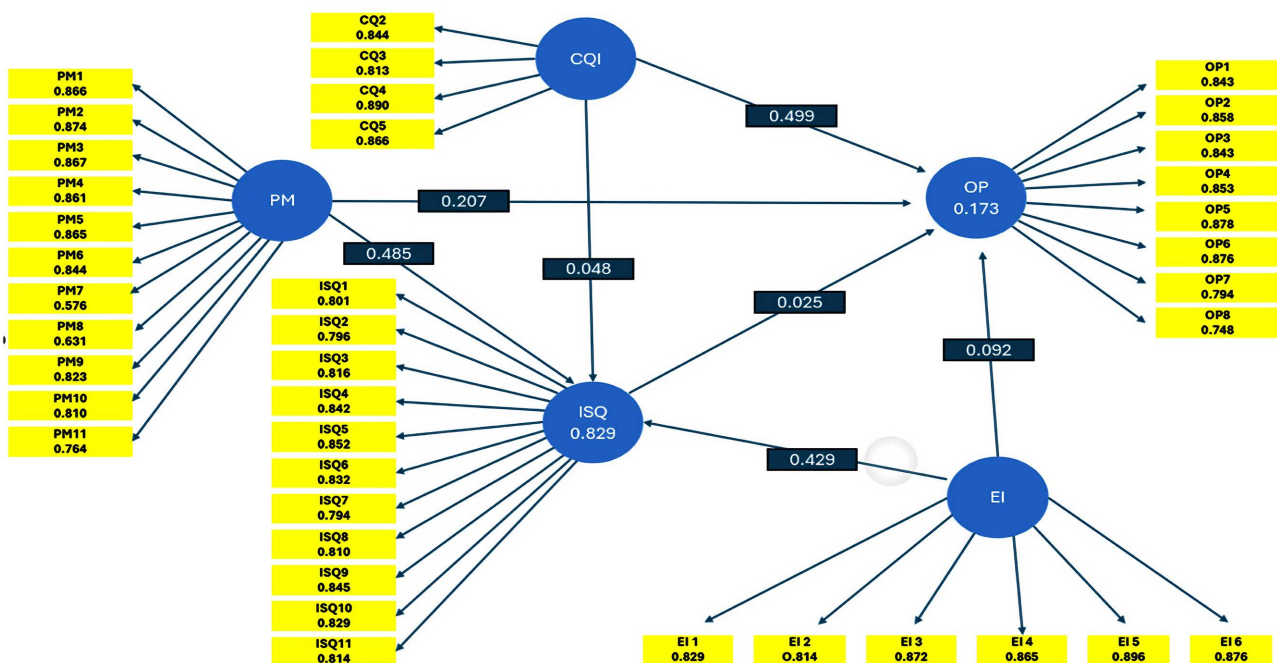
Table 1. Data statistics.

	Missing	Mean	Median	Min	Max	SD	Kurtosis	Skewness
CQI1	0	2.833	3	1	5	1.388	-0.893	-0.206
CQI2	0	2.613	3	1	5	1.139	-0.657	0.188
CQI3	0	2.61	3	1	5	1.142	-1.625	0.321
CQI4	0	2.537	2	1	5	1.201	-1.846	0.349
CQI5	0	2.523	3	1	5	1.212	-0.729	0.368
PM1	0	3.367	3	1	5	1.311	-1.191	-0.211
PM2	0	2.833	3	1	5	1.32	-1.134	-0.249
PM3	0	3.237	3	1	5	1.317	-1.111	-0.144
PM4	0	2.827	3	1	5	1.299	-1.044	-0.23
PM5	0	3.333	3	1	5	1.266	-1.013	-0.231
PM6	0	2.813	3	1	5	1.233	-0.945	-0.198
PM7	0	2.773	3	1	5	1.129	-0.591	0.316
PM8	0	2.797	3	1	5	1.105	-0.702	0.201
PM9	0	3.177	3	1	5	1.278	-0.944	-0.238
PM10	0	3.167	3	1	5	1.296	-0.987	-0.276
PM11	0	3.03	3	1	5	1.297	-1	-0.065
EI1	0	3.023	3	1	5	1.239	-0.88	-0.108
EI2	0	3.017	3	1	5	1.266	-0.964	-0.15
EI3	0	3.357	3	1	5	1.247	-0.923	-0.297
EI4	0	3.397	3	1	5	1.251	-0.936	-0.282
EI5	0	3.387	4	1	5	1.308	-1.071	-0.294
EI6	0	3.413	4	1	5	1.282	-1.042	-0.293
ISQ1	0	3.283	3	1	5	1.287	-1.01	-0.183
ISQ2	0	3.063	3	1	5	1.18	-0.792	-0.16
ISQ3	0	3.137	3	1	5	1.185	-0.807	-0.23
ISQ4	0	3.13	3	1	5	1.252	-0.894	-0.207
ISQ5	0	3.067	3	1	5	1.212	-0.883	-0.174
ISQ6	0	3.11	3	1	5	1.28	-0.958	-0.236
ISQ7	0	3.39	3	1	5	1.191	-0.75	-0.326

Continued

ISQ8	0	3.293	3	1	5	1.241	-0.87	-0.277
ISQ9	0	3.37	3	1	5	1.288	-1.008	-0.274
ISQ10	0	3.287	3	1	5	1.245	-0.849	-0.245
ISQ11	0	3.407	4	1	5	1.244	-0.915	-0.37
ISQ12	0	3.03	3	1	5	1.173	-0.719	-0.071
ISQ13	0	3.017	3	1	5	1.261	-0.974	-0.032
ISQ14	0	3.047	3	1	5	1.191	-0.858	-0.043
ISQ15	0	3.07	3	1	5	1.232	-1.001	-0.005
ISQ16	0	3.167	3	1	5	1.356	-1.247	-0.104
ISQ17	0	3.193	3	1	5	1.394	-1.269	-0.074
OP1	0	3.26	3	1	5	1.346	-1.221	-0.12
OP2	0	3.267	3	1	5	1.417	-1.263	-0.197
OP3	0	3.02	3	1	5	1.203	-0.847	-0.062
OP4	0	3.07	3	1	5	1.171	-0.811	-0.024
OP5	0	3.053	3	1	5	1.264	-1.015	-0.101
OP6	0	3.013	3	1	5	1.265	-1.045	0.005
OP7	0	2.937	3	1	5	1.235	-0.86	0.078
OP8	0	2.837	3	1	5	1.245	-0.924	0.167

Note: CQI = Continuous Quality Improvement: PM = Process Management: EI = Employee Involvement: ISQ = Internal Service Quality: OP = Organizational Performance.



Note: CQI = Continuous Quality Improvement: PM = Process Management: EI = Employee Involvement: ISQ = Internal Service Quality: OP = Organizational Performance.

Figure 2. Measurement model assessment.

Table 2. Convergent validity.

Variables	Items	Loading	Alpha	CR	AVE
Continuous Quality Improvement	CQI2	0.844	0.876	0.915	0.729
	CQI3	0.813			
	CQI4	0.89			
	CQI5	0.866			
Employee Involvement	EI1	0.829	0.929	0.944	0.738
	EI2	0.814			
	EI3	0.872			
	EI4	0.865			
	EI5	0.896			
	EI6	0.876			
Internal Service Quality	ISQ1	0.801	0.952	0.958	0.675
	ISQ10	0.829			
	ISQ11	0.814			
	ISQ2	0.796			
	ISQ3	0.816			
	ISQ4	0.842			
	ISQ5	0.852			
	ISQ6	0.832			
	ISQ7	0.794			
	ISQ8	0.81			
	ISQ9	0.845			
Organizational Performance	OP1	0.843	0.939	0.949	0.702
	OP2	0.858			
	OP3	0.843			
	OP4	0.853			
	OP5	0.878			
	OP6	0.876			
	OP7	0.794			
	OP8	0.748			
Process Management	PM1	0.866	0.943	0.952	0.647
	PM10	0.81			
	PM11	0.764			
	PM2	0.874			
	PM3	0.867			
	PM4	0.861			
	PM5	0.865			
	PM6	0.844			
	PM7	0.576			
	PM8	0.631			
	PM9	0.823			

Note: CQI = Continuous Quality Improvement; PM = Process Management; EI = Employee Involvement; ISQ = Internal Service Quality; OP = Organizational Performance.

Discriminant validity is the extent to which a test is irrelevant to other tests that evaluate other constructs (Hafkesbrink, 2021; Henseler et al., 2015; Stöber, 2001). Discriminant validity is examined by using HTMT, which is a statistical method used to assess discriminant validity in social sciences research. All the values in Table 3 are less than 0.9, which confirms the discriminant validity.

Table 3. Discriminant validity.

	Continuous Quality Improvement	Employee Involvement	Internal Service Quality	Organizational Performance	Process Management
Continuous Quality Improvement					
Employee Involvement	0.615				
Internal Service Quality	0.597	0.729			
Organizational Performance	0.382	0.567	0.699		
Process Management	0.592	0.624	0.729	0.764	

The valuation of the measurement model was performed to make sure that the measurements used are reliable as well as valid to assess the structural model. In the structural model assessment, the collinearity between the exogenous variables is the first step to be examined. Next, followed by the significance of the path coefficients and the predictive accuracy of the model. PLS Structural Model Assessment is a critical step in PLS-SEM, where researchers evaluate the connections between latent variables (constructs) within the structural (inner) model (Boon et al., 2020; García-Fernández et al., 2018; Shiao et al., 2019). The t-value of 1.96 and the beta value were used to test the hypotheses. Table 4 highlights that all the direct effect hypotheses are proven because the t-value is higher than 1.96 and the beta value is positive. Furthermore, indirect effects are reported in Table 5, showing that one hypothesis is not accepted, and two hypotheses are proven.

Table 4. Direct effect results.

	Beta	Mean	SD	T Statistics	P Values
Continuous Quality Improvement -> Internal Service Quality	0.048	0.048	0.024	1.999	0.044
Continuous Quality Improvement -> Organizational Performance	0.499	0.504	0.061	8.172	0
Employee Involvement -> Internal Service Quality	0.429	0.429	0.066	6.532	0
Employee Involvement -> Organizational Performance	0.092	0.084	0.022	4.169	0
Internal Service Quality -> Organizational Performance	0.025	0.023	0.012	2.05	0.039
Process Management -> Internal Service Quality	0.485	0.485	0.066	7.304	0
Process Management -> Organizational Performance	0.207	0.21	0.059	3.498	0.001

Table 5. Indirect effect results.

	Beta	Mean	SD	T Statistics	PValues
Process Management -> Internal Service Quality -> Organizational Performance	0.082	0.81	0.018	4.549	0
Employee Involvement -> Internal Service Quality -> Organizational Performance	0.071	0.07	0.022	3.226	0.001
Continuous Quality Improvement -> Internal Service Quality -> Organizational Performance	0.001	0.001	0.008	0.155	0.877

5. Discussion and Conclusion

The purpose of this study was to investigate the role of TQM practices in OP of the healthcare industry in the UAE. This study addressed the role of three practices, which comprise continuous quality improvement, process management, and employee involvement. Likewise, this study considered the mediating role of ISQ between TQM practices and OP. To examine the relationship, 10 hypotheses were proposed, including seven direct effect hypotheses and three indirect effect hypotheses based on ISQ.

It was observed that continuous quality improvement, process management, and employee involvement have a positive effect on OP. The increase in continuous quality improvement, process management, and employee involvement can increase the OP of the health industry in the UAE. Organizational efficiency is achieved via the minimization of waste, empowerment of employees with the required expertise and technology savviness, and continuous improvement of their services and products through improvement of processes, recruiting expert personnel, and large investment in modernized operational activities, which is reported by [Galeazzo et al. \(2021\)](#), [Hamidi & Gharnah \(2017\)](#), [Malik & Khan \(2011\)](#), and [Mosaddeghrad \(2015\)](#). Process management is a methodical strategy ([Rodgers et al., 2023](#)) used to guarantee that there are effective and efficient procedures in place. It is a method for coordinating operations with long-term objectives. Furthermore, [Sadikoglu and Zehir \(2010\)](#) also opined that personnel at all levels in an organization must be involved and participate to increase the quality of present and prospective products or services to be produced. Furthermore, when employees are given the chance to contribute to the decision-making procedure, it helps to create a conducive work situation, in which the employees will be confident and dedicated to taking obligations and responsibilities that will strengthen the process required in meeting customer expectations.

Moreover, the outcomes of the study highlighted that ISQ has a positive effect on continuous quality improvement, process management, and employee involvement. The increase in ISQ can increase continuous quality improvement, process management, and employee involvement. Similarly, ISQ has a positive effect on OP of the health industry in the UAE. As earlier stated ([Durmaz et al., 2020](#); [Irfan & Kee, 2013](#); [Jyoti et al., 2017](#)), service quality to the process, asserting

that it would be a favorable direction when treated as a process (i.e., an antecedent influencing OP). The researcher emphasized that the industry-specific investigation of the influence of TQM practices through the mediating role of service quality on industry performance is important. There are few studies in the context of the healthcare industry that have investigated the aforementioned areas of study interest, notably in the Arab nations, where the UAE is one of the leading economies. According to the effects of this study, ISQ transfers the positive effect of process management and employee involvement to OP. However, ISQ cannot transfer the positive effect on continuous quality improvement to OP. Finally, it can be concluded that the findings of the study revealed that TQM practices such as continuous quality improvement, process management, and employee involvement have positive contributions to promote OP. Furthermore, ISQ plays the role of a mediating variable between TQM practices and OP.

6. Implications of the Study

6.1. Academic Implications

This research is conducted to present useful information on the implementation of TQM practices in the UAE healthcare industry and related continuous improvement. The research contributes to filling a gap in the increasing body of TQM understanding and literature, particularly in the general Gulf region and the UAE. In addition, this study addresses the obstacles to implementing TQM practices in both the extant literature and the study's case study; as a result, other organizations will be aware of the current challenges and will be able to anticipate and minimize them. In terms of TQM implementation, practitioners will be able to realize the value of identifying customer preferences and needs, as well as corporate requirements. As a result, they will prepare for the major implications and guide their activities to be more customer-focused. Additionally, another major significance of the study is based on the ISQ. Although preceding studies highlighted ISQ in different research studies, the use of ISQ in relation to the healthcare industry was not addressed by the previous studies. ISQ is considered a mediating variable in this study, which was ignored by the previous studies on the healthcare industry. Hence, the use of ISQ between TQM practices and the OP of the healthcare industry is one of the major contributions.

6.2. Practical Implications

In practice, the current study's results would be useful for government, administrators, field professionals, and policy makers to improve their organization's efficiency. This study will help UAE healthcare industry leaders to become more knowledgeable about their capabilities and competencies, which will aid in further growth and progress in carrying out their activities. Furthermore, this research model can be used by public organizations or private healthcare institutions in the UAE or anywhere else in the world. Ultimately, this research can be utilized as a foundation for the UAE government to create quality management policies and reg-

ulations based on the model of this study to improve the sustainability, growth, and efficiency of their healthcare sector and other service corporations in the country. The present study will also help to explain how the UAE government can use TQM practices as tools to improve public and private sector efficiency. Lastly, the outcomes of this study will lay the groundwork for the UAE to achieve its vision in 2021 and be known as one of the best countries for quality management in the world.

7. Limitations and Future Directions

The current study considered three TQM practices, which include: continuous service quality, process management, and employee involvement. However, there are various other TQM practices that should be included in the previous studies. The other TQM practices should include training and leadership. Furthermore, this study considered ISQ as a mediating variable. External service quality is also equally influential; therefore, future studies should consider external service quality. Additionally, this study considered the health industry only; future studies should also include various other important industries.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Scale Items of Continuous Quality Improvement

Sr. No.	Scale Items	Source
1	We aimed at finding time and cost losses in all internal processes.	Claver et al., 2003
2	We reinforce continuous study and improvement of all its products, services, and processes.	
3	We use specific organizational structures (quality committee, work teams) to support quality improvement.	
4	We aimed for the identification of areas for improvement.	
5	We emphasize information management and aim at supporting quality management (analysis of data regarding quality, cost, and financial aspects in order to support the development of improvement priorities).	

Scale Items of Process Management

Sr. No.	Scale Items	Source
1	We use acceptance sampling to accept/reject our important work.	Saraph et al., 1989
2	We use statistical control charts to control processes.	
3	We use several preventative equipment for maintenance.	
4	We use automated ways for inspection, review, or checking of work.	
5	We use several incoming inspections, reviews, or checks for our work.	
6	We use several in-process inspections, reviews, or checks for our work.	
7	We use several final inspections, reviews, or checks for our work.	
8	We take care of the stability of the production schedule/work distribution.	
9	We prefer the degree of automation of the process.	
10	We ensure process design is "fool-proof" and minimizes the chances of employee errors.	
11	We prefer clarity of work or process instructions given to employees.	

Scale Items of Employee Involvement

Sr. No.	Scale Items	Source
1	We often consider the suggestions of employees not included in research and development process while developing new ideas.	Rangus & Slavec, 2017
2	We actively encourage communication among unrelated groups of employees in the company.	
3	We rotate between different tasks, which is a common practice in our company.	

Continued

4	We, all members of our staff, include idea seekers, who look for potentially useful know-how/technology outside the company.
5	We inform our employees about the importance of innovation to our business.
6	We additionally award our employees if they bring external know-how/technology that improves our products/services.

Scale Items of Internal Service Quality

Sr. No.	Scale Items	Source
1	Our organization's patients feel safe in any cooperation with the hospital administration.	Pantouvakis & Mpogiatzidis, 2013
2	Our hospital administration is always available to serve patients with any problem.	
3	Our organization's patients have confidence in the behavior of the hospital administration.	
4	Our hospital administration spends the time required to serve patients.	
5	Our hospital administration always shows a deep interest in dealing with patients.	
6	Our hospital administration is always capable of addressing the requests of patients.	
7	Our hospital administration always serves patients on time promised.	
8	Our hospital administration is always interested in organization's best interest.	
9	Our hospital administration shows a sincere interest in solving the problems that arise during daily activities.	
10	Our hospital administration tries hard to avoid mistakes.	
11	Our hospital administration always provides reliable services.	
12	Our hospital administration understands each department's specificities separately.	
13	Our hospital administration is always polite and friendly with patients.	
14	Our hospital administration communicates with patients in a polite manner.	
15	Our hospital administration offers services as promised.	
16	Our hospital administration is never too busy to address any problem facing the patients.	
17	Our hospital administration always informs patients about new services available to the public.	

Scale Items of Organizational Performance

Sr. No.	Scale Items	Source
1	We work with consistency; consequently, the work unit's productivity has improved in the last two years.	Klein et al., 2023
2	We try to reduce costs when executing activities.	
3	We feel that there is a high effectiveness in achieving internal goals.	
4	We can achieve the goals.	
5	We work with consistency; consequently, the work is carried out efficiently.	
6	We implement new procedures and/or practices in the services as much as possible.	
7	We focus on quality; therefore, the quality of the work done in my sector/workgroup is high.	
8	We have achieved better quality in the execution of our services in the last three years.	