

Extension of the Healthcare Service Quality Model in Emerging Markets: *The Case of Egypt*¹

Dr. Hanan Yosry Sayed Emam Assistant Professor of Marketing, faculty of commerce, Cairo University **Prof. Nadia Elaref** Professor of Marketing, ESLSCA University

hananyosrysayed@foc.cu.edu.eg

n.elaref@eslsca.edu.eg

Dr. Alaa Tarek Khalil AbdEllatif Assistant Professor of Marketing, faculty of commerce, Cairo University

Alaa_tarek2003@foc.cu.edu.eg

ABSTRACT

As most of the health care service quality models focus on the healthcare service process, Healthqual comes to provide a more comprehensive model that includes both the healthcare service process and healthcare service results. This study aims to extend Healthqual to the Egyptian healthcare sector, as it was bas applied to developed countries and to help provide guidelines to healthcare service providers to better improve patients' experience. This descriptive research used empirical analysis obtained from a convenience sample of 199 respondents that used health care services in Egyptian hospital whether public or private. The study hypotheses were all accepted indicating that the perceived healthcare service process and healthcare service results, while the processes dimension consisted of empathy, tangibles, safety, and efficiency and the result dimension included the degree of care improvement. Such findings align with the findings obtained from developed countries.

Keywords: service quality– healthcare– Emerging economy –Healthqual– Service Quality model

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I.INTRODUCTION

The importance of the service industry and its contribution to national GDP have been steadily increasing. Nowadays, the majority of industrialized countries' economies are in the service sector rather than in manufacturing or agricultural (Datt et al., 2024). The service sector has emerged as the most important industry for growing the employment rate and national economy (Tuzkaya et al., 2019). While the manufacturing and agricultural sectors contribute 15% and 11.8% of Egypt's GDP, respectively, to GDP in 2021, services, including health care, accounted for roughly 52.2% of Egypt's GDP. 2019 saw health spending come to 4.74% of GDP (with 5.63% being the greatest amount in 2017). Service quality has emerged as a critical research topic globally due to the importance of measuring and improving quality for service organizations (Datt et al., 2024). Because resources are scarce in developing and emerging economies, it is imperative to maximize financial utilization to guarantee the provision of high-quality services, especially in the vital health care sector.

Improving relevant performance metrics is the primary objective of accomplishing company goals in non-profit organizations. But the primary objective of service groups isn't always obvious. The nature of the service industry and its unpredictability are the main causes of this trait. The need for better service systems has grown as a result of recent advancements in technology, society, and the economy. This is primarily because well-designed service systems save money and boost customer satisfaction. Because it determines these businesses' success, offering high-quality services has thus become a must for any healthcare service organization (Izadi et al., 2017). The service sector is under tremendous pressure to deliver continual performance and quality improvement in a competitive market (Tuzkaya et al., 2019).

Numerous measures have been proposed in the literature to assess the perceived quality of healthcare services; these dimensions were primarily derived from the SERVQUAL dimensions, as noted by Ali et al. (2024). Providing patients with service that meets or surpasses their expectations is crucial for success in the healthcare sector (Lee et al., 2000). Healthcare professionals understand that providing high-quality healthcare services depends on matching a patient's sense

of service quality (Singh & Prasher, 2019). To meet the increasing demands of patients for healthcare services of acceptable quality, hospital management must measure patient satisfaction and get insight into their perceptions (Tuzkaya et al., 2019). Patients' evaluations of the quality of the services they receive foster communication between them and hospitals, which in turn increases patients' general confidence. There exists a substantial correlation between the real healthcare service outcome and a patient's perception of healthcare service quality (HCSQ) (James et al., 2017).

Additionally, a variety of contingent events that arise during the course of treatment and its outcome affect the quality of healthcare services (HCSQ). The state of the patient following treatments determines the outcomes, even when the processes are supplied by personnel (doctors, staff, etc.). As a result, the patient evaluates these two factors differently. Furthermore, each patient may perceive HCSQ differently due to variations in their pre- and post-treatment feelings and emotions. Although patient perceptions are difficult to measure and quantify, they should be regarded as essential inputs to enhance the perceived quality of healthcare services (Tuzkaya et al., 2019).

A healthcare organization must fulfill a set of requirements to be considered for a healthcare certification. These requirements are used by the certification body to gauge the caliber of services provided. The organization can become accredited or certified if the authority certifies that the quality performance of the organization meets the requirements, and the outcome is acceptable. The fact that consumers' quest for value undermines healthcare providers' bottom lines is another argument in favor of their inclusion in the HCSQ. While providing high-quality healthcare will ensure that patients are prepared to pay, it will also result in high costs associated with improving the service.

Conversely, if a patient receives high-quality treatment, they might be more inclined to investigate if they like the service (match value). This could lead to market segmentation and compel healthcare providers to limit their patient base to those who express interest in the service. In contrast, health providers will benefit by cutting back on spending on improving the quality of care if the level of healthcare services is low. Healthcare providers would also be able to serve the whole market because patients would be less inclined to look for subpar care (although with a corresponding reduced willingness-to-pay from patients). In other words, upstream healthcare providers would have a difficult time striking a balance between patients' underlying desire for match value and the ideal degree of service enhancement (Zheng et al., 2022).

Few studies (Ali et al., 2024; Lee et al., 2000) used or modified measurement items suggested by accreditation and certification organizations for healthcare services, even though prior studies concentrated on evaluating HCSQ based on various approaches (Servqual, Servperf models, etc.). The requirements of certifying bodies, the capacity of the facility offering healthcare services, and the needs of the patients should all be considered while evaluating HCSQ. HCSQ metrics can be more objective if they are founded on integrated perspectives from patients, a certifying authority, and healthcare practitioners. Therefore, it would be beneficial to use an integrated HCSQ strategy that incorporates measuring items suggested by earlier research as well as accreditation and certification organizations' evaluation criteria. Furthermore, the majority of the groundbreaking research on the evolution of healthcare service quality (HCSQ) and related models (e.g., Servqual, Servperf, Healthqual, etc.) have been conducted in developed nations for developed systems. In developing or impoverished nations, it is necessary to apply the same models of perceived healthcare service quality or create new or modified models (Ali et al., 2024; Endeshaw, 2021; Fatima et al., 2019).

This research is structured as follows: Firstly, a literature review on service quality, perceived healthcare service quality dimensions and HEALTHQUAL scale. Secondly, hypotheses development and conceptual framework. Lastly, results of testing hypotheses, discussion, implications and then further research are presented as conclusions for this study.

2. LITERATURE REVIEW

2.1 CONCEPT OF SERVICE QUALITY

Service quality (SQ) lacks a general definition since it is a separate, complicated, elusive, abstract, and challenging notion to understand (Ali et al., 2022; Tuzkaya

et al., 2019). Translating the user's future needs into measurable features is a challenge when defining quality in the service industry (Tuzkaya et al., 2019). Various perspectives on SQ have been documented in the literature. Nonetheless, several eminent academics have defined it; Parasuraman et al. (1985) propose that the distinction between customer expectations and customer perceptions as perceived service quality can account for service quality. In a similar vein, Chien and Tsai (2000) define service quality as the congruence of customers' expectations and perceptions of service providers.

According to Cronin and Taylor (1992), service quality is solely determined by how customers view the performance of service providers. However, according to Gronroos (1984), there are two types of quality that make up service quality: functional quality, which refers to the method by which consumers receive services, and technical quality, which refers to the services that customers receive as a result of service interactions. According to several studies (Lee et al., 2000; Parasuraman, 1995; Prentice, 2013; Shi et al., 2014), service quality is a widely recognized, dynamic, and strategic instrument that a firm possesses that drives the profitability and competitive advantage of a service organization. Furthermore, providing outstanding service and achieving excellent customer satisfaction is an extremely difficult challenge in the fiercely competitive service sector, particularly in the healthcare services sector (David Mc, 2013).

2.2 Perceived Healthcare Service Quality Dimensions

According to Behdioğlu et al. (2019), the health care sector is currently one of the largest and fastest-growing service industries globally. Healthcare facilities are essential to preserving and enhancing people's health. So that individuals can benefit from a top-notch healthcare system, health services should be timely, safe, efficient, equitable, people-centric, and integrated. From the perspectives of various stakeholders, including service providers who want to maximize profitability, social health insurance providers who want to control costs, and patients who are primarily concerned with optimizing their health and satisfaction with the care they receive, the evaluation of the quality of health care services can be significant. However, it appears that superior services can simultaneously address the objectives of all parties involved. By offering suitable

and superior healthcare services, one can avoid needless patient referrals and the ensuing financial burden (Sharifi et al., 2021). Additionally, prior research has demonstrated a clear correlation between rising profitability and service providers' market shares in a competitive context and the quality of their health care offerings (Altuntas & Kansu, 2019; Meesala & Paul, 2018).

Accurate patient satisfaction data is essential to the quality of health care services provided by an organization like a hospital (Altuntas & Kansu, 2019; Pekkaya et al., 2019). This is due to the fact that raising patients' happiness with healthcare services through improved service quality results in a number of benefits, including increased hospital competitiveness and patient loyalty (Fatima et al., 2018; Meesala & Paul, 2018). Because they won't heed medical advice after being discharged, dissatisfaction could interfere with their treatment (Carlucci et al., 2013). It is challenging to gauge service quality because of a variety of characteristics, including unrestorable ness, heterogeneity, intangibility, and inseparability (Akdag et al., 2014). Comprehending the variables that influence patients' evaluations of the caliber of care they obtain is crucial for patients, as well as for healthcare providers, governments, and other relevant parties (Li & He, 2021). Owing to the significance of high-quality healthcare, a plethora of studies and research projects have attempted to incorporate dimensions and indicators that impact the caliber of healthcare services (Li & He, 2021). Because there are no standard measurement items, researchers believe that health care quality evaluation items are often employed and analyzed differently (Lee, 2017). Ali et al. (2024) state that several service quality models in healthcare have developed over time in various contexts (Figure 1).



Service Quality Model Developments In Literature

Figure 1: Ali et al. (2024), Service quality model developments in literature

Several dimensions have been used to quantify the HCSQ, which was first introduced by Myers in 1969, in earlier research (e.g., Bowers et al., 1994; Donabedian, 1980; Jun et al., 1998; Vuori, 1982). But as time has gone on, many researchers have changed and adjusted the HCSQ assessment items according to their own research goals (e.g., Bowers et al., 1994; Evans & Lindsay, 2009; Lee et al., 2011, 2013; Scobie et al., 2006).

Donabedian (1980) first put forth a paradigm for measuring and enhancing healthcare SQ by conceptually exploring "good care" through two domains: technical and interpersonal. The triangular service quality model developed by Donabedian (1988) used three dimensions—structure, procedure, and result—to evaluate the caliber of health care services. Health care providers' financial, material, and structural resources are all part of their structure quality.

The relationship between the service provider and the recipient affects the process-related quality of health care services. Gronroos (1988) referred to this factor as functional quality. Results-related quality measures how satisfied patients are with the level of care they received following a medical procedure. Subsequently, Donabedian (1990) suggested seven criteria—acceptability, optimality, efficiency, efficacy, legitimacy, effectiveness, and equity—to assess the SQ in the healthcare industry. While maintaining technical quality is crucial for preserving quality in healthcare settings, Servqual was designed primarily to assess functional quality, as noted by Babakus and Mangold (1992). For healthcare systems to continue to exist and expand over time, both functional and technical aspects must be observed and managed. Uncertainties concerning Servqual's five dimensions were highlighted by Lam (1997).

Dean (1999) included "emergency arrangements" as a new feature to the Servqual model. Core medical service and professionalism/skill are the two new variables that Lee et al. (2000) added to the Servqual paradigm. To identify important SQ dimensions for patient satisfaction in a developing nation, Andaleeb (2001) discovered "baksheesh" (little tip) as a new dimension. The first-level employees are incentivized to perform better by this money. A model with seven primary elements pertaining to patient-centered variables was created by Yildiz and Erdogmus (2004). These characteristics include the reception process for new patients, medical attention, room cleanliness and atmosphere, nursing care, dietary support, and additional services. Numerous empirical and theoretical objections of the Servqual scale were examined and presented by Ladhari (2009). In spite of these reservations, he came to the conclusion that Servqual is still a useful instrument for SQ.

An attitude toward the services provided by a service provider that arises from a comparison of expectations and actual performance is referred to as service quality based on Servqual and Servperf (Cronin & Taylor, 1992; Parasuraman et al., 1985, 1988). On the other hand, the Servqual model, created by Parasuraman et al. (1988), compares the expectations of the client before and after the service is provided. Conversely, the Servperf model proposed by Cronin and Taylor (1992) concentrates on customer-perceived performance measurements. As a result, while Servperf can only assess perceptions, including customer performance, Servqual can measure expectations and perceptions directly. The well-known and innovative models that become common for all other services, and healthcare in special, include the Servqual model of service quality (Parasuraman et al., 1988), the Gronroos (1984) model for assessing service quality, and Servperf (Ali et al., 2023; Cronin & Taylor, 1992).

For the purpose of evaluating SQ, Parasuraman et al. (1985) specified ten essential factors: communication, understanding /knowing, competence, credibility, tangibles, security, responsiveness, access, and reliability. Subsequently, to assess and examine the divergence between expectations and perceptions of service, Parasuraman et al. (1988) developed a five-dimensional SQ scale(SERVQUAL) with dimensions of dependability, assurance, responsiveness, empathy, and tangibility. Numerous industries, including banking (Bahia & Nantel, 2000), healthcare (Naidu, 2009; Padma et al., 2010), education (Mai, 2005; Sweis et al., 2016), hospitality (Eraqi, 2006; Nadiri & Hussain, 2005), logistics (Mentzer et al., 2001), and insurance (Tsoukatos & Rand, 2006), have found success using Servqual to measure SQ.

A multitude of researchers have adapted the Servqual framework to the unique quality characteristics of various sectors, such as Es-Qual for electronic services (Rafiq et al., 2012; Yang & Tsai, 2007), Eduqual for education (Mahapatra &

Khan, 2007; Narang, 2012), Healthqual, Pubhosqual, and Hospitalqual for libraries (Kumar & Mahajan, 2019; Mccaffrey, 2013; Pourahmad et al., 2016).

Several quality measurement items have also been introduced by a number of healthcare facilities and/or international accreditation and certification organizations. The healthcare service's certification and accreditation are categorized and assessed differently. To assist guarantee a safe environment for patients, workers, and visitors, Joint Commission International (JCI), the primary accrediting body for the healthcare industry, assesses human resources, hospitals, and care treatment subjects. If a hospital satisfies or surpasses a set of standard requirements that JCI established to enhance the quality of care, JCI offers accreditation or certification. Accreditation and certification organizations' data, as well as precise patient expectations, are critical for the healthcare company to have. From the standpoint of external stakeholders, such as JCI and ACI, accreditation and certification of healthcare services by specific organizations guarantees the high caliber of care provided by service providers (hospitals).

2.3 HEALTHQUAL SCALE

A modification of the Servqual scale designed for use in health centers is the Healthqual scale (Mariano et al., 2022). This approach, also known as Healthqual, hospital service quality (HSQ), or other similar names, has been applied in numerous research projects in the health care business over the past ten years (Lee, 2017; Li & He, 2021; Singh & Prasher, 2019; Singh et al., 2020; Yucesan & Gul, 2020). The patient's attitude toward the service provided by a health care service provider, as determined by comparing their expectations and perceptions, is referred to as service quality based on Healthqual and HSQ.

A multi-item scale called Healthqual was created by Lee (2017) to gauge the caliber of healthcare services. This scale includes updated characteristics of the quality of healthcare services, such as advancements in care services, safety, efficiency, tangible quality, and empathetic quality component. The procedures and outcomes of healthcare services are the source of these dimensions. This model's objective is to thoroughly assess the perceived quality of healthcare services from both internal and external consumer perspectives. According to

Lee (2017), this scale can be used to assess how accreditation bodies, patients, and service providers view the quality of healthcare services. Healthcare organizations can benefit from comparative analysis of patients and provider perspectives to identify areas for change that will enhance patient experiences, increase the quality of care, and improve patient information.

3. RESEARCH PROBLEM

It is evident that healthcare providers place a great deal of importance on tracking, evaluating, and enhancing service quality in healthcare systems. Researchers and practitioners get even more confused by the availability and application of multiple assessment scales. As a result, it is necessary to gather and synthesize the findings of different healthcare researchers. Furthermore, the bulk of this research concentrated on assessing how satisfied patients were with the level of care they received on the two aspects of structure and process (Estiri et al., 2023). With an emphasis on evaluating healthcare service processes and outcomes, the current study attempts to close both gaps in the literature by offering a thorough model of healthcare service quality. The current study's goal is to propose a comprehensive model—the Healthqual model—for assessing perceived healthcare service quality. This model includes multi-dimensional quality measurement items (empathy, tangible, safety, efficiency, and improvements of care services) that are suitable for contemporary healthcare services and can be applied to Egyptian hospitals.

This study suggested that integrated measuring items from the viewpoints of the hospital, the accrediting body, and the patient be used to evaluate healthcare services. This scale is made up of two modified elements of healthcare service quality: the results and processes of healthcare services. Healthcare service results are the end result of receiving treatment, while healthcare service processes are the procedures used to offer services. Thus, the degree of care improvement was included in the healthcare service results component, whereas the empathy, tangibles, safety, and efficiency comprised the healthcare service processes dimension (Ali et al., 2024; Lee, 2017).

4. RESEARCH HYPOTHESES AND CONCEPTUAL MODEL

Based on the literature review and the definition of healthcare service process, the first hypothesis has been formulated as follows:

- **HI:** There is a significant statistical relationship between healthcare service process and perceived healthcare service quality.
- **H1a:** There is a significant statistical relationship between empathy and perceived healthcare service quality.
- **Hib:** There is a significant statistical relationship between tangibles and perceived healthcare service quality.
- **HIC:** There is a significant statistical relationship between safety and perceived healthcare service quality.
- **Hrd:** There is a significant statistical relationship between efficiency and perceived healthcare service quality.
- Based on the literature review and the definition of healthcare service result, the second hypothesis has been formulated as follows:
- **H2:** There is a significant statistical relationship between healthcare service result and perceived healthcare service quality.
- **H2a:** There is a significant statistical relationship between the degree of care improvements and perceived healthcare service quality.





5. MEASUREMENTS OF RESEARCH VARIABLES

Table (I) below presents the definition of each research variable related to the current study. It also lists the measurement items for Healthqual (healthcare service processes and healthcare service results) and reference sources of these items. The questionnaire was prepared in English and then translated into Arabic following the five-point Likert Scale which ranges among strongly disagree (I), neutral (3) and strongly agree (5). Based on prior studies, scales to measure each of the constructs were developed.

Dimensions	Items	Concepts	Detailed measurement items	Source
Healthcare service Process	Empathy quality aspects	Degree of recognizing the patient's situation during the care treatment by medical staff as an indication of personal interests in individual patients (Lee, 2017)	 Polite attitudes of employees. Explaining the details. Listen to the patient. Understand and consider the patient's situation. A sense of closeness and friendliness. Hospital knows what the patient wants. Hospital understands the patient's problems as empathy. 	Kim and Chio (1999), Choe et al. (2012), Lee (2017)
	Tangible quality aspects	Degree of securing the best medical staff, advanced medical equipment and technology (Lee, 2017)	-Degree of securing advanced medical equipment. -Degree of securing medical staff with advanced skills and knowledge. -Degree of convenient facilities. -Degree of cleanliness of employee uniforms. -Overall cleanliness of the hospital.	Kim and Chio (1999), Choe et al. (2012), Lee (2017)
	Safety quality aspects	The high level of staff qualification, confidence in providing services, and safe	-Degree of the comfortable environment for receiving treatments. -Degree of efforts for providing a comfortable and	Kim and Chio (1999), Choe

Table 1: Measurement items for Healthqual: processes and results

Dimensions	Items	Concepts	Detailed measurement items	Source
		environment for the patient and employees (Lee, 2017)	safe environment for patients. -Degree of the hospital environment that is safe from infection. -Degree of the feeling that doctors would not make misdiagnoses. -Degree of the feeling that nurses would not make mistakes. -Degree of confidence about the medical proficiency of this hospital	et al. (2012), Lee (2017)
	Efficiency quality aspects	Degree of processes and operational efficiency to provide effective services (Lee, 2017)	-Attitudes about not using unnecessary medication. -Degree of efforts for proving appropriate treatment methods. -Reasonable medical expenses. -Appropriateness of cost for medical services provided. -Degree of convenience for treatment procedures. -Degree of efforts for reducing unnecessary procedures.	Kim and Chio (1999), Choe et al. (2012), Lee (2017)

Dimensions	Items	Concepts	Detailed measurement items	Source
Healthcare service Results	Quality aspects in the degree of improvements of care services	Degree of medical staff and patients' efforts to improve results of care treatment and prevent disease as continuous improvement activities (Lee, 2017)	 Appropriateness of care service provided. -Recognition and efforts for the best treatment by the medical staff. -Improvement in medical condition as a result of efforts and treatment by the medical staff. -Degree of improved patient condition after using this hospital care. -Degree of explanations to the patient to prevent related diseases. -Degree of efforts and willingness to prevent disease. -Improvement of disease through this hospital's treatment. -Degree of disease prevention and service of free public lectures. 	Choe et al. (2012), Lee (2017)

6. THE POPULATION AND SAMPLE

The target population is all people have experience with hospitals in Egypt (public, private and military) and have online access. Participants were asked to answer an online questionnaire, with a promise that their responses will be anonymous and confidential. Respondents could respond to the questionnaire from any computer with internet access. The valid responses only 199 questionnaires. The low response rate was reported as a study limitation.

The current study used non-probability convenience sample, because the sampling frame is not available as the number of customers who have experience with hospitals is unlimited. The sample is selected based on sending e-mail invitation for respondents to participate in the online survey by using hyperlinks that can be used only once.

7. STATISTICAL ANALYSIS TECHNIQUES

The current study uses SPSS 25 to measure the internal consistency reliability and construct validity of all constructs. Additionally, the study tests hypotheses via applying AMOS 22 programs.

7.1 SAMPLE CHARACTERISTICS

Table (2) below shows the sample characteristics for 199 valid online surveys collected for the study. The study employed SPSS 25 and AMOS 22 programs.

	Attributes	Frequency	Percentage (%)
Condor	Male	79	40
Gender Age Education Occupation	Female	I20	60
	Under 25	9	4
A. ~~	25- less than 35	55	28
Age	35- less than 45	60	30
	Over 45	75	38
Education	Graduate	70	35
Education	Postgraduate	129	65
	Student	6	3
	Professional	5	2
	Public sector	73	37
	Private sector	89	45
Occupation	Unemployed	8	4
Gender Age Education Occupation Income	Retired	13	7
	Other	5	2
	Less than 2000	7	4
Age Education Occupation Income	2000- Less than 5000	39	20
	5000- Less than 8000	44	22
	8000- Less than 10000	34	17
	10000 and more	75	37

Table 2: Sample characteristics

8. DESCRIPTIVE STATISTICS AND RELATIONSHIP BETWEEN VARIABLES

Table (3) shows the mean for each variable ranging from 3.38 (service quality) to 3.55 (Tangibles) and the standard deviation ranged from 0.85 (service quality) to 0.99 (Empathy).

	N		Maam	Madian	Std.	Minimum	Maximum	
	Valid	Missing	Wiedlan Wiedlan		Deviation	Minnum		
Perceived Healthcare			a a ⁹ 7 (9 9 .		4.0.0	
Service Quality	199	0	3.3814	3.5333	.05101	1.00	5.00	
Empathy	199	0	3.3600	3.5714	.99855	I.00	5.00	
Tangibles	199	0	3.5533	3.8000	.91358	I.00	5.00	
Safety	199	0	3.3492	3.5000	.94300	I.00	5.00	
Efficiency	199	0	3.2073	3.1667	.98341	I.00	5.00	
Improvements	199	0	3.4394	3.5000	.92602	I.00	5.00	

Table 3: Descriptive Statistics

As shown in Table (4), the study is based on Cronbach's alpha value to measure reliability. All values of the coefficients of reliability exceeded the cut off value of 0.70. Additionally, this study used confirmatory factor analysis to test convergent validity. Among the measurement items, 30 items were recognized in five factors: empathy, tangibles, safety, efficiency, and the degree of care improvements.

Additionally, discriminant validity was assessed using the Fornell-Larcker Criterion, as table (5) illustrates. Table (4) provides a summary of the goodness of fit test results for the measurement model. The values of the goodness of fit tests (GFI, CFI, TLI, RMR, RMSEA, and P value) were all satisfactory when compared to the recommended levels. Table (4) indicates that all of the study's suggested variables were statistically significant in our model at the.05 level, with standardized factor loadings ranging from.611 to.895.

The construct reliability (CR) and average variance extracted (AVE) of the latent variables are shown in Table (4), and the correlations between the latent variables make up the off-diagonal elements. Any latent variable's square root of the AVE must be larger than the correlation between it and other latent variables in order to have sufficient discriminant validity (Pavlou and Fygenson, 2006). All five latent variables had CR values larger than 0.8 and AVE values greater than 0.5, which are ideal values, with CR > 0.7 and AVE \geq 0.5. Consequently, these variables' convergent validity was met. Consequently, as seen in Table (4), the study's convergent and discriminant validity were supported.

The research hypotheses were accepted in the presence of substantial direct correlations at a significance level of 1%, as table (5) demonstrates. Thus, the five elements of empathy, tangible safety, efficiency, and degree of care service improvements can be used to assess Healthqual, an effective way to quantify the perceived quality of healthcare services.

	Measurement model (CFA)									
variable	sub dimension	Items	Reliability Statistics Cronbach's Alpha		Loading Factor		Composite Reliability		AVE	
		Етрі			0.850***					
		Emp2			0.851***					
	thy	Emp3		3	0.840***	***		3		%
	mpa	Emp4		0.95	0.900***	059.		0.95		74.40
	Е	Emp5			0.922***					•
		Emp6			0.912***					
		Emp7			0.752***					
	Tangibles	Tangi		п6.0	0.808***		0.954			
		Tang2			0.790***	0.896***		IO		%0
		Tang3			0.841***			0.9		64.6
ıality		Tang4			0.754***					
ice qı		Tang5			0.822***				9	
serv		Safi	976.	o.878	0.829***	*		.884	80.609	9
hcare	afety	Sar2	0		0.755****	*606				5.809
Iealtl	S	Sar3			0.726***	0		0		6
I					0.920***					
		EIIII			0.721***					
	cy	Effiz			0.845***	*		-		%
	ficien	Efficiency Efficiency		п6-о	0.644***	.835*'		0.902		60 <u>7</u> 0
	Eff	Effic			0.751***	0		Ū		9
		Effic			0.913***					
	of	Impri			0.773					
	ents of ents or vice	Impr2		~	0.915	****		~		%
	egree vem	Impr2		.953	0.800	.886*		0.94		'03.9č
	D impre car	Impr4			0.847***	0				0

Гable 4:	PLS-SEM	First Stage -	Measurement	Model	Assessment

Measurement model (CFA)										
variable	sub dimension	Items	Reliability Statistics Cronbach's Alpha		Loading Factor		Composite Reliability		AVE	
		Impr5			0.814***					
		Impr6			0.824***					
		Impr7			0.851***					
		Impr8			o.669***					
M	lodel Fit Summary	7	N = 19	99						
	CMIN/DF		2.II2							
	RMR		0.069							
	GFI		0.779							
	NFI		0.880							
	TLI		0.924							
	CFI		0.932							
	RMSEA		0.075							

Table 5: Fornell-Larcker Criterion

	AVE%	Empathy	Tangibles	Safety	Efficiency	Improvements
Empathy	74.40%	0.863				
Tangibles	64.60%	0.773	0.804			
Safety	65.80%	0.811	0.819	0.811		
Efficiency	60.70%	0.720	0.569	0.640	0.779	
Improvements	69.50%	0.775	0.692	0.737	0.826	0.834

Table 6: Testing Hypotheses

]				
			Regression Weights	Standardized Regression Weights	S.E.	C.R.	Р
Empathy.	<	service	1.356	0.959	0.143	9.498	***
Tangibles.	<	service	1.173	0.896	0.133	8.823	***
Safety.	<	service	1.251	0.909	0.138	9.083	***
Efficiency.	<	service	0.974	0.835	0.112	8.735	***
Improvements.	<	service	I	0.886			***

*** is significant at the 0.001 level (2-tailed)

9. DISCUSSION

The study targeted individuals in Egypt with hospital experience and online access. The researcher distributed 251 surveys. After exclusions due to unanswered questions, the valid sample size became 199. Respondents could participate via an online questionnaire, and the study used a non-probability convenience sample due to the absence of a sampling frame.

In the study, researchers assessed the reliability and validity of a proposed model for measuring perceived healthcare service quality. Reliability was tested using Cronbach's alpha, and all coefficients for the constructs exceeded the threshold. Validity was evaluated through confirmatory factor analysis (CFA), resulting in the identification of 30 items across five factors: empathy, tangibles, safety, efficiency, and degree of improvements in care service. Goodness of fit tests indicated satisfactory results, although the goodness of fit index (GFI) fell slightly below the desired threshold. Nevertheless, the proposed structure for measuring perceived healthcare service quality (Healthqual) was confirmed. Convergent and discriminant validity were supported, and correlations between latent variables were analyzed.

The study's research hypotheses were all accepted based on significant direct relationships between perceived healthcare service quality and the components (empathy, tangibles, safety, efficiency, and improvements) at a significance level of 1%.

Consequently, fit statistics related to this model set the proposed structure of quality measurements of perceived healthcare service. Therefore, Healthqual can be assessed efficiently using the five dimensions of empathy, tangible, safety, efficiency, and degree of improvements.

IO. IMPLICATIONS

Organizations could develop operational plans based on the findings, improving employee and customer satisfaction through each item. While keeping in mind accreditation bodies' standards, the model could direct healthcare service providers throughout the patient's interaction with the facility to guarantee optimal satisfaction. The Healthqual scale was created with the intention of offering a diagnostic approach for impartially assessing hospitals' overall care service quality by both internal and external clients. Should Healthqual be implemented nationally and backed by the Egyptian Ministry of Health and Population, its dimensions—which include multi-stage care delivery processes, facility and technology, and management systems—include the most crucial standards for assessing healthcare providers (public and private, clinics, specialty hospitals, etc.). As a result, the model may contribute to raising the standard of the country's healthcare system.

This study advances the academic development of healthcare service quality (Healthqual) measuring instruments by drawing on reviews of the literature, empirical investigations, and the quality standards of accrediting and certifying bodies. We chose measuring items based on the highest-ranked HCSQ items after first evaluating the relative importance of each item. Second, we used validity and reliability tests to examine Healthqual items. In order to measure HCSQ in care delivery processes, Healthqual was lastly designed with the opinions of patients, service providers, and certification organizations in mind.

Regarding improving the dimensions of the healthcare process and results, healthcare professionals can create blueprints of all service processes involved in each health care service, such processes will vary if we're dealing with a resident patient or a vising patient, someone who is visiting the hospital for the first time or coming for routine follow-up. Each process service quality dimensions should be considered.

In the following section some examples regarding the previously suggested Healthqual dimensions will be provided:

Empathy: patients' support may vary according to the nature of the patient's condition; age; gender; personality or even culture. Further research could verify the moderating effect of these variables on the patient's need for empathy and its relation to perceived healthcare service quality; however currently we believe that with appropriate training for staff the right support can be determined and provided in the appropriate time.

Tangible Quality aspects: Most of the hospitals start with good facilities and appropriate service scape, however with lack or delayed maintenance, the place loses its luster. Scheduling daily checks on facilities and following the latest technology is paramount.

Safety Quality aspects: the world has changed post COVID, and average people have become more vigilant about infections and diseases, especially when visiting hospitals. In addition to investing in safety procedures and infection control, such procedures must be made visible for patients. Signages, social distancing and sterilization of equipment must be shown to patients to provide a reassuring feeling.

Efficiency Quality aspects: Most patients have the perception that Healthcare providers want them to pay the maximum and that physicians want to keep them in the system to squeeze every penny out of them. Such perception creates a sense of skepticism and distrust between the patient and the service provider. Reassuring patients that only necessary medications or procedures will be administered and explaining the need for any of them is an important step to win over patients.

Quality aspects in the degree of improvements of care services: Patients perception about healthcare service can be summarized in this delightful phrase "I'm cured" or at least "I feel better" all other aspects won't make-it up for a family who lost a member or a person who keeps suffering. However, not everyone is blessed with such ending, hence keeping the patient and the family involved in each step and clearly providing statistics about success and failure; in addition to explaining all possible scenarios, including the least favorable, could smooth that final step in the healthcare process.

II.LIMITATION AND FUTURE RESEARCH

In general, different service sector measuring items selected from academics' perspectives have been used to gauge the quality of healthcare services. on the other hand, Healthqual is an integrated approach that assesses HCSQ from the perspectives of accrediting bodies, hospitals, and patients.

There are various limitations to this study. Initially, information was gathered from patients in an Egyptian private hospital. The study's validity and reliability tests were satisfactory, but the low response rate and the fact that most respondents had questions concerning private hospitals may limit the study's capacity to be broadly applied. Secondly, there was no attempt to do longitudinal research with patients at different times.

Future studies must consider the aforementioned limitations. In the future, gathering data via worldwide certification systems would be a suitable and productive study strategy. Longitudinal data analysis and cross-cultural study populations comprising various hospital sizes and types could expand the comparative research on quality evaluation items. Future research should also create suitable operational procedures for various kinds of healthcare providers, since hospital features typically need various kinds of procedures to be implemented in order to deliver care.

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تطبيق نموذج جودة خدمات الرعاية الصحية في الأسواق الناشئة :حالة مصر

د. حنان يسري سيد إمام أ.د. نادية العارف

د. الاء طارق خليل عبد اللطيف

ملخص البحث باللغة العربية

بما أن معظم نماذج جودة خدمات الرعاية الصحية تركز على عملية الخدمة، فإن الجودة الصحية تأتي لتقديم نموذج أكثر شمولاً متضمنه كل من عملية الخدمة ونتائج الخدمة .تهدف هذه الدراسة إلى تطبيق نموذج الجودة الصحية ليشمل قطاع الرعاية الصحية المصري، حيث تم تطبيقها في الدراسات السابقة بشكل أسامي على الدول المتقدمة. وللمساعدة في تقديم إرشادات لمقدمي خدمات الرعاية الصحية لتحسين تجربة المرضى بشكل أفضل. استخدم هذا البحث الوصفي التحليل التجريبي الذي تم الحصول عليه من عينة مكونة من 199 مستقصي منهم استخدموا خدمات الرعاية الصحية في المستشفيات المصرية سواء العامة أو الخاصة. تم قبول جميع فرضيات الدراسة مما يشير إلى أنه يمكن تقييم بناء جودة خدمة الرعاية الصحية من خلال خمسة أبعاد تعكس كلاً من عملية ونتائج خدمة الرعاية الصحية. حيث يشتمل بعد عملية الخدمة علي كل من التعاطف والملموسية، والسلامة والكفاءة اما بعد نتائج الخدمة يشتمل فقط علي درجة تحسين الرعاية الصحية. وتتوافق هذه النتائج مع النتائج التي من البلدان المتقدمة.

الكلمات الدالة : جودة الخدمة – الرعاية الصحية – الاقتصاد الناشئ – الجودة الصحية – نموذج جودة الخدمة

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