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Assessing the Influence of Service Quality on Patient Trust and Re-Visit Intention: A HealthQual-Based Cross-Sectional Study of Tertiary Care Hospitals in Karachi City

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ABSTRACT

Healthcare Service Quality (HCSQ) is a crucial factor influencing healthcare outcomes, satisfaction, and overall healthcare system performance. Given the direct impact of healthcare services on human lives, evaluating their quality is pivotal. Traditional models such as SERVQUAL and SERVPERF have been widely used to assess HCSQ, but their limitations in the healthcare context necessitate the adoption of the HEALTHQUAL model, which provides a more comprehensive framework. High-quality healthcare services enhance patient trust and encourage re-visit intentions, ultimately benefiting healthcare organizations. This study aims to measure HCSQ using the validated HEALTHQUAL model and examine its impact on patient trust and re-visit intentions. A quantitative, cross-sectional research design was employed across three major tertiary care hospitals in Karachi, with data collected from outpatients and their attendants through a structured five-point Likert scale questionnaire, adapted from extant literature. The findings reveal that the Empathy dimension significantly influences care improvement, patient trust, and patient re-

visit intentions. Furthermore, the degree of care improvement positively affects re-visit intentions. However, the dimensions of Tangibles, Safety, and Efficiency were found to be statistically insignificant, contradicting previous studies and indicating the need for further investigation. The results underscore the importance of the HEALTHQUAL model as a valuable tool for assessing HCSQ. Improved healthcare service quality fosters patient trust, which in turn increases patient retention and continuity of care. These findings highlight the need for healthcare organizations to focus on enhancing patient-centered care to improve trust and long-term engagement.

Key Words: Healthcare management, healthcare service quality, HEALTHQUAL model, Healthcare, Healthcare Strategy, Patient Trust

Introduction

Remarkable growth of the global population has led to an enormous demand for healthcare services, particularly in developing countries such as Pakistan, which continues to grapple with economic crises. Service quality is a critical factor in the healthcare industry; however, in daunting economies, healthcare providers often overlook patients' perceptions and expectations (Saad Andaleeb, 2001). If the quality of healthcare suffers, so the satisfaction of patients (Ali et al., 2024). The unsatisfied patients ultimately are no more loyal and rarely come back to the healthcare provider (Chang et al., 2013; Wulandari et al., 2024) . In Pakistan, healthcare has historically not been a priority for successive governments, resulting in significant gaps in service quality. Existing research on Pakistan's healthcare sector is limited, particularly regarding comparative assessments of public and private hospitals (Javed & Ilyas, 2018) . However, studies that have been conducted suggest that patients generally report higher satisfaction with private hospitals compared to public healthcare facilities (Irfan & Ijaz, 2011) . Globally, the importance of quality healthcare has been widely recognized, with numerous studies highlighting the link between continuous quality improvement (CQI) and enhanced patient outcomes. When CQI strategies are consistently implemented across healthcare organizations and systems, they yield significant long-term benefits. Various models have been used to measure healthcare service quality (HCSQ), including SERVQUAL, SERVPERF, and HEALTHQUAL. These models assess critical quality dimensions in the continuous

improvement of treatment, care services, and disease prevention, ultimately fostering patient trust. There is a need to measure the quality services of tertiary care hospitals with the help of HEALTHQUAL model to understand how these dimensions contribute to improving the degree of care improvement and gaining patient trust and patient revisits. This study adopts the HEALTHQUAL model, which has been widely validated in developed countries. The objective is to revalidate this model within Pakistan's healthcare sector to develop a more patient-centric approach to service quality assessment.

Research Objectives and Questions

The purpose of the study is to investigate the impact of healthcare quality activities using a validated HEALTHQUAL Model and its impact on the patient trust and patient re-visit intension in tertiary care hospitals in Karachi. It is therefore intended to answer critical questions whether healthcare quality has an impact on the degree of care improvement in tertiary care hospitals to gain patient trust and patient re-visits or retention. What is the impact of healthcare quality measures on the trust level of patients? and what is the impact of healthcare quality measures on the re-visit intension of patients? The aim of the study is to propose an efficient approach to achieve the quality within the hospital and provide opportunities to focus on improvement aspects that are essential for the whole organization.

Literature Review

Healthcare and Quality Measures

Health care comes under basic needs and to impart the medical care facilities with an easy accessibility of services at minimum cost is the liability of the healthcare sectors. There is general assumption that services are intangible in nature so that's why it is difficult to measure. In all emerged and emerging nations, health care services are not satisfactory, especially in emerging nations because of the large number of populations specially that live in rural areas. (Shaikh et al., 2016) Nowadays, there is burden to organizations to build and maintain quality in organizations. To accomplish the growth, success and persistence of a healthcare system, service quality is an essential component for it and is also an essential element to predict the healthcare system viewpoint. Technical quality and functional quality are the two primary dimensions of HCSQ. The authenticity of identification

and management processes forms the basis of technical quality. Conversely, non-clinical factors are linked to functional quality. Since the majority of patients do not comprehend the evaluation of technical services, the functional quality is used to assess HCSQ (Aghamolaei et al., 2014). As quality services have become an essential corporate strategy for healthcare systems. (Lu et al., 2020) Evaluation of HCSQ is the main principles to maintain the progress and success in any healthcare organization. According to Aristotle's account, "quality" is one of the basic categories of human existence and thought. A product or service's "quality" is now defined by the International Organization for Standardization (ISO) as "the totality of properties that determine its to meet identified or anticipated needs." "Quality" is a differentiation among expectation and perception or the obtained effect. On the report of Opolski K. et al., the main aim that should be establish is "Quality" that contains all the components of a services that lead to the gratification of a potential healthcare seekers. The highest quality care is essential at every stage of services imparted.

According to Opolski et al., the WHO's criteria of healthcare service quality state that the maximum degree of competent expertise and a desire to satisfy the patient's expectations should have an impact on the quality of healthcare services. Clinical (postulated) quality and perceived quality are two ways that HCSQ can be assessed. Clinical quality is centred on medical diagnosis, skill, and procedure precision. The patient's subjective awareness of how they were contacted, treated, or shown attention at a medical facility is linked to the perceived quality (Jonkisz et al., 2021).

As we know, services are intangible so we cannot evaluate the quality of services in advance. Services are integrated so it is very hard to evaluate the quality of services because they are measured during the service delivery that also depend upon healthcare seekers' involvement. Furthermore, it is important that evaluation of quality not only hinge on the result of the services, but the approaches or methods are used to deliver the service. More recently, Johnston et al. (2012) integrated all definitions into one: the perceived service quality is the customer's judgement of both result and experience during the service delivery. (Maria & Mendes, 2018).

Medical care quality is a multiplex and abstract concept in which definition differs on the account of each individual interests and views (Mosadeghrad, 2013) . To Donabedian (1980), HCSQ comprises of knowledge and technology to achieve the goal of most beneficial to health with the lower level of risk. The important element to provide health care services is the well-being of the healthcare seekers (Donabedian, 1980)

Models for Measuring HCSQ

HCSQ as “doing the right thing and making continuous improvements, acquiring the best possible clinical outcome, gratifying all service seekers, employing skilled employees, and maintaining sound financial performance.’ (Lee, 2017) . In order to increase the advantages and lower the menace in the healthcare operations, anticipate a beneficial impression on healthcare measures, an advancement in healthcare issues, and the gratification of healthcare seekers HCSQ requires to the utilization of advance technologies and sciences in healthcare settings. According to Aved is Donabedian, the healthcare quality is explained as “the degree to which the most preferable means are employed to accomplish the greatest possible advancement in healthcare(Barríos-Ipenza et al., 2020a). To evaluate the healthcare service quality, there were numbers of old and enormous approaches and their pros and cons that can be traced by Donabedian. For healthcare well-being accessibility, effectiveness, efficiency, and improvement of care quality and continuity as items are observed by Myers. There are two another item equity and efficiency, that are link to patient care experience, are included by Donabedian as quality measurement items. The quality service framework that builds on qualitative methods was first developed by Grönroos to evaluate the services quality. Then, the second quality service framework, SERVQUAL model that is based on exploratory research, was developed by Parasuraman et al. to evaluate the quality by identifying a gap between service seeker expectations and perceptions.

SERVQUAL consists of five dimensions: tangibles, reliability, responsiveness, assurance, and empathy(Zeithaml & Berry, n.d.). The third quality service framework, SERVPERF model, was developed by Cronin and Taylor. This SERVPERF model consisted of five dimensions of SERVQUAL and 22 items to evaluate the quality only by patient perceptions(Fogarty et al., n.d.). Jain and Gupta debated that SERVPERF

model was mythologically advancement of SERVQUAL model(Kaneva et al., n.d.). To evaluate the healthcare service quality, five models have been established, namely, Donabedian's, SERVQUAL, HEALTHQUAL, PubHosQual and HospitalQual models. (Endeshaw, 2021). But most generally SERVQUAL models are used by many researchers. SERVQUAL is a multidimensional scale, with high validity and reliability, that has been widely used for years by many health-related and non-health related organizations to evaluate the quality. Furthermore, revamping of SERVQUAL scale in health industry that allows evaluation of quality by the perceptions of patients.

HCSQ, first established by Myers, has been evaluated by utilizing numerous dimensions that are developed on the report of researcher viewpoint. There are efficient and integral approaches required to gather details about patients to manage the HCSQ. In this context, HEALTHQUAL is a multidimensional scale to estimate the service quality in advance healthcare system that evaluates items from the service seeker's perspective. (Barrios-Ipenza et al., 2020a). Although, to evaluate the healthcare service quality there are many issues faced by SERVQUAL model.

SERVQUAL was not taking into consideration the main dimensions of healthcare services quality such as availability, affordability, caring, and medical outcomes. Basically, it evolved for only general services. For this reason, to evaluate the healthcare service quality the HEALTHQUAL model has been established to surrogate a SERVQUAL model. HCSQ items and the dimensions are amended according to the researcher's viewpoints that difficult the use of appropriate measurement. Due to the constraint of preceding research, HEALTHQUAL model was established by IOM (2001) that consists of six dimensions, SERVQUAL, the mixed SERVQUAL model. (Lee, 2017) HEALTHQUAL model was delineated to grant a better representation of the health-care service quality. (Sharifi et al., 2021).

HEALTHQUAL Model

It is a multifaceted indicator of the quality of healthcare services in the advanced healthcare system that assesses things from the viewpoint of the patient. In 2020b, Barrios-Ipenza et al. This approach was divided into two parts: process and outcome. The term "process" describes how services are delivered, whereas "result" describes the outcome that the patient obtained. Empathy, tangibles, safety, and efficiency are all part of the process dimension, and the degree of care improvement is part of the

result dimension (Table 1). The HEALTHQUAL concept includes elements including safety, efficiency, quality, empathy, and enhanced care services. In 2020b, Barrios-Ipenza et al. However, in this study, a version of the HEALTHQUAL model—which consists of 32 items and five dimensions—that was adapted from Lee and Kim's earlier work was used to analyze the quality of the services (Barrios-Ipenza et al., 2020a).

Dimensions of HEALTHQUAL

The Process Dimensions

Empathy: The attitude of the caregiver to deliver higher-quality care and share comparable feelings with patients throughout care services is known as the quality component of empathy (Donhee Lee, 2017; Maria Mendes, 2018). The mindset is one of understanding, assisting, and personalizing empathy for patients by demonstrating care and concern (Nemati, bahreini, pouladi, 2020; Kaneva, syrkiewicz, grim et al, 2022). It is proved through research that empathy towards patients has positive impact on the pace of improvement from the disease (Kaneva, syrkiewicz, grim et al; 2022), leading to hypothesize that.

H1: *Empathy attributes of quality service delivery is positively associated to enhance the degree of care improvement.*

Tangibles: The tangible quality aspect mentions the utilization of equipment and the physical ambiance to give a proper care service (Nemati, bahreini, pouladi, 2020; Kaneva, syrkiewicz, grim et al, 2022). Tangible also included the degree of cleanliness of employees and the hospital for providing care service (Donhee lee, 2017). The physical attributes ultimately make the patients happy and satisfied with the healthcare services (Wulandari et al., 2024).

H2: *Tangible attributes of quality service delivery is positively associated to enhance the degree of care improvement.*

Safety: The goal of safety quality aspect is to give a comfortable and safe ambiance to service seekers and employees (Kaneva, syrkiewicz, grim et al, 2022). This is the most fundamental dimension of healthcare (Nemati, bahreini, pouladi, 2020) that impacted the most the quality of healthcare and positive healthcare outcomes (Estiri et al., 2023). In an infectious environment, like in the time of Covid 19, the safety dimension is of prime importance to prevention and care (Agarwal, 2023). Therefore,

the safety dimension appears to affect the degree of care improvements (Wulandari et al., 2024).

H3: *Safety attributes of quality service delivery are positively associated to enhance the degree of care improvement.*

Efficiency: The study's efficiency quality component discusses operational efficiency initiatives, such as departments' and the organization's supporting activities and improvement initiatives (including training and education, information sharing, and accessibility) to provide more convenient services (Donhee lee, 2017; Maria, mendes, 2018). Also, hospitals should minimize waste and waiting time through simplifying paperwork-related procedures. The outcome of service efficiency should result in the degree of improved care (Ali et al., 2024).

H4: *Efficiency attributes of quality service delivery are positively associated to enhance the degree of care improvement.*

The Result Dimension

Degree Of Care Improvement: A range of actions, including communication and attempts to attain effective treatments and enhance the outcome of care treatment, are included in the quality element of the extent of advances in care services. Through the efforts of medical personnel, ongoing improvements in care performance for illness treatment and prevention are part of the healthcare service's improvement goal. It can be accomplished through the combined efforts of the staff and the patient (Donhee lee, 2017; Kaneva, syrkiewicz, grim et al., 2022). Therefore, in this study, the degree of improvements of care services is approached through the best efforts of medical staff, suitability of care service, communications with patients, and the result of patients' effort (Donhee lee, 2017). As the quality of care improves the positive health outcomes, it resulted in increased trust of patients towards the healthcare providers (Ali et al., 2024; Chang et al., 2013).

H5: *Degree of care improvement is positively associated with patient trust*

Patient Trust

Trust is explained as "a presumption that individual will act in a favorable way, or at least not dangerous, and grant for risks that consist of the expectation, feelings of well-being, and promote recovery from illness (Chang et al., 2013). Lower levels of trust, on the other hand, are linked to lower rates of preventative care, less

adherence to doctor's advice, and a higher propensity to change doctors. There are several studies in the literature about patients' trust in primary care settings, but very few that measure trust in healthcare settings. About 65 papers about trust may be found on various websites, including PubMed® and Google Scholar™. All of these publications, however, evaluated the trust determinant; 32 (49%) of them examined the trust determinant in healthcare facilities. Additionally, 12 (37%) of the 32 articles were generally seen as factors of trust. Honesty, secrecy, reliability, communication, competency, fiduciary duty, faithfulness, agency, respect, caring, privacy, and worldwide were some of these determinants. Patient confidence (LoCurto & Berg, 2016).

The concept of trust is always hard to explain and evaluate, that's why it always has been viewed as ambiguous and fuzzy. Services in healthcare facilities are provided by people and for people. The interactivity between healthcare providers and healthcare seekers like patients, physicians, nurses, pharmacists, suppliers, regulators and others takes part in providing an important role in the health system. Trust takes part in providing an important role in healthcare organization where the entire system is largely based on reason and logic. Trust has been linked to several crucial healthcare goals, including self-reported health status, persistence and quality of care, accessibility to healthcare facilities, and improvements in health-related behaviour. First and foremost, trust is linked to improved healthcare service employment and accessibility. Trust affects the efficacy and consistency of therapy amongst patients and increases the likelihood that patients will recommend medications to others.

Trusting patient-provider relationships impact the quality of interaction, level of transparency, autonomy in decision-making, continuity of care, and level of behavioural change involvement. In addition to influencing attitudes and behaviours toward patients, professional standards and competency among healthcare personnel may control trust in the healthcare institution. Researchers began to assess and investigate trust in healthcare organizations about past couples of decades, so to evaluate the healthcare service quality there is no systematized study of trust. They categorized all trust items into eight content dimensions: fidelity, competence, honesty, confidentiality, confidence, communication, system trust, and

fairness. These considerable dimensions provide summarized details and enumerate the element meanings to the latent variable of trust. (Ozawa & Sripad, 2013) . To sustain the interconnection among healthcare service providers and seekers trust is considered an essential key factor. Trust improves the health conditions through consistency of care, constancy to the medicament's specifications, and the ability to look for wellbeing (Chitthanom, n.d.) Trust in health services focuses on interpersonal relationships (patient-doctor). Interpersonal trust is one's belief that the doctor's words and actions are credible and reliable. Trust can increase a patient's health condition, improve satisfaction, loyalty and preference to suggest to others in healthcare services. Trust will improve the relationship among service providers and service seekers and improve patient commitment. (Kurnianingrum & Hidayat, 2020) . The profitability, image and reputation can be improved by patient perception about healthcare organization with patients' word-of mouth and trust. When patients are more so in return it helps hospitals' management in terms of money and reduces time in managing patients' complaints. (Aftab & Razzaq, 2016) . The trust of a service seeker can be enhanced in any healthcare system by improving the level of gratification and improving the level of quality services. Healthcare seekers' well-being and peace of mind can be enhanced by trust(Nemati et al., 2020). Therefore, trust plays an important role as a mediator between the service degree of care improvements and revisiting intention of patients.

H6: *Degree of care improvement is positively associated with patient re-visits intention.*

H7: *The patient trust is positively associated with patient re-visit intension.*

Patient Re-Visit Intension

Customers repurchase intention in a hospital can be considered as revisit intention, it is defined as a personal aim of the service seeker to continue the relationship with a service provider and acquiring the other services from the same one (Jones and Taylor, 2007). When customers received high quality and memorable services from previous visit so it triggered the re-visit intention which made customer gratified (Bowen and Chen, 2001). The cost to fascinate new service seekers is always greater than attracting existing service seekers so Service providers must make sure that their customers have intention to revisit (Wandebori et al., 2017) . The confidence

level of service provider's reliability and integrity can be improved by providing better performance of services that in return gratified the service seeker and that in return establish the trust that acts as a substantial determinant of re-visit intentions. (Chitthanom, n.d.) The service seeker trust on the service provider and their previous experience is linked to the revisit intention. (Kurnianingrum & Hidayat, 2020) . Patient gratification is an essential element to evaluate the quality of healthcare industry, and it also positively influences patient trust. Trust is an essential component to enhance the Revisit Intention. (Yuniarti & Hidayat, 2021)

Nowadays, trust, word of mouth and brand image are used to enhance the patients' re-visit intention by many healthcare organizations, especially private ones to gain a competitive advantage. Brand image is defined as a reflection of customer perceptions about the brand association. In contrast, trust means the patient is confident on healthcare providers and their personnel that they will impart the best for their patients and give the most suitable treatment. Besides, word of mouth can be explained as post-perceived behavior, where users will recommend the services to others (Kusumawardani & Damayanti, n.d.).

Research Framework

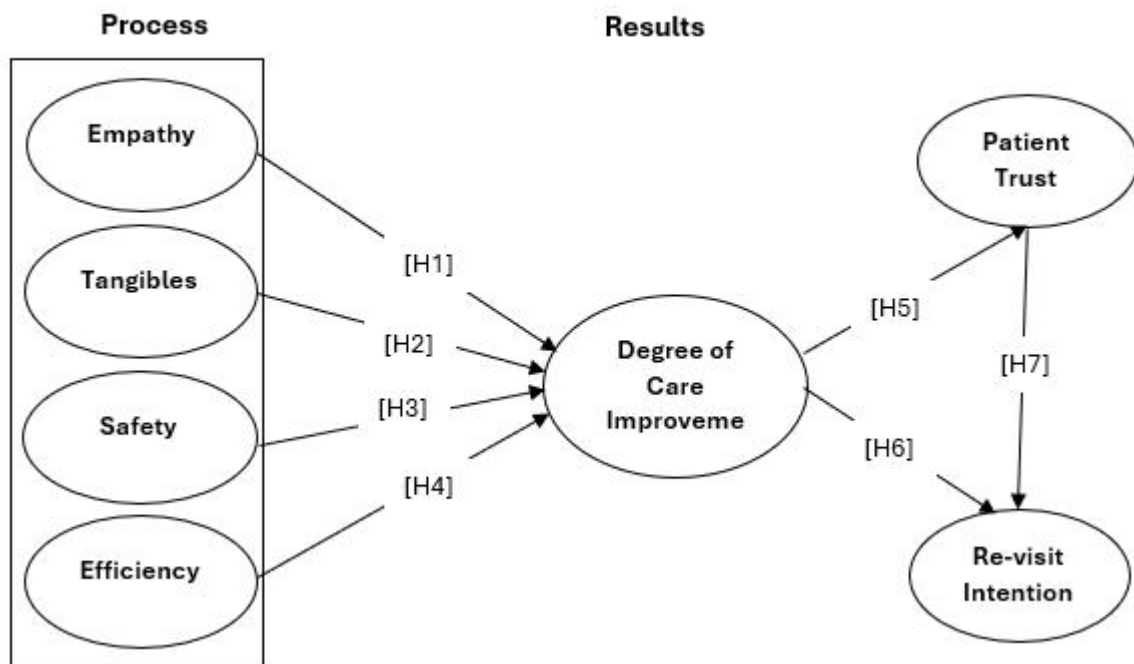


Figure: Research Framework

Materials And Methods

Research Design

Quantitative research method is used to measure the quality of healthcare services using HEALTHQUAL model and hypothesis testing to identify which dimension is mostly contributed to enhance the quality in public hospitals and thereby influencing patient trust. A deductive approach is exercised to conduct this cross-sectional study of the tertiary care hospitals patients. The target population of this study comprised OPD patients of above 15-year of age and their attendants from tertiary care hospital. Also, in case of elderly or the disabled and child patient, their attendants were contacted for the data collection. The research is conducted in tertiary care hospitals for the reason of the lack of quality in hospitals and competition in the health industry is going to be intense due to the quality advantage of some private hospitals. However, the study excludes the children under 15-year age, patient with psychological illness, patient who are not able and not willing to participate and patient with critical illness condition and patients who visit the hospital for the first time. Data was collected from 4 tertiary care hospitals in Karachi city, which most metropolitan city of the country. Moreover, the Structural Equation Modelling technique (PLS-SEM) was utilized to analyze the findings and test the relationship between variables. SPSS was used to perform descriptive analysis of the demographic profile of respondents.

Sampling Technique and Size

Since the hard copy of the questionnaire by a self-administered survey is conducted to see respondents who ever are there at OPD site of the hospital. It is, hence, convenience sampling used to sample people because they are "convenient" sources of data for researchers. The Questionnaire consists of a total 29 no of items. It is intended to cross a sample size of multiple of 5 of the total items that is, we need to cross 145 samples in total, as per the sample recommendation of (Henseler et al., 2015; Sarstedt et al., 2021). A sample size is 159 was gathered for the study.

Survey Instrument

Data has been gathered by questionnaire derived from "HEALTHQUAL model" that include 5 dimensions; empathy, tangible, safety, efficiency aspects that lead to degree of care improvement, and "patient trust" and "patient re-visit intention"

variable. The questionnaire is translated in Urdu and Sindhi language. The construct of translated questionnaires has been checked through pilot testing conducted by taking a group of 20 local people to check equivalency of English and Translated questionnaire and therefore checking for reliability statistics. A fixed alternative questionnaire with five-point Liker scale was administered. The construct derived from sources as mentioned in Table 3.1.

Table 3.1: Measures

Item	No. of items	References
Empathy	04	Donhee lee (2017), Maria, Mendes (2018) Nemati, Bahreini, Pouladi (2020) Kaneva, Syrkiewicz, Grim et al(2022)
Safety	04	Donhee lee (2017),Maria, mendes (2018) Kaneva, syrkiewicz, grim et al(2022)
Tangible	04	Donhee lee (2017), Maria, mendes (2018) Kaneva, syrkiewicz, grim et al(2022)
Efficiency	04	Donhee lee (2017), Maria, mendes (2018) Nemati, Bahreini, Pouladi (2020) Kaneva, syrkiewicz, grim et al(2022)
Degree of Care Improvement	05	Donhee lee (2017), Kaneva, syrkiewicz, Grim et al(2022)
Patient Trust	04	Sachiko, pooja (2015), Salami, Grace, Phaik (2019), Jamie, Gina (2016)
Patient Revisit Intention	03	Salami, Grace, Phaik (2019), Alfica, Kunthi (2020)

Analysis Of Results

Demographic Profile of Respondents

Table 4.1: Demographic Profile

Categories	Frequencies	Percentages
Gender		
Male	77	48.4
Female	82	51.6
Marital Status		
Married	81	50.9
Unmarried	78	49
Education		
No education	19	11.9
Matriculation	21	13.2
Intermediate	16	10.1
Graduation	55	34.6
Masters	45	28.3
PhD.	03	1.9
Age (years)		
15-25	42	26.4
26-35	59	37.1
36-45	28	17.6
46-55	17	10.7
56-65	13	8.2

The patients and their attendants were contacted for the study. The findings in Table 4.1. reveal a nearly balanced gender distribution, with 51.6% female and 48.4% male participants. In terms of marital status, 50.9% of respondents were married, while 49% were unmarried. Educational qualifications varied, with the highest proportion holding a graduation degree (34.6%), followed by master's (28.3%), matriculation (13.2%), no formal education (11.9%), intermediate (10.1%), and PhD (1.9%). The age distribution showed that most respondents fell within the 26-35 years age group (37.1%), followed by 15-25 years (26.4%), 36-45 years (17.6%), 46-55 years (10.7%), and 56-65 years (8.2%). This diverse demographic representation provides a

comprehensive understanding of patient perspectives across various backgrounds in Pakistan.

Analysis of Measurement Model

Measurement model in the PLS-SEM was conducted to obtain reliability and validity measures along with the strength of model fit (Hair et al., 2022; Sarstedt et al., 2021). The outer loadings of the items, reliability with Cronbach alpha, composite reliability (CR), convergent validity with Average Variance Extracted (AVE), discriminant validity measures as discussed ahead.

Table 4.2.: Reliability and Convergent Validity

	Item Loadings	α	CR	AVE
Empathy	0.748	0.767	0.851	0.590
	0.747			
	0.858			
	0.711			
Tangibles	0.846	0.862	0.899	0.642
	0.865			
	0.709			
	0.792			
	0.786			
Safety	0.846	0.863	0.903	0.700
	0.738			
	0.883			
	0.872			
Efficiency	0.831	0.835	0.890	0.670
	0.830			
	0.757			
	0.852			
Degree of Care Improvements	0.831	0.888	0.918	0.691
	0.807			
	0.908			
	0.833			

	0.772			
Patient Trust	0.865	0.857	0.903	0.701
	0.829			
	0.764			
	0.886			
Patient Revisit Intention	0.933	0.882	0.927	0.810
	0.923			
	0.841			

Cronbach Alpha (α) > 0.7, Composite Reliability (CR) > 0.7, Average Variance Extracted (AVE) > 0.5.

The findings of the study indicate that all constructs exhibit strong reliability and validity based on threshold values suggested by prior research (Fornell & Larcker, 1981; Hair et al., 2017; Sarstedt et al., 2021). The item loadings for all constructs exceed the recommended threshold of 0.70, demonstrating adequate individual item reliability (Hair et al., 2019). Cronbach's alpha (α) values for all constructs range from 0.767 to 0.888, surpassing the acceptable threshold of 0.70 (Nunnally & Bernstein, 1994), which confirms internal consistency. Composite reliability (CR) values for all constructs are above 0.7, ranging from 0.851 to 0.927, further supporting construct reliability. Additionally, the Average Variance Extracted (AVE) values exceed the minimum threshold of 0.50 for all constructs, ranging from 0.590 to 0.810, indicating good convergent validity (Hair et al., 2022). These results confirm that the measurement model is reliable and valid, ensuring robust findings in evaluating the impact of service quality dimensions on patient trust and re-visit intention.

Convergent Validity

In Table 4.3., the Fornell-Larcker criterion was applied to assess discriminant validity, confirming that each construct shares more variance with its own indicators than with other constructs (Fornell & Larcker, 1981). The square roots of the AVE values (bolded diagonal elements) are greater than the inter-construct correlations, indicating adequate discriminant validity. Patient revisit intention (0.900) and patient trust (0.837) demonstrate strong construct distinctiveness, while other dimensions

such as empathy (0.768), efficiency (0.819), and safety (0.837) also meet the validity threshold.

Table 4.3: Fornell-Larcker Criterion

	Degree of care improvement	Efficiency	Empathy	Patient re-visits intention	Patient trust	Safety	Tangible
Degree of care improvement	0.831						
Efficiency	0.223	0.819					
Empathy	0.404	0.343	0.768				
Patient re-visits intention	0.394	0.357	0.343	0.900			
Patient trust	0.143	0.316	0.339	0.462	0.837		
Safety	0.226	0.213	0.253	0.351	0.101	0.837	
Tangible	0.229	0.377	0.295	0.317	0.375	0.332	0.802

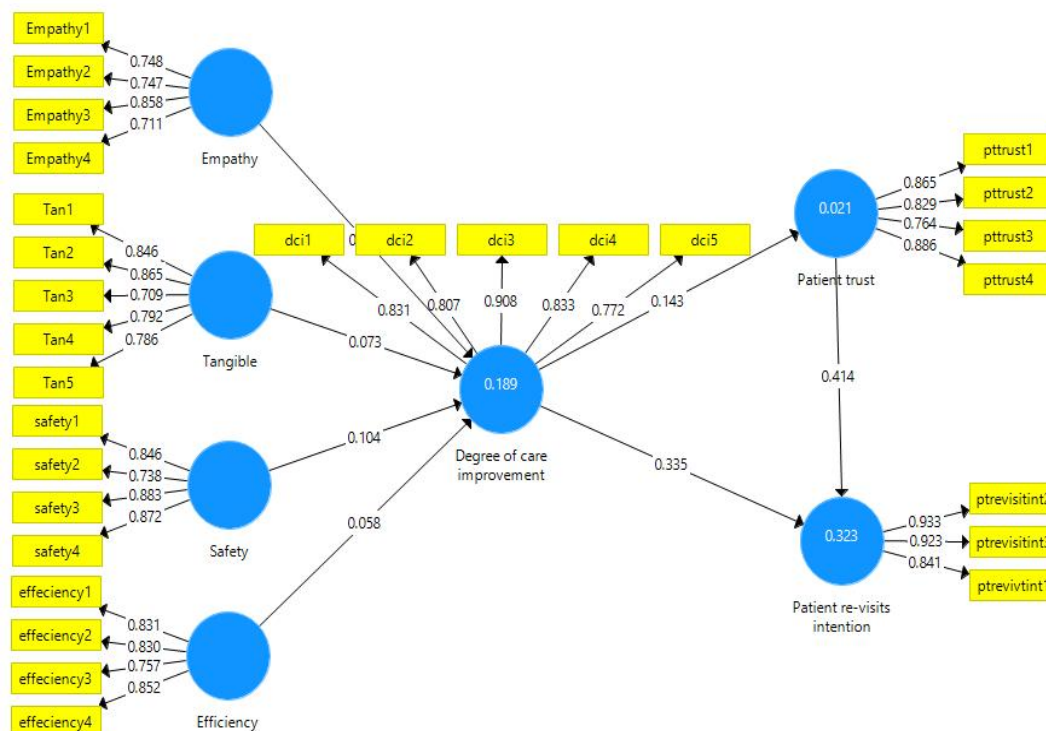
The Heterotrait-Monotrait Ratio (HTMT) analysis was conducted as in Table 4.4 to further assess discriminant validity, ensuring that constructs are conceptually distinct (Henseler et al., 2015). All HTMT values are below the conservative threshold of 0.85, indicating satisfactory discriminant validity. The highest HTMT value is observed between patient trust and patient revisit intention (0.525), which remains within the acceptable range. Other constructs, such as empathy (0.477) and efficiency (0.429), also exhibit appropriate discriminant validity. These results validate the measurement model, ensuring that constructs measure distinct concepts within the study framework.

Table 4.4: Heterotrait-Monotrait Ratio (HTMT)

	Degree of care improvement	Efficiency	Empathy	Patient re-visits intention	Patient trust	Safety	Tangible
Degree of care improvement	0.256						
Efficiency		0.429					
Empathy			0.406				
Patient re-visits intention				0.413			
Patient trust					0.525		
Safety						0.396	
Tangible							0.386

Analysis of Structural Model

A bootstrapping procedure with 5000 sub-samples was performed to execute the Structural Modelling (PLS-SEM) technique (Hair et al., 2019).



The table shows the results of hypothesized relationships.

		Beta Coefficient	S.D.	T Statistic	P Values
H1	Empathy -> Degree of care improvement	0.336	0.094	3.589	0.000
H2	Tangible -> Degree of care improvement	0.073	0.092	0.797	0.426
H3	Safety -> Degree of care improvement	0.104	0.092	1.127	0.260
H4	Efficiency -> Degree of care improvement	0.058	0.088	0.666	0.506
H5	Degree of care improvement -> Patient trust	0.143	0.089	1.613	0.107
H6	Degree of care improvement -> Patient re-visits intention	0.335	0.085	3.947	0.000
H7	Patient trust -> Patient re-visits intention	0.414	0.075	5.501	0.000

The hypothesis testing results indicate varying levels of significance for the proposed relationships. Empathy significantly influences the degree of care improvement ($\beta = 0.336$, $p = 0.000$), confirming its role in enhancing patient care experiences. However, tangible aspects ($\beta = 0.073$, $p = 0.426$), safety ($\beta = 0.104$, $p = 0.260$), and efficiency ($\beta = 0.058$, $p = 0.506$) do not have significant effects on the degree of care

improvement, suggesting that these factors may not independently drive perceived improvements in care. Furthermore, the relationship between the degree of care improvement and patient trust is not statistically significant ($\beta = 0.143$, $p = 0.107$), indicating that improvements in care alone may not directly enhance trust. In contrast, the degree of care improvement significantly impacts patient revisit intention ($\beta = 0.335$, $p = 0.000$), and patient trust strongly predicts patient revisit intention ($\beta = 0.414$, $p = 0.000$). These findings align with prior research (Hair et al., 2019), emphasize the critical role of patient trust in influencing revisit intentions while highlighting the need for further investigation into the non-significant relationships.

Discussion

The findings of this study provide valuable insights into the impact of service quality dimensions on patient trust and revisit intention within the context of tertiary care hospitals in Karachi. The hypothesis testing results reveal significant and non-significant relationships, offering a deeper understanding of how different service quality factors influence patient perceptions and behaviours. Interesting aspect of the study is that most of the previous studies are contradicted to show the positive relationships of the HealthQual dimension with the patients trust, such as Donhee lee (2017), Maria, mendes (2018) Nemat, bahreini, pouladi (2020) Kaneva, syrkiewicz, grim et al., (2022). Empathy was found to have a significant positive effect on the degree of care improvement (H1: $\beta = 0.336$, $p = 0.000$). This finding aligns with previous research (Parasuraman et al., 1988; Hair et al., 2019), which emphasizes that healthcare providers' ability to understand patients' needs and concerns significantly enhances perceived care quality. Empathy-driven interactions foster stronger patient-provider relationships, leading to improved care experiences and satisfaction.

However, tangible aspects (H2: $\beta = 0.073$, $p = 0.426$), safety (H3: $\beta = 0.104$, $p = 0.260$), and efficiency (H4: $\beta = 0.058$, $p = 0.506$) were not found to significantly impact the degree of care improvement. These findings suggest that while physical facilities, procedural safety, and operational efficiency are important components of service quality, they may not independently drive patients' perceptions of care improvement. This result contrasts with some previous studies (Chang et al., 2013;

Wulandari et al., 2024) , which suggest that tangible infrastructure and safety measures contribute to overall service perceptions. A possible explanation for these non-significant findings could be that patients in tertiary care hospitals prioritize emotional and interpersonal aspects of care, such as empathy, over physical and operational factors.

The relationship between the degree of care improvement and patient trust (H5: $\beta = 0.143$, $p = 0.107$) was also found to be non-significant, indicating that perceived improvements in care do not directly translate into increased trust. This finding suggests that trust-building mechanisms in healthcare go beyond service quality and may involve factors such as consistent treatment outcomes, transparency in communication, and reputation (Agarwal, 2023; Chang et al., 2013; Estiri et al., 2023). Future research could explore additional mediators or moderators that influence the trust-building process in healthcare settings.

In contrast, the degree of care improvement was found to have a significant positive effect on patient revisit intention (H6: $\beta = 0.335$, $p = 0.000$). This finding too is consistent with previous studies (Alkhatib & Aloqaily, 2024; Estiri et al., 2023) , which suggest that patients are more likely to return to a healthcare facility when they perceive that the care they received has led to positive health outcomes. This highlights the importance of continuous quality improvements in fostering patient loyalty.

Additionally, patient trust was identified as a strong predictor of patient revisit intention (H7: $\beta = 0.414$, $p = 0.000$). This finding is supported by prior research (Chang et al., 2013), which emphasizes that trust is a critical factor in shaping patient behaviours. Patients who trust their healthcare providers are more likely to exhibit long-term loyalty and adherence to treatment plans. This underscores the need for healthcare institutions to implement strategies aimed at strengthening trust, such as transparent communication, ethical practices, and personalized care.

Overall, these findings contribute to the existing literature on healthcare service quality by highlighting the pivotal role of empathy and trust in influencing patient behaviour. The results suggest that healthcare providers should prioritize patient-centred approaches that enhance interpersonal interactions and trust-building to improve service quality and patient retention. Future studies could

further explore the moderating effects of demographic variables, cultural factors, and healthcare policies in shaping these relationships.

Conclusion

The findings highlight the key role of empathy in improving the degree of care improvement, proposing that healthcare managers should prioritize training and development programs that enhance the empathetic skills of healthcare providers. Investing in communication training, emotional intelligence development, and patient-centred healthcare initiatives can lead to tangible improvements in service quality. Additionally, since other factors such as tangibility, safety, and efficiency did not significantly influence care improvement, decision-makers should reevaluate resource allocation strategies. Rather than overemphasizing infrastructural enhancements, more attention should be given to fostering a culture of compassionate care. Moreover, the strong impact of care improvement on patient revisit intention underscores the importance of continuous service improvements to sustain patient loyalty. Healthcare organizations should implement feedback mechanisms to monitor patient experiences and address areas that hinder perceived care quality. Although patient trust was not significantly influenced by care improvement, its strong effect on revisit intention suggests that building and maintaining trust should remain a priority. Open and transparent communication, ethical service delivery, and personalized patient engagement strategies can help in strengthening trust and fostering long-term patient relationships. Finally, given that patient revisit intention is significantly driven by both care improvement and trust, healthcare administrators should adopt a holistic approach to service management. By integrating empathy-driven care improvements with trust-building strategies, healthcare providers can enhance patient retention, ensuring sustainable service utilization and long-term success.

Managerial Implication

This study could be utilized by administrative decision making to improve the quality aspects of hospitals by considering the view of customers by identifying the gap in which services need to be improved. This study also applies to employees to know their perspective of quality services needed to be improved. This model helps to continuously improve the healthcare system that helps for gaining patient trust,

making continuous relationship with the patients and enhance the performance of organization, profitability and image of the hospital.

Limitation and Future Research Directions

The survey was conducted in the tense OPD environment of tertiary care hospitals through a group of students. The quality of data may have suffered because of the respondents in a hurry or tense situation and students' commitment to the survey. This limitation might have resulted in most of the hypotheses being insignificant as per previous literature. That is why we suggest that research into a wider healthcare institution and a larger sample size must be carried out. The limitation of the study is since this study is done in Karachi hospitals only and implementing the research in other hospitals of Karachi and Pakistan could affect the result of the study. The research is conducted only by OPD patients so it may be affecting the result in different departments of hospitals. This study should be repeated with qualitative measures to get inside into the care improvement and quality dimension. This is because many of the HEALTHQUAL dimensions have not proved to have significant effect on the degree of care improvement. This study or model can also be used for comparative analysis of different sizes and types of hospitals like primary, secondary and tertiary care hospitals and government and private hospitals. It can also be applied on comparative analysis of national and international hospitals and healthcare systems.

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