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Impact of Service Quality Dimensions on Customer Satisfaction, Considering Service Performance as Mediator: A Study of Healthcare Sector of Pakistan

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ABSTRACT

The primary objective of this study is to evaluate the impact of service quality characteristics on customer satisfaction within the healthcare sector of Pakistan. Additionally, the study seeks to investigate the mediating role of service performance in this particular relationship. The aspects being examined, including "tangibility," "reliability," "assurance," "empathy," and "responsiveness," assess the influence of service quality on customer satisfaction. A quantitative research strategy was utilized in this study, employing a deductive approach and adhering to the positivist paradigm. The data collection process involved gathering information from a sample of 355 patients in Pakistan, selected through cluster sampling. The results indicate that, with the exception of reliability, all other characteristics of service quality (tangibility, empathy, responsiveness, and assurance) have a substantial impact on customer satisfaction in the healthcare industry of Pakistan. Therefore, this research provides valuable insights for hospital managers and policymakers in developing effective strategies and initiatives to boost patient satisfaction, improve the quality of services, and ultimately improve healthcare outcomes. In summary, notwithstanding the obstacles encountered, the act of monitoring the quality of healthcare services has the potential to bring about systematic enhancements within public healthcare institutions.

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1. Introduction

The provision of high-quality service is of utmost importance in the Service industry in order to achieve success. The monitoring and improvement of service quality is of supreme importance in the contemporary competitive landscape, as it contributes to the optimization of operational efficiency and the expansion of firm market share (Anderson & Zeithaml, 1984; Babakus & Boller, 1992; Garvin, 1983). According to Oliver (1980), quality improvement plays a crucial role in determining consumer satisfaction and buy intent in both the manufacturing and service sectors. According to a number of scholars (Gremler, Gwinner, & Brown, 2001; Omar & Schiffman, 1995; Radwin, 2000), the significance of quality in relation to consumer satisfaction is well acknowledged. According to Kumar, Smart, Maddern, and Maull (2008), numerous commercial organizations place a high emphasis on addressing service quality concerns as a means to surpass their competitors. This principle carries heightened importance within the healthcare industry. Despite facing limitations such as insufficient hospital bed capacity and a scarcity of highly skilled medical professionals, the healthcare industry in developing countries like Pakistan has witnessed notable growth and substantial demand for its services from both local and international patients.

This growth is driven by a multitude of factors, including an ever-growing population, a rising prevalence of chronic conditions, and increasing awareness of preventive healthcare

measures. Furthermore, economic prosperity and government initiatives have made healthcare services more accessible and affordable for a broader segment of the population. Nevertheless, it is plausible that the expansion may endure in the forthcoming years (Burns, Hyde, Killett, Poland, & Gray, 2014). The authors Anderson and Zeithaml (1984) consider the provision of high-quality service and the cultivation of patient loyalty to be fundamental pillars in healthcare. The identification of distinct components of high-quality service that have a substantial impact on patient satisfaction is crucial. Therefore, it is imperative for hospital administration to allocate their attention more effectively towards these particular concerns, notwithstanding the significant dependence of patients on the initial treatment and subsequent referral by physicians to a specific hospital (Gogoi, 2020).

According to Hashemi, Marzuki, Mohammed, and Kiumarsi (2020), healthcare performance is of utmost importance as it encompasses various stakeholders such as patients, healthcare professionals, the general public, and governmental bodies. According to Shabbir, Malik, and Malik (2016), there is a significant disparity in the performance of healthcare compared to traditional services. In addition, it has been argued that public healthcare services exhibit a lack of self-sustainability in administrative matters, prioritizing unquestioning adherence over the well-being of the general population (Hashemi et al., 2020). However, it is widely acknowledged in academic literature that public healthcare centers often face scrutiny and allegations of carelessness, resource mismanagement, and inadequate administration (da Silva & e Abreu, 2010). In the fiscal year 2015-16, the government of Pakistan dedicated a sum of 168 billion Pakistani rupees towards the healthcare sector. However, it is apparent that there has been a noticeable rise in the death rate.

The Punjab Institute of Cardiology documented in December 2015 that there were 112 fatalities and 46,000 patients at high risk as a result of the unavailability and expiration of medications. Pakistan is positioned at the 149th position in the global healthcare rankings, exhibiting a healthcare facilities provider score of 49%. In comparison, Qatar achieves a score of 96%, while Saudi Arabia attains a score of 75%. Given that hospitals possess life-saving resources, it is imperative for the public healthcare system in Pakistan to prioritize the pursuit of practical research in this area. In recent years, there has been an observed trend in the global healthcare sector, wherein individuals are increasingly seeking greater quality of healthcare services as they strive for higher standards of living and allocate their resources accordingly.

Similar to other nations, Pakistan's healthcare system encompasses a comprehensive framework that integrates various sectors, such as public and private, formal and non-formal, as well as contemporary and traditional medical practices. Both profit and nonprofit organizations play a crucial role in ensuring the provision of high-quality healthcare services to the populace. The assertion that the private health sector is playing a minimal role in Pakistan's healthcare system has recently come under scrutiny. It is evident that the private sector is currently providing healthcare coverage to a larger number of patients compared to the public sector. Therefore, it may be concluded that the government is only offering 20 percent of these amenities to the general population. The current situation is prevalent in both urban and rural regions of Pakistan. The private sector caters to individuals across various socioeconomic strata by offering a wide range of services, aiming to meet customer needs and expand their client base. Another notable aspect is that the private sector cannot fulfil all of its responsibilities in isolation. The private sector's ability to operate effectively within a state is contingent upon government backing (Padma, Rajendran, & Lokachari, 2010).

Pakistan allocates a mere 3 percent of its Gross Domestic Product (GDP) on health services, with the government responsible for 30 percent of these expenditures and the private sector accounting for the remaining 70 percent. The services provided by private sector hospitals are commendable due to their commitment to maintaining high standards of quality care. Additionally, these hospitals have played a crucial role in improving access to health facilities, critical medications, and trustworthy diagnostic services for the general public. Moreover, private sector hospitals have effectively addressed the diverse demands of their clientele. The private sector has played a significant role in addressing the ongoing limitations within the public sector, thereby contributing to the preservation of mother and newborn populations. The private sector has also prioritized innovation and employed social and digital marketing strategies to raise public awareness about health issues, such as family planning and reproductive healthcare services. Furthermore, it provides crucial support and funding for the

prominent and progressive medical education programs within the nation, hence facilitating worldwide competitiveness.

The present health indicators exhibit favorable patterns in terms of population growth and rates of newborn and maternal mortality. Pakistan is presently positioned at the 125th position among a total of 180 nations in the Human Development Index (HDI) as determined by the United Nations Development Program (UNDP). The placement is contingent upon the well-being of persons and their future prospects, as well as their level of efficiency and quality of life. According to the findings of this analysis, Pakistan is now facing significant challenges in its healthcare system. Irrespective of the current situation, Pakistan is allocating insufficient resources towards its healthcare infrastructure.

Furthermore, as pointed out by Shaikh and Siddiqui (2018), the regulation of the pharmaceutical industry in Pakistan has posed a significant challenge. Consequently, given the aforementioned arguments, it becomes imperative to delve into the study of service quality within the healthcare sector, recognizing patients as customers. Hence, the main aim of this study is to comprehensively examine the influence of service quality dimensions on customer satisfaction in the healthcare sector of Pakistan, while also considering the potential mediating role of service performance as discussed by Rashid and Rasheed (2023).

2. Review of Literature

The application of equity theory within the healthcare sector of Pakistan might offer valuable insights on the impact of patients' perceptions regarding fairness across several dimensions of service quality, including responsiveness, reliability, assurance, empathy, and tangibles, on their overall satisfaction with healthcare services. Patients can assess the fairness of their treatment relative to other patients or healthcare organizations by comparing their experiences with the resources (such as time and effort) they invest and the results (such as quality of care and access to therapies) they obtain.

2.1. Service Quality

The primary focus of the study on Service Quality literature is to examine the essence of Service Quality and explore its possible dimensions and measurements. A novel approach to enhancing the quality of business development emerged in the 1980s, which focused on the use of hitherto untapped resources. As consumers became more knowledgeable and discerning, businesses recognized that product quality alone was not sufficient to maintain a competitive edge and needed to be complemented by the quality of service (Chahal, Sharma, & Gupta, 2004).

The concept of intangibility, heterogeneity, and inseparability, as introduced by Parasuraman, Zeithaml, and Berry (1985), can be applied to characterize the nature of services. The concept of service intangibility refers to the inability to quantify value in comparison to tangible items prior to the occurrence of transactions. Heterogeneity is manifested in the variability of the delivery of a benefit on a day-to-day basis. Deviances may occur as a result of various factors, including the attitudes of service providers and clients. It is important to note that the qualities and consistency of products remain unchanged throughout the expected lifespan of the product. The third attribute of administrations, known as inseparability, is to the inherent connection that occurs during interactions between consumers and frontline employees (Parasuraman et al., 1985).

The last cited work may also be connected to the concept of simultaneous creation, delivery, and consumption within organizations (Harvey, 1998). However, the quality of a product is not contingent upon the framework of interaction described earlier. Given the unique attributes of organizations, it becomes evident that services, in contrast to tangible goods, are inherently intricate and encompass a multitude of subjective facets. Thus, if we define the essence of services as intricate, we can similarly characterize the quality of service as complex. Moreover, the demands of consumers escalate in parallel with the proliferation of service establishments and their respective forms, which is largely influenced by their surroundings.

Customers acquire valuable information through advertising, thereby augmenting their disposable income. Consequently, they have become increasingly reliant on services.

Unfortunately, the service industry often fails to meet customer demand due to issues like inadequate management, a shortage of skilled labor, high employee turnover, and a lack of technological infrastructure. As competition intensifies, the imperative to provide superior service becomes even more pronounced. Service quality consistently plays a pivotal role in customer satisfaction, alongside other key determinants such as customer identity, cost, and convenience (Natalisa & Subroto, 2003). This is because service quality falls within the purview of the service provider, and an improvement in service quality invariably leads to increased customer satisfaction, a concept acknowledged by Parasuraman et al. (1985) as the "Recognized service quality."

As the Healthcare Service sector shares certain similarities with general services, understanding quality from the perspective of the latter can offer insights into quality within the healthcare domain. Following the modified SERVQUAL model, it encompasses 22 pairs of items, with one half reflecting customer expectations regarding service quality and the other half gauging consumer perceptions of the actual service level offered by the provider (Miranda, Chamorro, Murillo, & Vega, 2010). Hence, within the framework of SERVQUAL, quality can be defined as the disparity between the expectations of consumers and their actual impressions of the service rendered (Chahal et al., 2004). Consistent with prevailing academic perspectives on service quality, Lee, Khong, and Ghista (2006) established a correlation between service quality and the capacity to fulfil or surpass consumer expectations.

The service quality concept encompasses an additional dimension that pertains to the understanding and perception of service quality. This dimension is predominantly influenced by the customer's assumptions and expectations regarding the services provided (Dagger, Sweeney, & Johnson, 2007).

2.2. Theoretical Basis of Service Quality Dimensions

2.2.1. Tangible

S. A. Raza, Umer, Qureshi, and Dahri (2020) characterizes effects as "the tangible representation of work environments, equipment, and personnel within a healthcare facility undergoing a process of recovery." According to Fitzsimmons and Fitzsimmons (2006) "significant refers to the tangible elements of actual workplaces, materials, and equipment, as well as the communication structure that is characteristic of the attention and consideration given to the specific details advertised by the service provider".

2.2.2. Reliability

According to S. A. Raza et al. (2020), "reliability refers to the provision of support in a manner and timeframe that is guaranteed. Unwavering quality encompasses the effective handling of customer service matters, such as providing timely assistance and ensuring error-free documentation". The concept of quality is a fundamental aspect within organizational frameworks, as shown by previous studies (Parasuraman et al., 1985).

2.2.3. Assurance

According to S. A. Raza et al. (2020), "assurance refers to the process of personnel possessing reliable data and developing a comprehensive understanding of building trust". Affirmation is derived from a circumspect and knowledgeable workforce that can effectively communicate assurance and acceptance (Parasuraman et al., 1985).

Felix (2017) recognized that enhancing customer satisfaction within the prosperity sector can be achieved through the cultivation of secure transactions, which promote a sense of trust and confidence.

2.2.4. Empathy

as described by (S. A. Raza et al., 2020), refers "to the act of healthcare personnel immersing themselves in the perspective of patients and comprehending their needs". According to Parasuraman et al. (1985), compassion can be defined "as the provision of caring and individualized consideration by healthcare institutions towards their patients". It involves the personnel' attentiveness to understanding the requirements of the clients. The impact of service quality on customer satisfaction across many sectors of the healthcare industry is a notable aspect worth considering (Wieseke, Ullrich, Christ, & Van Dick, 2007).

2.2.5. Responsiveness

The concept of responsiveness "refers to the ability of a system or entity to react and adapt to in their study, S. A. Raza et al. (2020) discusses the importance of healthcare professionals' willingness to provide aid to patients promptly". They emphasize the need to offer support as quickly as feasible. Responsiveness can be defined as "the ability to assist consumers and provide prompt service" (Parasuraman et al., 1985). Several studies have demonstrated the positive impact of responsiveness on customer satisfaction. Notable contributions in this area include the works of Appannan, Doraisamy, and Hui (2013), El Saghier and Nathan (2013), Moh'd Khamis (2014), Tufail, Hmayon, Javed, Shabbir, and Shahid (2016), and Felix (2017).

This assessment assesses the patient's perception of the overall beneficial experience they have received within the healthcare facility. According to De Man, Gemmel, Vlerick, Van Rijk, and Dierckx (2002), it is crucial to effectively organize patients' acknowledgments regarding the quality of healthcare administration for an extended period of time. The focus also serves as a significant link between patients' perceptions and the entire performance of healthcare organizations, ultimately influencing customer satisfaction. The overall image has a significant influence on consumer satisfaction and expectations, particularly when customers possess reasonable and realistic expectations. In the context of healthcare management, it is widely recognized that the reputation of the healing community plays a crucial role in determining the quality of healthcare services (Padma et al., 2010).

Table 1: Summary of Service Quality Dimensions

Dimensions	Service Quality	Authors
Reliability		Parasuraman et al. (1985), V. A. Zeithaml (1988), Yang and Fang (2004), Liu and Arnett (2000), Van Riel, Liljander, and Jurriens (2001)
Responsiveness		Parasuraman et al. (1985)
Tangibles		Parasuraman et al. (1985), V. A. Zeithaml (1988)
Empathy		V. A. Zeithaml (1988), DeLone and McLean (2003), Liu and Arnett (2000), Van Riel et al. (2001)
Assurance		V. A. Zeithaml (1988), DeLone and McLean (2003), Liu & Arnett (2002), Van Riel et al. (2001)

2.3. Service Quality and Service Performance

Administration quality could be an idea that has around amazing interested and fight about inside the explore composing since of the difficulties in both describing it and estimating it with no overall arrangement creating on either (Wieseke et al., 2007). There are various different' 'definitions ''regarding what is inferred by benefit quality. One that is usually used portrays benefit quality as how much an advantage address client's issues or expectations (Asubonteng, McCleary, & Swan, 1996; Dotchin & Oakland, 1994; Lewis & Mitchell, 1990; Wisniewski, 1996). Customer satisfaction and service performance are all factors that influence on service quality. The wait period factors are related to things like the admissions procedure, billing process, nurse and doctor availability, and effective appointment scheduling. A service quality metric is customer satisfaction, which is a subjective indicator of service quality. Customer satisfaction encourages patients to return to the same hospital in the future (Sardana, 2003) which leads to patient satisfaction.

Customer happiness and service performance are influenced by a number of factors. Physician therapy, nursing care, supportive staff conduct, convenient visiting hours, and emergency assistance availability are among them (Sardana, 2003) as are food room characteristics, and treatment. Patient happiness and service performance are influenced by reduced waiting times and customer satisfaction with regard to hospital healthcare service their functioning, which leads to development of the hospital perception care. The current study offers researchers and health care professional significant insight into the development of the healthcare service quality and service performance scales and measurements, which are highly desired by today patients. Furthermore, providing high quality healthcare service provides a solid foundation for provides to compete with well-known and well-respected healthcare service providers. Service quality defined by (Dotchin & Oakland, 1994; Lewis, 1991) as the difference among a customer's real experience and their expectations.

According to Dedeke (2003) what a customer receives out of an encounter is quality. Garvin (1983) thought about equality in terms of internal and external weaknesses. There is a shortage of writing zeroing in on help quality and execution. The SERVQUAL model (Parasuraman et al., 1985) is utilized in most of studies on assistance quality. This approach estimates quality from a general viewpoint as opposed to communicating regarding administration quality and administration execution points of view. Administration execution was considered by Brady and Cronin Jr (2001) and just as one of the component of administration quality. Subsequently, the objective of this paper is to clarify the creation and refining of a multi-faceted, various leveled scale for evaluating administration quality and execution utilizing a coordinated model which incorporates buyer results. The examination is centered around India's general medical care framework, which is the most open to the greater part of the populace. Nonetheless, general medical care associations are restricted in their capacity to build administration quality because of fast innovative advances in the healthcare market, expanding contest, and patient mindfulness, among different variables (Chahal et al., 2004; Dasanayaka, Gunasekera, & Sardana, 2012).

2.4. Service Performance and Customer Satisfaction

By and large, the client has been portrayed as a weak person who is viewed as a clinical subject, uncovered and individual ward (Foucault, 1973). Nonetheless, as per the current openness of the client position, the job of the patient's perspective has moved nearer to that of the client, through help execution and execution. Somewhat recently of the 20th century, studies on administration. It is a progress system where the patient's discernment becomes subject to the idea of the customer, obtains mastery, tracks down other options, voyages, simply decides and takes part in the advancement of significant worth (Nordgren, 2009). Nature of administration is generally considered a mental design, while consumer loyalty is a more nuanced idea including mental and passionate components. Consumer loyalty is all the more explicitly viewed as a social response related with the impression of convictions that patients have in collaboration with medical care administrations (Smulders et al., 2016). Consumer loyalty is characterized as an enthusiastic reaction by Zineldin (2006). While consumer loyalty and administration execution are generally considered a more extensive idea with a particular normal highlight while the appraisal of consumer loyalty depends on the elements of administration quality (V. Zeithaml & Bitner, 2003). Consumer loyalty is characterized as an assessment of a particular medical care work (Linder-Pelz, 1982; Subiyakto & Sebastian, 2020).

2.5. Service Performance as Mediator

Service performance is a significant measure of the effectiveness and quality of hospital services in various units, and it is a fundamental component of quality system improvement. (Rostami, Abedi, Aliasghar, Abedini, & Mansori, 2018). This critical issue manifests itself when service performance is used as the foundation for improving service quality while providing services to inpatients and outpatients. In the competitive healthcare market, institutions that focus on the satisfaction of service recipients will be more successful. Patients' thoughts and feelings about hospital care have a significant impact on the organization's overall effectiveness. As a result, service performance is an important component of organizational efficiency. Only those firms that can meet the demand of customers' requirements with minimal cost and highest quality would be capable of surviving. Service performance elements can provide comfort, calm, and feelings of safety for patient, as the primary goal of healthcare is to increase their ell-being. (Anabila, Anome, & Kwadjo Kumi, 2020).

There are many papers about assessing service quality and determined the gap, however the most crucial variable, such as convinces, safety, and protocols have gotten little focus. It is explored how moderator's play a mediating function in the quality of physical and social environment in perspective of diverse patient's perception of healthcare environments. Hospital elements influencing patient satisfaction (healthcare facility, hospital service, healthcare, hoteling, nutritional, and hospitalization services, etc.) are assessed for this aim. Hospital structure, procedure, and outcomes of care, as well as Socio-demographic situations, physical and mental, expectations of patients in various hospital ads, are all elements that influence service performance. Because the primary mission of hospitals is satisfying provide quality care that satisfies the needs of patients, service performance may suggest proper service provision, and offering reduced services to patients always has harmed service provides' integrity and harmed customers confidence.

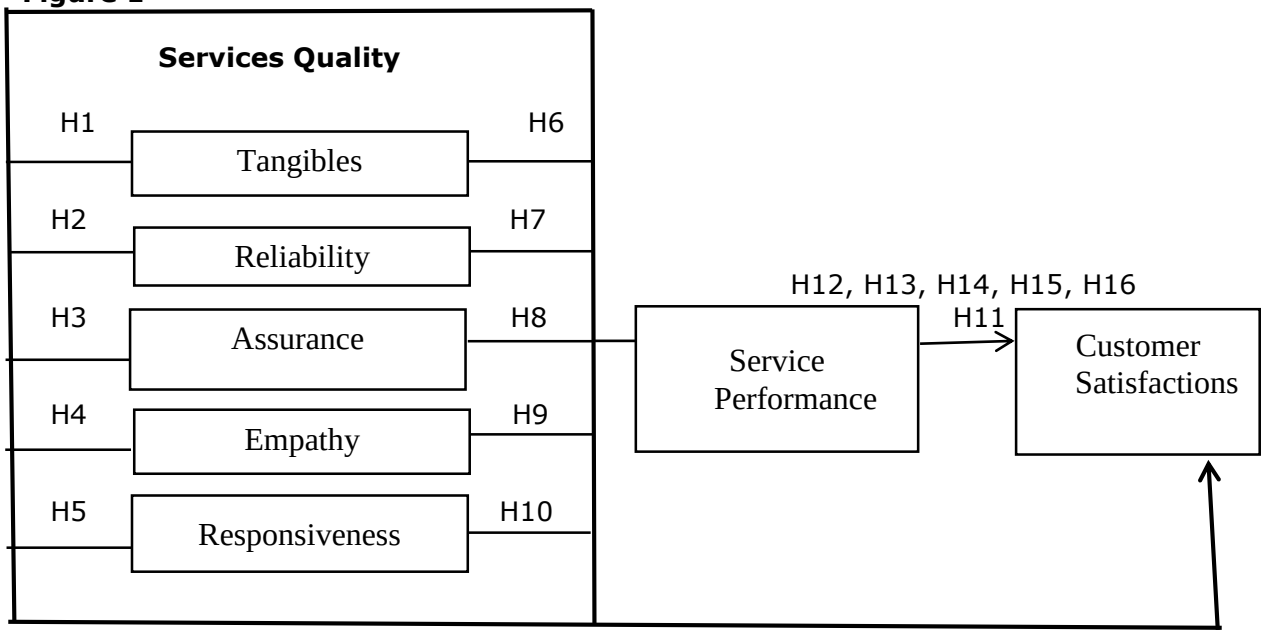
2.6. Service Quality & Customer Satisfaction

According to H. Raza and Burney (2020), consumer loyalty is contingent upon the quality of benefits provided and is positively correlated with the quality of support. According to Ojo (2010), higher quality is associated with greater client happiness. The assessment of help quality significantly impacts the assurance of customer engagement (Kheng, Mahamad, & Ramayah, 2010). According to Mahamad and Ramayah (2010), there exists a significant positive correlation between all measures of service quality and customer satisfaction. Consequently, total service quality acts as a mediator in this relationship.

From the standpoint of consumer loyalty, the factors of administration quality efficiency and competitive advantage have been examined. Serving client and giving them with happiness have wound up the witticism of present-day displaying speculation (Mishra, Sahoo, Mishra, & Patra, 2010). As Sureshchandar, Rajendran, and Anantharaman (2002) suggested the evaluation units of customer fulfillment should be made with similar factors as advantage quality. A basic obligation to the customer fulfillment as for the nature of advantage given by the center is whether the facility satisfies its commitment in the public arena. Normally displayed in association with its part as goes between of social achievement and progression.

3. Framework

Figure 1



3.1. Hypothesis

H_1: There is the significant relationship between Tangibles and Customer Satisfaction in Health sector of Pakistan

H_2: There is the significant relationship between Reliability and Customer Satisfaction in Health sector of Pakistan

H_3: There is the significant relationship between Assurance and Customer Satisfaction in Health sector of Pakistan

H_4: There is the significant relationship between Empathy and Customer Satisfaction in Health sector of Pakistan

H_5: There is the significant relationship between Responsiveness and Customer Satisfaction in Health sector of Pakistan.

H_6: There is the significant relationship between Tangible and Service Performance in Health sector of Pakistan

H_7: There is the significant relationship between Reliability and Service Performance in Health sector of Pakistan.

H_8: There is the significant relationship between Assurance and Service Performance in Health sector of Pakistan.

H_9: There is the significant relationship between Empathy and Service Performance in Health sector of Pakistan

H_{10}: There is the significant relationship between Responsiveness and Service Performance in Health sector of Pakistan

H_{11}: There is the significant relationship between Service Performance and Customer Satisfaction in Health sector of Pakistan

H_{12}: Service Performance Mediates the relationship between Tangibles and Customer Satisfaction.

H_{13}: Service Performance Mediates the relationship between Reliability and Customer Satisfaction.

H_{14}: Service Performance Mediates the relationship between Assurance and Customer Satisfaction.

H_{15}: Service Performance Mediates the relationship between Empathy and Customer Satisfaction.

H_{16}: Service Performance Mediates the relationship between Responsiveness and Customer Satisfaction.

4. Methodology

This study used a quantitative methodology to assess service quality, specifically concentrating on "customer satisfaction" and service performance within the public healthcare system in Pakistan. In order to obtain data, structured interviews are administered to patients with the objective of acquiring insights into their individual experiences, perspectives, and affective reactions pertaining to the healthcare services they are provided.

The target population of this study consists of individuals who are 25 years of age or older who are currently admitted to three district hospitals in Punjab, specifically Lahore, Multan, and Faisalabad. The sample size of 384 respondents was determined using the Survey System software, taking into account the estimated population of Faisalabad in 2011, which was roughly 3,462,000. It was also considered that around 83% of the province population relied on public healthcare services during that period.

Data gathering methods encompass both primary and secondary sources, with a particular emphasis on conducting patient interviews. The utilization of a tool known as The Quality Score Tool, which consists of closed-ended questions, is employed to record respondent demographics and assess their judgements regarding the quality of hospital services. The study utilizes a multi-stage cluster sampling methodology in order to gather data from the designated healthcare facilities. The selected sample for study consists of in-patients who were admitted to district hospitals in Faisalabad. These hospitals were chosen as they are considered to be representative of the wider population. A preliminary investigation is undertaken employing convenience sampling as a means to assess the dependability of the theoretical framework.

The determination of the sample size is based on a confidence level of 95%, a confidence interval of 10.12, and a standard percentage of 50%. Consequently, a sample size of 71 is obtained, taking into consideration the target population. The process of data analysis will encompass the utilization of statistical methodologies in order to investigate the interconnections of service quality, customer satisfaction, and service performance. This study aims to conduct a complete quantitative research analysis on service quality in the public healthcare sector of Pakistan. The primary focus will be on the viewpoints and experiences of patients at three main district hospitals.

4.1. Data Analysis

The present work employs various methodologies, including descriptive analysis, structural equation modelling (SEM), measurement modelling, and cross-loading, to examine the dimensions of the SERVPERF model and derive meaningful findings. The study employed a structural model to examine the links between variables. Confirmatory factor analysis was conducted to assess the validity of the measurement model.

Discriminant validity was assessed to ensure that the constructs under investigation were distinct from one another. The findings of the structural equation modelling (SEM) analysis revealed the direct correlations between variables. Additionally, the SEM analysis was used to examine the mediating effects of certain variables. The aforementioned approaches employed in this study.

5. Results

5.1. Demographics

The generalizability of study findings is contingent upon the use of proper sampling techniques. The study's population comprises public sector hospitals in Pakistan. In the region of Punjab, a multi-stage sampling approach utilizing cluster sampling was employed to choose three cities for data collection. Three cities, namely Lahore, Multan, and Faisalabad, have been selected from the province of Punjab. The study utilizes self-administered questionnaires. The demographic information of the respondents is outlined in Table 4.1. The study consisted of 391 respondents, with males comprising 68.3% and females comprising 31.7% of the sample. The majority of responders in the study are male. The age distribution of the 104 respondents indicates that 26.6 percent of them are within the age range of 21 to 25 years. 26.6 percent of the total respondents, or 32.5 percent of the respondents (127 individuals), fall between the age range of 26-30 years. The bulk of respondents belong to this age group. Out of the total sample size, 91 participants fall into the age range of 31-35 years, constituting a proportion of 23.3%. Among the population aged 41 and above, there are 69 individuals, or 17.6 percent of the population.

Table 1: Demographics Measures Characteristics Scales Measure Frequency Percentage

Characteristics	Scales Measure	Frequency	Percentage
Gender	Male	267	68.3
	Female	124	31.7
	Total	391	100
Age	(21-25)	104	26.6
	(26-30)	127	32.5
	(31-35)	91	23.3
	(41 or above)	69	17.6
	Total	391	100.0
Qualification	Under matric	35	9.0
	Intermediate	108	27.6
	graduation	171	43.7
	Post-graduation	77	19.7
	Total	391	100.0

5.2. Descriptive Statistics

Table 2 displays the descriptive statistics, whereby the variable "Gender" demonstrates a minimum value of 1 and a maximum value of 2. The variable "Gender" has a mean value of 1.27, with a minimal standard deviation of 0.447. The age variable is bounded by a lower limit of 1 and an upper limit of 5. The sample has a mean value of 2.04, accompanied by a standard deviation of 0.858. Qualifications are assigned a numerical value ranging from 1 to 5. The research revealed that the average qualification score was 1.82, accompanied by a maximum standard deviation of 0.926.

Table 2: Descriptive Statistics

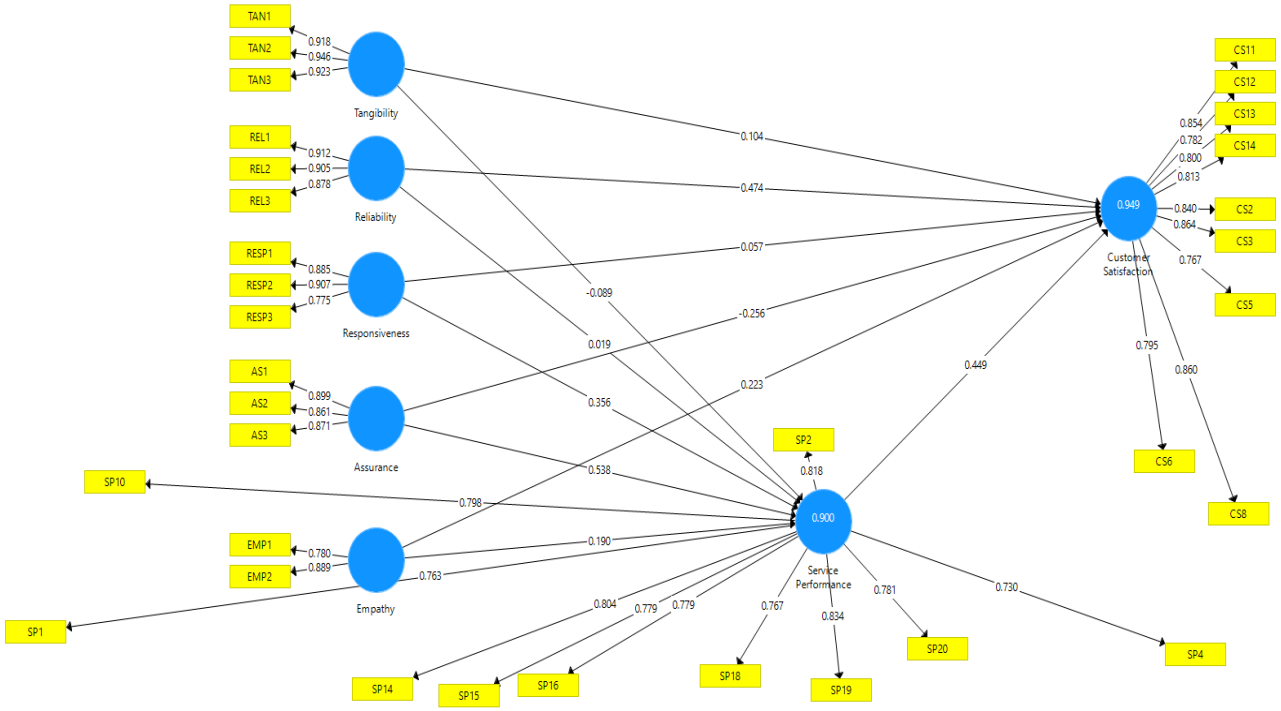
	TAN	REL	RESP	AS	EMP	CS	SP
N	391	391	391	391	391	391	391
Mean	2.7229	2.7229	2.8039	2.7999	2.8913	2.7182	2.8165
Std. Deviation	1.14066	1.14066	1.11666	1.14428	1.16149	1.04258	1.04291
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.25	5.00	5.00	5.00

5.3. Measurement Model

The measurement model, as stated by Simonetti, Sarnacchiaro, and González Rodríguez (2017), refers to a model employed in structural equation modelling. Its purpose is to quantitatively assess the association between research findings, referred to as indicators, and the underlying components or elements that are hypothesized. The measurement models are denoted as the implicit or explicit models that establish the connection between the latent variable and its indicators. Structural equation modelling employs a specific framework to quantitatively assess the association between study findings, referred to as indicators, and the postulated underlying components or causes.

During the process of conducting a confirmatory factor analysis, scholars evaluate a proposed measurement model that delineates the relationships between observed indicators and the latent variables that serve as their underlying factors or influences. The structural equation model, Partial Least Squares-Path Modelling (PLS-PM), comprises two constituent sub-models: the measurement models and the structural model. The connection between the empirical data and the underlying factors is depicted through the utilization of measurement models. The measurement model estimates the latent variables by calculating a weighted sum of the manifest variables.

Figure 2



5.4. Measurement Model

5.4.1. Reliability and Convergent Validity

Following receipt of data, an initial screening is performed in SPSS 21, followed by descriptive analysis to fine-tune descriptive statistics. Following the application of descriptive structural equation modeling using Smart Pls-3. To ensure construct reliability and validity, the structural equation model is utilized to find Average Variance Extracted (AVE), and Composite Reliability (CR).

Table 3: Confirmatory Factor Analysis

Construct	Item	Loading	CR	AVE
Assurance	AS1	0.899	0.909	0.77
	AS2	0.861		
	AS3	0.871		
Customer Satisfaction	CS11	0.854	0.949	0.673
	CS12	0.782		
	C13	0.8		
	C14	0.813		
	CS2	0.84		
	CS3	0.864		
	CS5	o.767		
	CS6	0.795		
	CS8	0.86		
Empathy	EMPI	0.78	0.822	0.699
	EMP2	0.889		
Reliability	REL1	0.912	0.926	0.807
	REL2	0.905		
	REL3	0.878		
Responsiveness	RESP1	0.885	0.893	0.736
	RESP2	0.907		
	RESP3	0.775		

Service Performance	SP1	0.763	0.942	0.617
	SP10	0.798		
	SP14	0.804		
	SP15	0.779		
	SP16	0.779		
	SP18	0.767		
	SP19	0.834		
	SP2	0.818		
	SP20	0.781		
	Sp4	0.73		
Tangibility	TAN1	0.918	0.95	0.863
	TAN2	o.946		
	TAN3	0.923		

The Assurance construct exhibits a composite reliability rating of 0.909 and an Average Variance Extract (AVE) value of 0.77. In the context of customer satisfaction, it is observed that the Composite reliability value for Consciousness is 0.949, indicating a high level of internal consistency. Additionally, the Average Variance extract value for Consciousness is 0.673, suggesting a moderate level of shared variance among the items measuring customer happiness. The composite reliability value for empathy is 0.822, indicating a high level of internal consistency. Additionally, the average variance extract value for empathy is 0.699, suggesting that the construct has a moderate level of convergent validity.

The responsiveness construct exhibits a composite reliability value of 0.893 and an average variance extract value of 0.736. The composite reliability rating for the overall construct is 0.942, while the composite reliability value specifically for service performance is 0.617. The Tangibility construct exhibits a Composite Reliability score of 0.95 and an Average Variance Extract value of 0.863. The instrument's reliability and validity are ensured by the acceptable values of 0.50 for AVE and 0.70 for CR. The table presents the computed values of CR and AVE.

5.5. Discriminant Validity

All of the aforementioned numerical values surpass the established threshold, so signifying the substantiation of the construct's validity and dependability. The Fornell-Larcker Criterion is employed for the purpose of calculating factor loadings in order to ensure the presence of discriminant validity. The Fornell-Larcker Criterion was employed to compute the values of all the elements. The computed values for all elements using the Fornell Larcker Criterion are presented in Table 4. The validity of the outer model is confirmed, as evidenced by the factor loadings of the entire construct falling under the established threshold level, as depicted in the figures provided.

Table 4: Discriminant Validity Fornell and Lacker Criterion

Assurance	0.877	CS					
Customer Satisfaction	0.746	0.82	EM				
Empathy	0.739	0.845	0.836	RE			
Reliability	0.696	0.922	0.735	0.898	REP		
Responsiveness	0.738	0.86	0.702	0.818	0.858	SP	
Service Performance	0.904	0.865	0.796	0.761	0.843	0.786	TA
Tangibility	0.567	0.736	0.628	0.71	0.663	0.585	0.929

All of the calculated values in the above table exhibit discriminant validity since the relevant construct's values are higher than the other constructs. The next phase is structural equation modelling and hypothesis testing after guaranteeing discriminant modelling. The structural equation modelling and findings of the hypothesis that were generated on the basis of the problem stated and the literature review with the help of RBV are shown in the table below. The graphs below demonstrate the direct effects of innovativeness, proactive, and risk-taking, as well as the beta values and significance of the independent variables' structural formula.

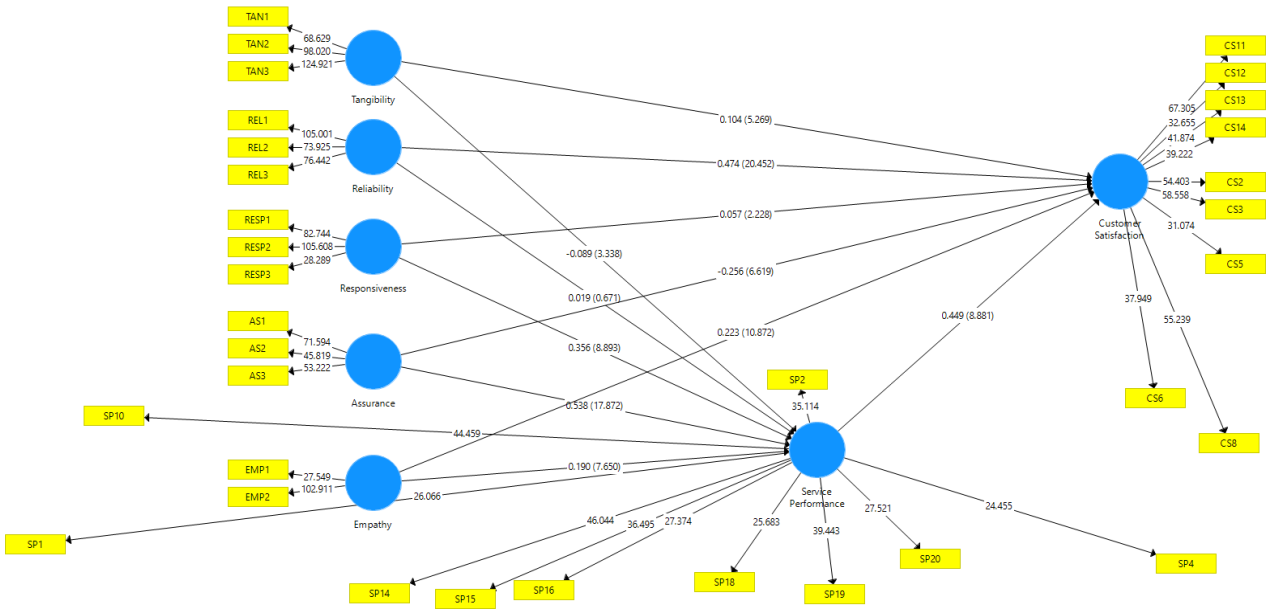
Table 5: Cross Loading

	AS	CS	EM	RE	RES	SP	TA
AS1	0.899	0.699	0.704	0.655	0.706	0.845	0.54
AS2	0.861	0.59	0.587	0.56	0.608	0.781	0.405
AS3	0.871	0.67	0.648	0.613	0.624	0.75	0.543
CS11	0.651	0.854	0.676	0.912	0.732	0.707	0.675
CS12	0.551	0.782	0.591	0.838	0.625	0.624	0.525
CS13	0.587	0.8	0.607	0.818	0.728	0.66	0.556
CS14	0.608	0.813	0.604	0.736	0.828	0.676	0.574
CS2	0.671	0.84	0.766	0.715	0.717	0.804	0.573
CS3	0.585	0.864	0.758	0.706	0.712	0.797	0.55
CS5	0.565	0.767	0.62	0.731	0.658	0.591	0.815
CS6	0.719	0.795	0.869	0.652	0.644	0.733	0.615
CS8	0.569	0.86	0.742	0.693	0.708	0.779	0.561
EMP1	0.457	0.591	0.78	0.552	0.504	0.55	0.427
EMP2	0.744	0.801	0.889	0.668	0.656	0.759	0.604
REL1	0.651	0.854	0.676	0.912	0.732	0.707	0.675
REL2	0.595	0.798	0.639	0.905	0.685	0.648	0.608
REL3	0.627	0.832	0.664	0.878	0.786	0.694	0.628
RESP1	0.635	0.843	0.66	0.798	0.885	0.704	0.638
RESP2	0.621	0.783	0.653	0.766	0.907	0.705	0.623
RESP3	0.647	0.57	0.482	0.523	0.775	0.769	0.429
SP1	0.649	0.581	0.476	0.522	0.739	0.763	0.448
SP10	0.587	0.862	0.757	0.707	0.711	0.798	0.548
SP14	0.671	0.84	0.766	0.715	0.717	0.804	0.573
SP15	0.556	0.835	0.743	0.674	0.679	0.779	0.513
SP16	0.802	0.555	0.548	0.526	0.577	0.779	0.352
SP18	0.61	0.544	0.467	0.501	0.734	0.767	0.39
SP19	0.813	0.652	0.647	0.622	0.668	0.834	0.475
SP2	0.824	0.656	0.627	0.571	0.627	0.818	0.43
SP20	0.802	0.543	0.553	0.507	0.583	0.781	0.332
SP4	0.812	0.641	0.59	0.578	0.587	0.73	0.485
TAN1	0.47	0.637	0.535	0.593	0.552	0.482	0.918
TAN2	0.553	0.686	0.599	0.662	0.613	0.558	0.946
TAN3	0.551	0.722	0.609	0.715	0.673	0.582	0.923

5.6. Structural Model

As stated by Sarnacchiaro et al. (2017), Structural Equation Modelling (SEM) is a statistical methodology that enables the concurrent assessment and quantification of causal relationships between many independent variables (also known as exogenous variables) and dependent variables (also known as endogenous variables). The structural model elucidates the interrelationships among latent variables and facilitates the researcher's evaluation of the extent of correlation between them, as quantified by path coefficients.

Figure 3: Structural Model



In the context of dissertation and thesis research, structural equation modelling (SEM) is a statistical technique that combines factor analysis, multiple regression, and canonical correlation. The measurement model, also known as the outer model, pertains to the association between the observable variables or indicators and the latent variables. On the other hand, the structural model, sometimes referred to as the inner model, encompasses the relational structure between the latent variables or concepts within the model.

Table 6: SEM Result of Direct Relationship

	Beta	T Statistics (|O/STDEV|)	P Values	Decision	R Square	Q2
Assurance -> Customer Satisfaction	-0.256	6.619	0	Accepted	0.949	0.631
Assurance -> Service Performance	0.538	17.872	0	Accepted		
Empathy -> Customer Satisfaction	0.223	10.872	0	Accepted		
Empathy -> Service Performance	0.19	7.65	0	Accepted		
Reliability -> Customer Satisfaction	0.474	20.452	0	Accepted		
Reliability -> Service Performance	0.019	0.671	0.502	Not Accepted		
Responsiveness -> Customer Satisfaction	0.057	2.228	0.026	Accepted		
Responsiveness -> Service Performance	0.356	8.893	0	Accepted		
Service Performance -> Customer Satisfaction	0.449	8.881	0	Accepted		
Tangibility -> Customer Satisfaction	0.104	5.269	0	Accepted		
Tangibility -> Service Performance	-0.089	3.338	0.001	Accepted		

H1: The Relationship between Tangibility and Customer Satisfaction is significant (b=0.104, t= 5.269, p= 0)

H2: Relationship between Reliability and Customer Satisfaction is significant (b= 0.474, t= 20.452, p= 0)

H3: The Relationship between Assurance and Customer Satisfaction is significant. (b= 0.256, t= 6.619, p= 0)

H4: The Relationship between Empathy and Customer Satisfaction is significant (b= 0.223, t= 10.872, p= 0)

H5: The Relationship between Responsiveness and Customer Satisfaction is significant (b= 0.57, t= 2.228, p= 0.026)

H6: The Relationship between Tangibility and Service Performance is significant (b= 0.089, t= 3.338, p= 0.01)

H7: The Relationship between Reliability and Service Performance is not significant (b= 0.019, t= 0.671, p= 0.502)

H8: The Relationship between Assurance and Service Performance is significant. (b= 0.538, t= 17.872, p= 0)

H9: The Relationship between Empathy and Service Performance is significant (b= 0.19, t= 7.65, p= 0)

H10: The Relationship between Responsiveness and Service Performance is significant (b= 0.356, t= 8.893, p= 0)

H11: The Relationship between Service Performance and Customer Satisfaction is significant (b= 0.449, t= 8.881, p= 0)

H12: Tangibility (b= -0.04, t= 3.635, p= 0) Mediates the relationship between Service Performance and Customer Satisfaction. H12 is accepted.

H13: Reliability (b= 0.09, t=0.668, p= 0.504) does not Mediates the relationship between Service Performance and Customer Satisfaction. H13 is not accepted.

H14: Assurance (b= 0.242, t= 7.011, p= 0) Mediates the relationship between Service Performance and Customer Satisfaction. H14 is accepted.

Table 7: SEM Results of Mediation

Hypothesis	Beta	T Statistics (|O/STDEV|)	P Values	Confidence Interval 2.50%	Confidence Interval 97.50%	Decision
Responsiveness -> Service Performance -> Customer Satisfaction	0.16	7.742	0	0.123	0.205	Accepted
Empathy -> Service Performance -> Customer Satisfaction	0.085	5.499	0	0.056	0.119	Accepted
Reliability -> Service Performance -> Customer Satisfaction	0.009	0.668	0.504	-0.017	0.032	Not Accepted
Tangibility -> Service Performance ->Customer Satisfaction	-0.04	3.635	0	-0.062	-0.018	Accepted
Assurance -> Service Performance -> Customer Satisfaction	0.242	7.011	0	0.183	0.318	Accepted

H15: Empathy (b= 0.085, t= 5.499, p=0) Mediates the relationship between Service Performance and Customer Satisfaction. H15 is accepted.

H16: Responsiveness (b= 0.16, t= 7.742, p= 0) Mediates the relationship between Service Performance and Customer Satisfaction. H16 is accepted.

6. Discussion

The present study discussed the impact of service quality dimensions on customer satisfaction while considering the mediating role of service performance. Certain dimensions of service quality e.g., tangibles, assurance, empathy, reliability and responsiveness are taken. Structural equation modelling is run to test the direct and indirect hypothesized relationship between the variables. Findings show that most of the hypothesis are accepted and few are not supported. H1 The Relationship between Tangibility and Customer Satisfaction is significant (b=0.104, t= 5.269, p= 0). H2 Relationship between Reliability and Customer Satisfaction is significant (b= 0.474, t= 20.452, p= 0). H3 The Relationship between Assurance and Customer Satisfaction is significant (b= 0.256, t= 6.619, p= 0). H4 The Relationship between Empathy and Customer Satisfaction is significant (b= 0.223, t= 10.872, p= 0).

H5 The Relationship between Responsiveness and Customer Satisfaction is significant (b= 0.57, t= 2.228, p= 0.026). H6 The Relationship between Tangibility and Service Performance is significant (b= 0.089, t= 3.338, p= 0.01). H7 The Relationship between Reliability and Service Performance is not significant (b= 0.019, t= 0.671, p= 0.502). H8 The Relationship between Assurance and Service Performance is significant (b= 0.538, t= 17.872, p= 0). H9 The Relationship between Empathy and Service Performance is significant (b= 0.19, t= 7.65, p= 0). H 10 The Relationship between Responsiveness and Service Performance is significant (b= 0.356, t= 8.893, p= 0). H11 The Relationship between Service Performance and Customer Satisfaction is significant (b= 0.449, t= 8.881, p= 0). H12 Tangibility (b= -0.04, t= 3.635, p= 0) Mediates the relationship between Service performance and Customer Satisfaction. H12 is accepted.

H13 Reliability (b= 0.09, t=0.668, p= 0.504) does not Mediates the relationship between Service Performance and Customer Satisfaction. H13 is not accepted.H14 Assurance (b= 0.242, t= 7.011, p= 0) Mediates the relationship between Service Performance and Customer Satisfaction. H14 is accepted.H15 Empathy (b= 0.085, t= 5.499, p=0) Mediates the relationship between Service Performance and Customer Satisfaction. H15 is accepted. H16 Responsiveness

(b= 0.16, t= 7.742, p= 0) Mediates the relationship between Service Performance and Customer Satisfaction. H16 is accepted. The study identified the highest levels of service performance in terms of the hospital employees' knowledge and the dimension of service quality tangibles. The hospital is equipped with modern and advanced technology, ensuring high quality care.

Additionally, the hospital staff demonstrates professionalism and courtesy, while the physical facilities, including the interior and exterior structures, lighting, and furniture, are aesthetically pleasing. The sub-variable of tangibles identified certainty, responsiveness, and empathy as the most significant characteristics of service quality, whereas tangibles itself was shown to be the least relevant component. Enhancing the technological infrastructure of hospitals, enhancing the aesthetic appeal of service sites and healthcare devices, and enhancing the cleanliness and professional demeanors of healthcare workers all contribute to the enhancement of patient satisfaction with healthcare service quality, particularly in relation to the physical dimension.

The dimension of assurance encompasses attributes such as knowledge and politeness, which contribute to creating a sense of safety and trust in patients during their interactions. On the other hand, the dimension of responsiveness pertains to the hospital staff's consistent readiness to aid patients and deliver services promptly. In order to enhance patient satisfaction in the domains of assurance and responsiveness within the healthcare system, it is imperative for patients to develop a psychological reliance on healthcare personnel's capacity to deliver services, exhibit relevant expertise and proficiency, adequately educate patients on all facets of their healthcare and overall well-being, and deliver prompt and attentive service and care. Based on our research findings, we have identified that the five dimensions of service quality have a strong correlation with both the overall measure of service quality and the associated indicators.

7. Conclusion

This study aimed to evaluate the measurement of Quality of Service in a public hospital. An initial assessment was undertaken on patient satisfaction and service quality using the SERVPERF methodology. The results of this study can provide a basis for formulating public healthcare sector policies that are designed to enhance and elevate the quality of services in hospitals located in underdeveloped urban areas.

This research provides an overview of the healthcare system and delivers significant findings that contribute to a deeper comprehension of patient satisfaction about the quality of healthcare services within an urban area of a developing country. These findings have the potential to assist in the identification of healthcare domains where the development and implementation of service quality management pose greater challenges. The results of this study contribute to the existing theoretical framework on customer satisfaction by emphasizing the significance of alertness, competence, service advancement, and reliability as fundamental elements of service quality.

Additionally, our research outputs provide valuable guidance to hospital administrators and policymakers in terms of formulating effective strategies, devising plans, and assessing forthcoming initiatives aimed at enhancing patient satisfaction with service quality and elevating the overall quality of healthcare services and outcomes. It is posited that, notwithstanding the obstacles, the monitoring of healthcare service quality in public healthcare organizations might lead to systematic improvements.

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