Impact of Service Quality Dimensions on Patients' Satisfaction: A Study on Private Hospital Healthcare Service in Dhaka

Ahasanul Haque[1], Mohammad Arije Ulfy[2], Abul Hossain[3*], Md Nazmul Huda[4]

Abstract

Despite its status as a basic human right, a considerable proportion of the populace in underdeveloped countries lacks access to fundamental medical care. In the absence of a sufficient and suitable healthcare system, all other sectors of the economy would have detrimental effects. Consequently, due to the city's burgeoning population and heightened awareness of healthcare concerns, private hospitals in Dhaka are progressively providing medical services to individuals from diverse backgrounds. The objective of this research is to ascertain the factors affecting patient satisfaction with the quality of health care services in private hospitals in Dhaka City and to examine the relationship between these factors and their implementation. The SERVEQUAL framework is employed to examine the direct effects of the associated elements. In five high-traffic private hospitals in Dhaka, 230 questionnaires were distributed directly to patients, of which 226 valid responses were analyzed. This research employed SPSS 25.0, a Statistical Package for the Social Sciences, to conduct an exploratory factor analysis (EFA) with hypothesis testing. The study's findings indicate that the tangibility, reliability, responsiveness, assurance, and empathy of each factor positively and significantly influence patient satisfaction; higher t-values for these factors correspond to a stronger correlation with patient satisfaction. Thus, the favourable results of the extensive study enquiries suggest that patients exhibit more satisfaction with private healthcare services when provided with high-quality treatment. The study's findings would benefit all stakeholders, including locals, private clinics, diagnostic centres, hospital proprietors, and patients.

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[1,2] Department of Business Administration, International Islamic University Malaysia, 53100 Jalan Gombak, Kuala Lumpur, Malaysia

[3] PhDin Management, ALFA University College, 13, Persiaran Kewajipan, USJ 1, 47600 Subang Jaya, Selangor, Malaysia

[4] Department of Tourism and Hospitality Management, Noakhali Science and Technology University, Noakhali-3814, Bangladesh

[*]**Corresponding Email: harizhossain@gmail.com**

INTRODUCTION

The advent of worldwide rivalry in the industry heightens patients' curiosity and anxiety over healthcare service delivery (Andaleeb et al., 2007). There has been a marked improvement in the general population's health and the promotion of better lifestyles due to the increasing focus on health and the expansion of the elderly population. The recent expansion of the global competitive service environment has impacted residential services, particularly in the healthcare sector. In response to the fierce rivalry among hospitals, healthcare organisations have begun to prioritise the high quality of treatment patients receive (Rumi et al., 2021). Because of this, people are more likely to choose the finest hospital for their needs. In addition to guaranteeing effective coverage of essential health services and financial stability in every country, providing high-quality treatment or services is essential to achieving the objective of Universal Health Coverage (Ahmed et al., 2017). To gain a competitive advantage, service providers must significantly enhance and carefully manage service quality (Andaleeb, 2021). However, in highly competitive markets, businesses can stand out by offering superior healthcare (Asnawi et al., 2019). Furthermore, as a result of growing consumer demands and expectations for commonplace conveniences, hospitals are obligated to deliver patients with first-rate health care services while also attending to their needs (Akter, 2008).

Bangladesh, a lower-middle-class South Asian economy, has been experiencing a trade in statistics and epidemiology due to its fast urbanization, which is expected to increase gradually in the coming years (Zubayer & Hoque, 2019). It has the seventh-highest population in the globe. By 2050, population growth is expected to be approximately twice (Rahman, 2023). Private hospitals in Dhaka's rapidly urbanizing area are partly to blame for the rising prevalence of non-communicable diseases (NCDs) in the metropolis. 46,000 people in Bangladesh die from pollution-related causes each year, with 13% of those fatalities occurring in Dhaka, according to the World Bank's Country Environmental Analysis (Islam et al., 2023). There is a diminutive assessment of the nature of healthcare and lack of service quality have seen in different studies among private hospital in Dhaka city (Hasan et al., 2022). "Negligence of Physicians" "Insufficient Service Quality" and "Wrong Treatment" of private hospital in Dhaka city have turn out to be frequently used slogans in media of Bangladesh, whereas violence towards the patients in private hospitals has been enhanced and the cruelty has been increased at the same time (Andaleeb, 2021; Rumi et al., 2021).

There have been a few mortality instances in the past few years that have raised questions about the service quality of private hospitals healthcare sector due to failure and poor service. Approximately 70% of people seek medical attention from private hospitals, therefore this industry which includes unqualified providers deserves serious examination (World Bank, 2019). Around 15% annual growth rate was observed in private hospitals between 2010 and 2020. Large-scale investments in the private commercial hospital industry are contributing to Dhaka city's growth. At the same time, a great deal of patients from Bangladesh are now using international hospitals because private hospitals in Dhaka have a poor reputation for providing quality care. Bangladeshis is estimated by the Institute of Health Economics, University of Dhaka, to spend about $300 million annually on international healthcare services due to subpar care. has been provided by private hospitals in Bangladesh, particularly in Dhaka (World Bank, 2019). The information above indicates that in order to potentially take corrective action, it is important to ascertain the level of service quality provided by private hospital sectors. In order to paint a clearer image of private hospitals' total service quality with regard to patient satisfaction, this research attempts to better comprehend the quality of service they provide.

Local residents and other interested parties (including private clinics, diagnostic centres, hospital owners, physicians, and patients) rely on private hospitals for their optimal healthcare. The results of this study will shed light on the relationship between patient happiness and repeat business, providing them with the drive to refine their method. Dhaka city is hiring a large number of young medical professionals due to the city's growing reliance on private commercial healthcare services (Widiyanti & Kirono, 2023). The healthcare service in Dhaka is vital to the livelihoods of many interdependent parties, including local people, pharmaceutical dealers, investors, and medical equipment manufacturers and suppliers (Hossain et al., 2019). Local patient satisfaction in Dhaka was shown to be negatively affected by inadequate service quality, according to Mollah et al. (2018). This finding emphasises the necessity to manage the detrimental effects of patient satisfaction to maintain long-term development. Dhaka is the most populous metropolis in Bangladesh; thus, when it's not doing well, it's assumed that the economy as a whole isn't doing well either, since reduced household income earning capability and substantial productivity losses in this sector impact the economy as a whole. Privatised commercial hospitals are vital to the health of the locals and those from neighbouring towns. In order to attract patients and provide them with better medical care, private commercial hospitals should prioritise this area in their service quality (Asnawi et al., 2019; Andaleeb, 2021; Rumi et al., 2021; Taqdees et al., 2017).

LITERATURE REVIEW
Tangibility and Patients' Satisfaction

This literature review examines the relationship between tangibility and patient satisfaction in healthcare environments. The tangible attributes of healthcare services, including the appearance of facilities, equipment, and personnel, are termed tangibility. Understanding the impact of tangibility on patient satisfaction is essential for healthcare organisations that aim to enhance the overall patient experience and service quality. Prior studies have consistently shown that tangibility significantly influences patient satisfaction levels. The SERVQUAL model, created by Parasuraman et al. (1988), recognises tangibility as a significant factor affecting service quality. Patients form initial perceptions of healthcare facilities based on the physical environment, the cleanliness and modernity of equipment, and the professional appearance and demeanour of healthcare personnel.

Numerous research studies have demonstrated a correlation between tangibility and patient satisfaction. Baía and Baptista (2020) found that the aesthetic quality of healthcare facilities and the professionalism of healthcare personnel significantly enhanced patient satisfaction levels. Rimu and Ashequzzaman (2018) identified that tangibility-related factors, including the cleanliness and accessibility of waiting areas, the availability and accessibility of essential equipment, and the overall aesthetic of the facilities, significantly impacted patients' satisfaction with healthcare services.

Moreover, research has demonstrated that heightened perceived tangibility is associated with elevated patient satisfaction. Babakus et al. (2003) assert that patients' assessments of the tangibility of healthcare services affect their overall satisfaction. Patients reported increased satisfaction when they perceived healthcare facilities as modern, well-maintained, and equipped with up-to-date technology. The examination of literature highlights the importance of tangibility in shaping patients' satisfaction in healthcare environments. It underscores the necessity for healthcare organisations to prioritise the enhancement of their physical infrastructure and to ensure the professional appearance and demeanour of healthcare professionals. Healthcare organisations can enhance patient satisfaction and overall experience, ultimately leading to improved healthcare outcomes.

H1: Tangibility has a positive significant impact on patients' satisfaction in the private hospitals in Dhaka city.

Reliability and Patients' Satisfaction
This study's literature evaluation explores the connection between trustworthiness and patient happiness in healthcare settings. Healthcare service reliability encompasses aspects like appointment scheduling, promptness of care delivery, and precision of diagnosis, among others. Healthcare professionals and organisations must comprehend the significance of reliability on patient satisfaction to enhance the quality of service and the patient experience as a whole. The purpose of this literature review was to gain a better understanding of the relationship between reliability and patient satisfaction in healthcare settings. Reliability refers to the consistency and dependability of healthcare services, which encompasses aspects like accurate diagnosis, timely treatment delivery, and appointment scheduling. It is critical for healthcare organisations and providers to understand the impact of reliability on patient pleasure to improve treatment standards and the overall patient experience. Previous studies have highlighted the importance of reliability in determining patients' levels of satisfaction. Parasuraman et al. (1988) identified reliability as a key component impacting service quality; this finding informed the development of the SERVQUAL model. Patients place a high value on receiving reliable, consistent, and trustworthy healthcare services that are delivered exactly as promised.

Reliability is associated with higher levels of patient satisfaction, according to multiple research studies. For example, Khaleel et al. (2022) found that patients' perceptions of reliable healthcare services positively affected their satisfaction level. A higher degree of satisfaction was reported by patients when they were provided with consistent and timely service. Furthermore, research has shown that improper medical treatments can lead to dissatisfaction and negative interactions among patients. Researchers Mamun et al. (2022) found that patients were less satisfied when appointments were either missed or were severely delayed, when they had to wait a long time, and when there was inconsistent communication. These reliability issues increased the likelihood that patients would express their dissatisfaction with their medical care. The literature review underscores the importance of reliability in determining patient satisfaction with healthcare facilities. This underscores the significance of healthcare organisations and providers prioritising and improving the consistency and reliability of their services. By addressing issues with appointment scheduling, reducing waiting times, and ensuring accurate and quick service delivery, healthcare organisations can improve healthcare results, patient happiness, and the overall patient experience.
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H2: Reliability has a positive significant impact on patients' satisfaction in the private hospitals' healthcare service in Dhaka city.

Responsiveness and Patients' Satisfaction
There has been an uptick in research focusing on the concept of responsiveness as one of the factors influencing people's satisfaction with healthcare services. Patients report higher levels of satisfaction and better outcomes when their healthcare providers are able to provide them with care that is timely, thoughtful, and centred on their needs. Researchers Daneshkohan et al. (2020) found that patients were more satisfied and loyal to healthcare providers that put an emphasis on being timely. Ng and Luk (2019) found that patients were more likely to be satisfied with their experiences when staff members were attentive, communicated well, and provided fast service. Their research supports this finding. Furthermore, Aljaberi et al. (2018) discovered a robust relationship between responsiveness and patients' views of the quality of

medical treatment. Patients reported higher levels of satisfaction when they perceived their healthcare providers were paying close attention, highlighting the crucial role of responsiveness in shaping patient experiences. The importance of responsiveness to patient satisfaction, healthcare utilisation, and treatment plan adherence was shown in a 2021 systematic study by Nyakutombwa et al., which points to the need for healthcare organisations to prioritise responsiveness.

The research underscores the significance of responsiveness when examining patient satisfaction with healthcare services. Efficiency in service delivery, clarity in communication, and attentiveness from staff members are crucial components of responsiveness. Because of these things, patients are able to have high expectations for the quality of their medical treatment and have positive experiences overall. By making responsiveness a top priority, healthcare providers can increase patient satisfaction, loyalty, and outcomes.

H3: Responsiveness has a significant positive impact on patients' satisfaction in the private hospitals' healthcare service in Dhaka city.

Assurance and Patients' Satisfaction

The trust that patients have in the competence and expertise of healthcare providers is an essential component of healthcare quality assurance. Confidence and patient satisfaction have been the subject of an ever-expanding body of research. According to studies conducted by Alkazemi et al. (2020), patients were more satisfied with their treatment as a whole when they thought their healthcare providers really believed in them. Consistent with previous research, this finding confirms that certainty is a strong predictor of patient satisfaction (Aliman and Mohamad, 2016). Healthcare providers should showcase their skills and knowledge to instill confidence and trust in patients, according to the authors. In addition, Batbaatar et al. (2017) found that patients were more likely to be satisfied when there was open dialogue and the exchange of relevant information. Higher levels of satisfaction were indicated by patients who received explanations regarding their ailment, treatment options, and prospective outcomes in a way that was easy to understand. The systematic review conducted by Kalaja (2023) reached a similar conclusion, highlighting the importance of patient education and engagement in ensuring pleasant experiences and satisfaction

In conclusion, the research points to the importance of certainty in determining patients' happiness with healthcare services. Ensuring patient happiness relies on several variables, including patients' faith in healthcare practitioners, the quality of communication, and the sharing of relevant information. Emphasising assurance can enhance healthcare outcomes, patient happiness, and trust.

H4: Assurance has a significant positive impact on patients' satisfaction in the private hospitals' healthcare service in Dhaka city.

Empathy and Patients' Satisfaction

The ability of healthcare providers to empathise with their patients, or understand and share their feelings and viewpoints, has recently come under scrutiny as an important factor in patients' satisfaction with healthcare services. The significant impact of empathy on patient experiences has been the subject of numerous research studies that have examined the link between empathy and patient satisfaction. Agarwal et al. (2022) found that patients were more likely to rate their doctors as satisfied if they showed empathy. Research by Alrubaiee and Alkaa'ida (2011) corroborated these findings; their study found that empathy was a strong predictor of patient satisfaction, demonstrating the importance of healthcare providers' abilities to form a caring relationship with their patients. The significance of empathy in

increasing patient engagement and participation in decision-making processes leads to improved satisfaction, as highlighted by Gautam et al. (2022). There was a correlation between patients' perceptions of empathy from their healthcare providers and their degree of contentment. Furthermore, the positive impacts of empathy on patient-centred therapy and overall happiness were brought to light by Derksen et al. (2013)

Research reveals that empathy plays a crucial role in ensuring patient satisfaction during medical treatments. Healthcare providers' ability to connect with patients on an emotional level, establish a trusting relationship, and involve them in their care greatly impacts the quality of their experiences and the level of pleasure they report. To improve healthcare outcomes, patient satisfaction, and trust, empathic practices may be given top priority.

H5: Empathy has a significant positive impact on patients' satisfaction in the private hospitals' healthcare service in Dhaka city.

Research Framework
The theoretical framework investigates the interplay between the variables that constitute the core aspects of the investigated situation. The development of such an applied structure aids in the proposition, estimation, and testing of specific linkages, which in turn improves our understanding of the situation's trajectory (Sekaran, 2003). The entire research rests on the theoretical framework. It is essential to understand the meaning of a variable in this study because the theoretical structure provides the conceptual foundation for continuing the research, which is essentially just acknowledging the system of connections among the variables thought to be important to the investigation of any particular issue. Based on the findings of the literature research, this investigation seeks to develop a theoretical framework for the effect of service quality dimensions on healthcare services provided by private hospitals in Dhaka, Bangladesh. The conceptual framework highlights several independent characteristics that have a strong correlation with the quality of private commercial healthcare services in Dhaka, Bangladesh. These variables include tangibility, reliability, responsiveness, assurance, and empathy.
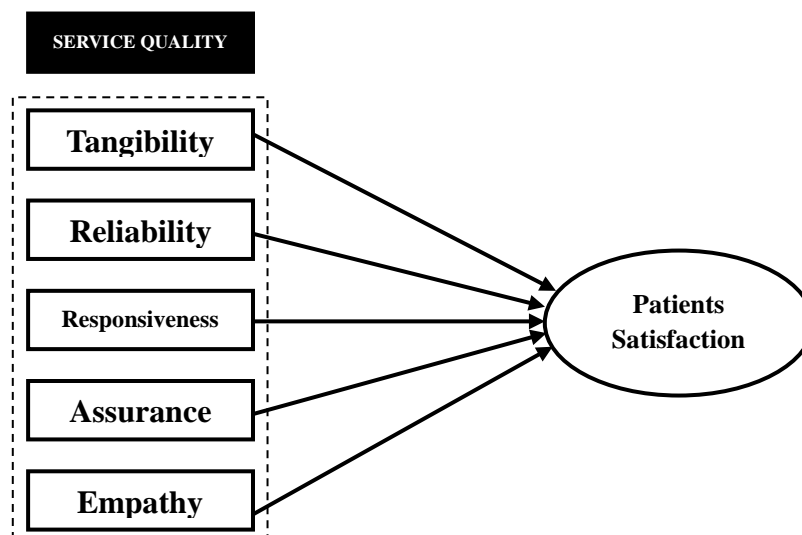

Figure 1. Conceptual Framework (Parasuraman et al., 1985)

RESEARCH METHODOLOGY
Measurement Framework
Following the initial proposal by Parasuraman et al. (1988), all twenty items relating to the SERVQUAL dimensions were utilised, with an additional six items being utilised to describe the private medical healthcare service in Dhaka, Bangladesh. The study's overarching goal is to learn what variables affect service quality and, by extension, patient happiness at a private commercial hospital in Dhaka, Bangladesh; thus, we decided to keep the items as they originally were. Furthermore, the private hospital healthcare industry grouped each SERVQUAL dimension item according to five service categories. On a 5-point Likert scale, with 1 representing Strongly Disagree and 5 representing Strongly Agree, respondents were asked to rate six different variables. Every single question in the survey was crafted in English.

Data Collection
This descriptive study examines the service delivery systems of five well-known private hospitals in Dhaka: Square Hospital, United Hospital Limited, LABAID Specialised Hospital, Green Life Medical College Hospital, and Metropolitan Medical Centre. These hospitals receive the highest volume of patients in Dhaka (Bhuiyan, Darda & Habib, 2020). Patients are defined as individuals who have stayed at certain hospitals for a minimum of one day. A random sampling procedure was used to choose them. It is important to note that the respondents' involvement in this study is entirely voluntary; this was necessary in order to ensure their honesty.

Moreover, data were collected using an online survey and paper paper-based questionnaire during the period of March-April 2025. Several researchers have recommended that there should be at least 5 (five) observations for each item (Byrne, 2010;Battour et al., 2012; Pallant & Manual, 2010). This study has considered four constructions, which comprise a total of 41 items. From this point of view, this study required 205 observations (41 x 5 = 205). Hence, given the above discussion, a sample size of 230 has been chosen for the current study, which is 125 additional samples to avoid unwanted missing data during analysis (Hair et al., 2006).

DATA ANALYSIS AND FINDINGS
Tools Used
The demographic profile was analysed using SPSS version 24.0. First, a demographic profile of the respondents was formed using descriptive analysis. The next step is to use Exploratory Factor Analysis (EFA) to verify the dependability of the construct items using reliability analysis. In conclusion, multiple regression analysis has been employed to assess the hypotheses.

Demographic Profile
The demographic data in Table 1 depicts the replies gathered from patients who attended private hospitals in the Dhaka metropolitan region. A total of 230 questionnaires were issued; however, after excluding 4 missing values, 226 data points were retained for further analysis. Table 1 indicates that males exhibited a higher response rate than females. Of the responders, 134 (59.3%) were male, while 92 (40.7%) were female. The predominant age group was 30-39 years old (46%), followed by 40-49 years old (25.20%), 20-29 years old (16.40%), and 50-59 years old (9.70%), and the least represented group was 60 years old and above (2.70%). Of the responders, 72.6% are native to Dhaka city, while the remainder are from outside the city. Furthermore, the majority of respondents possessed postsecondary

educational levels (83.60%), followed by primary (0.9%) and secondary (15%) qualifications. Additionally, respondents were asked about their occupations: 19.90% were students, 50.4% were employed in private services, 8.80% were businesspersons, 17.7% were in other private services, and 3.1% fell into other categories. The majority of patients, at 90.3%, were first-time visitors to the hospitals, with the primary aim of their visit being general checkups, accounting for 85.4% of patients. The majority of patients arrived accompanied by friends (61.1%), and their duration of stay was as follows: 1-3 days (82.3%), 4-7 days (13.7%), and 7 or more days (4%).

Table 1. Demographic Profile

Measure	Item	Frequency	Percentage
Gender	Male	134	59.3
	Female	92	40.7
Age	20-29	37	16.4
	30-39	104	46.0
	40-49	57	25.2
	50-59	22	9.7
	60 and above	6	2.7
Marital Status	Single	47	20.8
	Married	175	77.4
	Divorced	4	1.8
Respondent Type	Dhaka City local	164	72.6
	Outside Dhaka City	62	27.4
Occupation	Student	45	19.9
	Private Service	114	50.4
	Government Service	40	17.7
	Business	20	8.8
	Others	7	3.1
Visiting Status	First Time	204	90.3
	Repeat Visitor	22	9.7
Education	Primary	2	.9
	Secondary	34	15.0
	Tertiary	189	83.6
Visiting Purpose	General Checkup	193	85.4
	Surgery	13	5.8
	Diagnosis	16	7.1
	Others	4	1.8
Patients Attendants	Alon	1	.4
	Partner	22	9.7
	Family	64	28.3
	Friend	138	61.1
	Others	1	.4
Number of Days spent in the Hospital	1-3	186	82.3
	4-7	31	13.7
	7 and more	9	4.0

Reliability Tests

The scales included in the questionnaire are crucial for assessing its reliability. A primary objective of doing the reliability test is to ascertain the correctness of the data. It pertains to the extent to which the components constituting the scale are uniform, signifying that all scales represent the same fundamental structure. The reliability of 31 questions in the questionnaire is assessed using Cronbach's alpha. Cronbach's alpha coefficient for the scale should ideally be .7 or above (Pallant & Tennant, 2007).

Table 2. Reliability Test

Component	Cronbach's Alpha	N of Items
Tangibility	0.796	5
Reliability	0.809	5
Responsiveness	0.794	5
Assurance	0.901	5
Empathy	0.802	5
Patients Satisfaction	0.843	6

Table 2 displays the Alpha of Cronbach for each variable. For questions related to service quality, which represents four independent variables with 25 items with Cronbach's Alpha coefficient of 0.821 was calculated. Lastly, patients' satisfaction, in which 6 items are represented with Cronbach's Alpha coefficient of 0.843 was calculated. Therefore, it is demonstrated that all the factors except tangibility are highly reliable. So, the questionnaire is reliable enough to carry out further analysis.

Exploratory Factor Analysis (EFA)

Factor analysis is essentially the technique of data reduction. It takes a wide range of variables and finds a way to reduce or summarize the data using a smaller set of factors or components. Factor analysis analyzes the relationship structure between wide ranges of variables to evaluate a set of underlying dimensions. It does so by searching for clumps or groups between the interrelations of a set of variables. To identify the common underlying dimensions, the structure of the relationships among a large number of variables is being analyzed by factor analysis.

Kaiser- Mayer-Olkin (KMO) Measure of Sampling Adequacy

KMO tests the proportion of variation that could be caused by an underlying factor. KMO checks if the partial correlations between the variables are small. The fundamental guidelines for the value of KMO are:

• Lower than 0.5 is considered unacceptable
• Between 0.5 and 0.59 is considered average
• Between 0.6 and 0.69 is considered acceptable
• Between 0.7 and 0.70 is considered good
• More than 0.8 is considered excellent.

Bartlett's Test of Sphericity

Bartlett 's Test compares the correlation matrix with an identity matrix to see whether a matrix of Pearson correlations is an identify matrix with its diagonal value which is 1 and off-diagonal value which is 0. It is often used in factor analysis studies where rejection of the null

hypothesis of identity is an indication that the data is suitable for the factor analysis model. Identity matrix can be disqualified if the test value is below 0.005. Table 3 shows that the KMO value is 0.857, which is considered good as the result is not lower than 0.5. This research ensures that factor analysis can be carried out. Similarly, the Bartlett test shows 0.000 (0.000<0.005), which indicates the adequacy of the variable formed by the factors.

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.857
Bartlett's Test of Sphericity	Approx. Chi-Square	3969.198
	df	465
	Sig.	.000

Total Variance Explained
The percentage of the overall variance between variables can be explained by a single factor. If the variables are independent, the total variance in the analysis will be equal to the number of variables. The number of factors is being measured by using the Eigen value. The first factor extracted describes the most variance in the observed variables compared to the corresponding factors. Table 4 below shows all factors, and the percentage of variance attributed to each factor derived from the study and the cumulative variance of the factor. The total variance explained result is shown in the table below. Six factors are extracted. These factors displayed 28.845per cent of the total variance. The first factor explains the 9.024% total variance. The second factor explained 8.159 per cent of the total variance. Next, the third factor provided 5.880per cent of the total variance. Lastly, the fourth factor scored 3.988 per cent of the total variance.

Table 4. Total Variance Explained Output

Compo nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.942	28.845	28.845	8.942	28.845	28.845	3.835	12.371	12.371
2	2.797	9.024	37.869	2.797	9.024	37.869	3.474	11.206	23.577
3	2.529	8.159	46.028	2.529	8.159	46.028	2.992	9.650	33.227
4	1.823	5.880	51.908	1.823	5.880	51.908	2.866	9.245	42.472
5	1.505	4.854	56.762	1.505	4.854	56.762	2.848	9.188	51.660
6	1.236	3.988	60.749	1.236	3.988	60.749	2.818	9.089	60.749
7	.994	3.205	63.955						
8	.967	3.120	67.074						
9	.811	2.616	69.690						
10	.764	2.466	72.156						
11	.755	2.437	74.593						
12	.694	2.239	76.832						
13	.634	2.045	78.877						
14	.616	1.987	80.863						

15	.589	1.898	82.762						
16	.548	1.768	84.530						
17	.529	1.706	86.235						
18	.510	1.646	87.882						
19	.455	1.467	89.348						
20	.445	1.435	90.783						
21	.414	1.334	92.117						
22	.391	1.261	93.378						
23	.374	1.205	94.583						
24	.329	1.061	95.644						
25	.315	1.015	96.659						
26	.280	.903	97.562						
27	.263	.849	98.411						
28	.236	.762	99.173						
29	.197	.635	99.808						
30	.031	.099	99.907						
31	.029	.093	100.000						
Extraction Method: Principal Component Analysis.									

Rotated Component Matrix

According to Table 5, meaningful factor rotation is shown in the rotated component matrix. For meaningful explanation, factor loadings need to be rotated in order to check whether more than one factor is extracted. Varimax is used to study this factor to see whether the orthogonal rotation method minimizes the number of variables or not. The next step is to analyze the content of the questions loaded into the same factor to try to find common themes and prevent cross-loading under multiple factors. Since each factor has to be unique and distinct after the factor analysis has been carried out several times, it shows the rotated component matrix displays the clearest indication of items related to the specific factors, where certain items are excluded due to cross-loading.

Table 5. Rotated Component Matrix

	Component					
	1	**2**	**3**	**4**	**5**	**6**
The private commercial hospital healthcare service features contemporary-looking medical equipment.	.719					
The private commercial hospital's physical surroundings are attractive.	.768					
Staff members at the private commercial hospital are neatly clothed.	.730					
Leaflets and comments promoting the service are attractive visual materials in the private commercial hospital healthcare service.	.588					

The waiting spaces for physicians and drugs are comfortable in a private hospital healthcare service.	.528				
When I have an issue in a private hospital, the service providers genuinely want to help me solve it.		.727			
The staff provides the service correctly for the first time in a private hospital.		.719			
The staff provides the service correctly for the first time in a private hospital.		.726			
The private hospital displays force on error-free records.		.716			
The private hospital healthcare service offers its services on schedule.		.694			
The staff in a private hospital healthcare service quality is always willing to assist me.			.821		
The staff provides me with fast treatment in a private hospital.			.801		
Never being too busy to answer my inquiries is the staff at the private hospital.			.697		
The staff can manage patients in a private hospital.			.661		
The administration of a private hospital healthcare service considers the complaints and notes of the patients.			.525		
I have faith in a private hospital in healthcare service quality because of how the staff has conducted themselves.				.801	
In my interactions with private hospital care, I feel secure.				.850	
The staff at the private commercial hospital are qualified to respond to my queries.				.749	
I always receive pleasant treatment from the staff at the private hospital.				.821	
Hospital staff should have enough assistance from their employers in order to accomplish their tasks properly.				.851	
Staff at the private hospital care provide me with individual attention.					.782
Requests are always met by staff members who are never too busy.					.638
The staff at the private hospital are aware of my particular needs.					.714
The private hospital is looking out for my best interests.					.515
The private hospital offers the best healthcare and operates during convenient hours for all its patients.					.582

In this private hospital healthcare service quality, I was pleased with the care I received.						.658
This private hospital visit was a great choice on my part.						.720
I obtained healthcare in a private hospital that matched my present need.						.693
I made the proper choice when I chose to use this hospital's services.						.521
Overall, I am pleased with the nursing care provided at the healthcare service.						.714
Overall, I have more positive thoughts about healthcare in a private hospital than I had anticipated.						.637
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 6 iterations.						

Multiple Regression Analysis

The multiple regression analysis was used to analyze the relationship between the dependent variable and the independent variables. Hence, it also formulates the linear relation equation concerning dependent and independent variables. Besides, multiple regression analysis lets the researchers recognize which factors forecast the dependent variable (Uyanik& Guler, 2013).

The independent variables were extracted from the principal component analysis based on Bartlett's Scores as described in the work of Bartlett (1937).The selection of the Bartlett method for extracting the Component Scores is due to its advantage in producing unbiased estimates, which cannot be achieved using other methods such as the Thurstone (1935) regression extraction method (DiStefano, Zhu, &Mîndrilă, 2009). It is important to highlight that Bartlett Scores are uncorrelated, which is an additional advantage (DiStefano et al., 2009), especially when performing multiple regression, as in the case of this research. The dependent variable was constructed by summing and averaging the raw scores corresponding to this variable (DiStefano et al.,2009). Furthermore, table 6 stated below shows the results of the model summary discovered by linear regression.

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.492	.480	.43326
a. Predictors: (Constant), Empathy, Responsiveness, Reliability, Assurance, Tangibility				

Table 6 presents the regression model summary. The results revealed that independent variables explain about 49% of the variance. In other words, about 48% of the changes in patients' satisfaction can be explained by tangibility, reliability, responsiveness, assurance and empathy. The model fit is moderate, and the predictors account for approximately 49% of the variability in patient satisfaction ($R^2 = 0.49$), indicating that these predictors are moderately strong. Table 7, stated below, demonstrates that the model is statistically significant (sig=0, $p<0.001$) with an F value of 42.576.

Table 7. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.960	5	7.992	42.576	.000[b]
	Residual	41.296	220	.188		
	Total	81.256	225			
a. Dependent Variable: Patient Satisfaction						
b. Predictors: (Constant), Empathy, Responsiveness, Reliability, Assurance, Tangibility						

Table 8 presents the results of the examination of the significance of the overall regression model. As shown in the table, the F-statistics are significantly high, and the model is strongly significant (P<0.001). Moreover, table 8 stated below presents the results of the multiple regression in which the study hypothesis is tested. The results revealed that all independent variables, i.e. tangibility (β = 0.151, P< 0.001), reliability (β = 0.147, P< 0.001), responsiveness(β=0.182,P<0.001),assurance(β=0.097,P<0.001),empathy(β=0.387, P< 0.001) are all significantly associated with patients' satisfaction.

The results of the multiple regressions reveal that among the five independent variables the impact of empathy has the largest magnitude on patients' satisfaction (β = 0.387) followed by responsiveness (β = 0.182), tangibility (β = 0.151), reliability (β = 0.147) and finally the assurance (β =0.097). In other words, assurance has the lowest influence on patients' satisfaction among the five independent variables. It is important to note that the results revealed that all the variables are statistically significant with p=p-values less than 0.001 and the beta values are less than 0.2, so we can say all those components are statistically significant.

Table 8. Results of the Hypothesis Testing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.147	.268		.547	.585
	Tangibility	.151	.059	.153	2.537	.002
	Reliability	.147	.049	.163	2.996	.003
	Responsiveness	.182	.054	.183	3.384	.001
	Assurance	.097	.038	.136	2.552	.001
	Empathy	.387	.063	.359	6.101	.000
a. Dependent Variable: Patients Satisfaction						

The primary hypothesis proposed to identify the relationship between tangibility, reliability, responsiveness, assurance, empathy and patients' satisfaction towards private hospital healthcare services in Dhaka. Therefore, the outcomes of the multiple regression analysis stated in the table showed that the p-value for tangibility is 0.002,followed by reliability, responsiveness, assurance, and empathy (0.003, 0.001, 0.001, 0.000). Meanwhile, all the p-values are lower than α=0.05, or 0.000 < 0.05, so all the hypotheses are approved.

Moreover, the statistics "t =" are greater than the t-value of 1.960, as it indicates that tangibility, reliability, responsiveness, assurance and empathy make a contribution to the forecast of the patients' satisfaction on private hospital healthcare service in Dhaka. Furthermore, the positive t-value indicates that the relationship between individual factors is positive, indicating that the higher the tangibility, the higher the patient's satisfaction with private hospital healthcare service could be. Thus, it can be determined that tangibility, reliability, responsiveness, assurance, and empathy have a positive impact on patients' satisfaction towards private hospital healthcare service in the Dhaka city region. Therefore, it is clearly understandable that all hypotheses were statistically supported, as p-values were below 0.05, confirming the positive associations among service quality dimensions and patient satisfaction.

DISCUSSIONS

Over the last twenty years, the private hospital sector in Bangladesh has not made enough progress in terms of healthcare service facilities for the mass population, especially in Dhaka city. There has been increased potential within the industry. In recent years, we have seen considerable competition in this sector. The competition has led to an improved performance; the private hospital sector has been adversely exaggerated by the competition as private hospital healthcare services are inadequate for the patients in the Dhaka city region. On the other hand, private hospital authorities and stakeholders are unable to provide proper healthcare services at an affordable cost. In such a situation, the patients' satisfaction has become a pressing factor for the private hospital healthcare sector to increase long-term healthcare facilities, medical growth, and stability of the local community.

The study's results showed that patients are more satisfied when providers are tangible, reliable, responsive, assured, and empathetic. Therefore, for any private hospital to provide optimal patient satisfaction, it is prudent to focus on all aspects of service quality at once. Stakeholders in private hospitals should be cognisant of the healthcare services they provide, making sure that patients have access to the treatments they guarantee. It is important that physical components, including housing, technological frameworks, utilities, facilities, capacity for external labour, contact materials, and other physical features, stand out from the competition. Private hospital service providers should assist their patients as per their request on time. Stakeholders should provide training for their employees, nurses and doctors on a regular basis in order to prepare them to handle patients' inquiries more efficiently through better interactions as well as solve their problems and complaints duly. If required, they should also give their patients individual attention. Hence, private hospital service providers should corroborate the offered services as promised in their promotional offerings and the confidentiality of their patients should be maintained. At the same time, it should be ensured that patients feel safe while visiting these private hospitals and the private hospital service providers should offer deserving service to patients belonging to each and every layer of the patients without discrimination.

LIMITATIONS

The conduct of social science research is inevitably fraught with problems, and this study is no exception. In light of that, similar to previous studies, this one has its limitations. New opportunities and suggestions for future research might be considered in light of a discussion of the limits. The investigation reveals some negative aspects that require more examination. To start with, this study only included five private hospitals and the Dhaka city region (Square Hospital, United Hospital Limited, LABAID Specialised Hospital, Green Life Medical College Hospital, and Metropolitan Medical Centre). But future researchers may want to expand their study to include data from other parts of the country. The second issue is

that we haven't considered how mediating and moderating variables could have an effect. To address these concerns, future research can look at other factors, such as how mediating and moderating variables affect the suggested model. Researchers in the fields can also incorporate demographic variables that pertain to patients, including their gender, age, ethnicity, and so on. Although this study has solely looked at the dimensions of service quality as they pertain to tourists' intentions to return, it is suggested that future studies look into other pertinent theories and variables that could be comparable to patients' satisfaction, like loyalty to the brand, recommendations from patients, etc. In addition, future research should broaden the scope of the evaluation to include other types of healthcare facilities in various regions, such as public health centres, diagnostic centres, community clinics, etc., since this study only involved private hospitals. Due to the quantitative nature of the present study and the organised nature of the questionnaire, respondents are not allowed to express their opinions about the specific items asked. Researchers in the future will have a chance to examine the current phenomena using either mostly qualitative methods or a mix of qualitative and quantitative techniques. Further, it would be very praiseworthy if future research validated their models in diverse cultural contexts by collecting data from patients in two separate areas or nations.

RECOMMENDATIONS

This study makes several recommendations for the leadership of the private hospital sector. The study's results indicate that aspects of service quality are the most important factors in ensuring patient satisfaction. Therefore, while planning strategies for all parts of the business, stakeholders in the private hospital sector should prioritise service quality. Since the results show that service quality is the key to patient satisfaction, healthcare providers in the private sector of hospitals in the Dhaka area would do well to concentrate on providing excellent service if they want to see an uptick in patient satisfaction. Private healthcare service owners can use the study's relevant aspects, such as service quality dimensions, to come up with methods to increase patient volume, according to the results. However, to provide their patients with the best care possible, medical professionals working in private hospitals should be well-versed in the characteristics and dimensions of service quality, including tangibility, dependability, responsiveness, assurance, and empathy. Consequently, to build a reliable relationship with their patients and increase their level of satisfaction, private hospital service providers must thoughtfully consider and consistently incorporate service quality elements into their marketing strategies.

CONCLUSION

The purpose of this research was to identify and analyse the elements that have the greatest bearing on the level of satisfaction that patients have with the healthcare treatment they receive from private hospitals. Factors like tangibility, dependability, responsiveness, assurance, empathy, and patient satisfaction make up the study's conceptual framework. The study identified qualities such as tangibility, dependability, responsiveness, assurance, and empathy as multi-dimensional aspects of service quality. The linked factors' direct consequences have been investigated using SPSS. When it comes to tangibility, dependability, responsiveness, assurance, and empathy, the results demonstrated that patients' satisfaction with private hospital healthcare service is significantly impacted. Researchers and healthcare providers in Dhaka, Bangladesh, will benefit from the findings since they shed light on the factors that influence patients' perceptions of the private hospital's ability to meet their needs.

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