Research Article
Malays. j. med. biol. res.

Service Quality of Selected Private Hospitals in Bangladesh

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ABSTRACT

Service quality is directly connected with the development of the organization in terms of earnings and market share. In the case of the healthcare sector, quality improvement is mandatory to maximize patient satisfaction and maintain competitiveness in the industry. In recent years, Bangladesh has developed the health industry in both public and private sectors, providing quality services that enhance patient satisfaction. This study is focused on the perceptions of service quality in selected private hospitals – Bangladesh Specialized Hospital and Ibn Sina Hospital. The SERVQUAL model was applied to study the gap between patients' perceptions and expectations. The five dimensions for this study – tangibility, reliability, responsiveness, assurance, and empathy depict their relative importance in the empirical research. Factor analysis was performed on a sample size of 155 patients. Findings indicate that tangibility is the uppermost trait, whereas reliability is the least trait in these selected private hospitals. Private medical hospitals' management needs to be more cautious to enhance service quality, patient satisfaction, and patient loyalty in the overall context of the healthcare delivery in Bangladesh.

Keywords: Health Care, Private Medical Hospital, SERVQUAL, Quality, and Patient Satisfaction

Manuscript Received: 13 February 2024 - Revised: 04 April 2024 - Accepted: 14 April 2024

INTRODUCTION

Service is an economic activity that cannot be stored, and the concern for quality of service for service providers and differentiating between them to ensure customer satisfaction may depend on various factors. In many countries, service sectors are the most significant contributors to GDP (Bateson and Hoffman, 1991). Healthcare can draw noteworthy earnings from local and international sources; good examples are Singapore and Thailand, where many patients from Bangladesh, India, and Pakistan visit for quality treatment. In most cases, service quality is a vital issue for which patients are running after foreign medical treatment. This paper uses the SERVQUAL model developed by Parasuraman et.al (1988) to study the perception of service quality by patients of different genders and age groups based on five dimensions, namely tangibility, reliability, responsiveness, assurance, and empathy.

Health Care Systems in Bangladesh

After gaining sovereignty in 1971, Bangladesh faced high death rates, low female literacy, vulnerability to natural disasters, and malnourishment. During that time, health sector procedures were mainly focused on population control and primary healthcare services for the poor and underprivileged people. To date, the Bangladesh health system has been experiencing reforms for more than 52 years after its independence and is striving to expand a wide-ranging health care infrastructure in both public and private sectors.

The Bangladesh health system is pluralistic and consists of the government, the private sector, the non-governmental

organizations (NGOs), and the international donor organizations. Two ministries within the government are accountable for providing and controlling healthcare. The Ministry of Health and Family Welfare offers public sector healthcare up to the tertiary level in rural and urban areas. In contrast, the Ministry of Local Government, Rural Development, and Cooperatives is liable for primary healthcare in urban areas. After adopting the Millennium Development Goals (MDGs), there was a quick response towards enhancing the key indicators like maternal mortality, vaccination coverage, and life expectancy from several fatal communicable diseases like tuberculosis, malaria, and diarrhea (Andaleeb, 2000). At present, there are 5,816 hospitals in Bangladesh. Along with public hospitals, private hospitals are offering high-quality health care facilities with skilled health care workers, focusing on patient satisfaction and achieving a positive image to attract new patients compared to public hospitals.

LITERATURE REVIEW

Healthcare analysts have been applying the SERVQUAL model to measure patient satisfaction and loyalty since 1997. The tool helps to identify the gap between service delivery and patient expectations (Zarei et al., 2015). SERVQUAL has become a key concept in today's competitive business market as it is considered a vital feature for success and achievement.

According to Andaleeb (2001), not all five dimensions of service quality are essential to determine precise service conditions. The author conducted a study on service quality perceptions and patient satisfaction in Bangladesh, where he identified five dimensions of service quality: responsiveness, assurance, communication, discipline, and baksheesh. Service quality has become a significant issue due to its apparent connection to client satisfaction, client loyalty, positive word of mouth, costs, and organizational profitability (Rad et al., 2010). Butt and de Run (2010) executed a study to assess private healthcare service quality in Malaysia, where they identified the service quality gap between service expectations and service perceptions.

In 2009, Manaf and Phang investigated patient satisfaction as a measure of service quality in Malaysian Public Hospitals. They calculated patient satisfaction based on two dimensions, namely clinical and physical measurements. Clinical extents were recognized by five variables, including the service of doctors, the service of nurses, clinical treatment, patient care, and updated information about the condition. Physical extents were classified by five variables, such as cleanliness, environment, visitor management, bathroom and toilet facilities, and noise in the ward. Both clinical and physical extents had a noteworthy pressure on inpatient and outpatient satisfaction in Malaysian public hospitals.

Buyukozkan et al. (2011) conducted research that identified six factors, tangibles, responsiveness, reliability, assurance, empathy, and professionalism, in assessing healthcare service quality in Turkey. Empathy was the most critical factor for healthcare service quality there. Then professionalism and reliability factors were both significantly related to the service quality performance of the hospital. High-quality service always leads to high customer satisfaction (Subramanian et al., 2014). Many studies showed that SERVQUAL significantly influences patient satisfaction and loyalty in healthcare organizations (Shabbir et al., 2016).

SERVQUAL is based on five dimensions for evaluating service performance according to Parasuraman et al. (1985):

- Tangibles: It refers to physical facilities, tools, or equipment used to provide services and staff appearance. Signs, comfort, accessibility, spaciousness, and functionality are also considered as physical facilities (D'Cunha and Suresh, 2015). It is associated with service varieties to meet customer expectations (Caruana and Berthon, 2002).
- Reliability: It refers to the ability to deliver service accurately as the customer desires. Providing the service at the right time on the premises, billing accurately, and keeping records correctly are also essential to judge the reliability factor (Kondasani and Panda, 2015).
- Responsiveness: It refers to the service provider's willingness or readiness to offer a prompt service. It deals with providing quick services to the customer, setting up appointments, sending transaction slips to the customers, and calling customers quickly (Calisir et al., 2014).
- Assurance: It refers to employee knowledge, courtesy, and the ability to convey trust and confidence. Employees should have in-depth knowledge to provide high-quality service to customers. Courtesy indicates politeness, respect, and friendliness, whereas conveying trust and confidence means trustworthiness, believability, and honesty (Kitapci et al., 2014).
- Empathy: It refers to caring, understanding customer needs, and providing individual attention to customers. It indicates the ability to answer the customers, such as identifying standard customers and learning their exact needs. Empathy and customer relationship have a positive influence on customer satisfaction (Fitzpatrick, 1991; Zarei et al., 2015).

The quality of healthcare services has been a pivotal area of research, particularly in developing countries where healthcare systems are undergoing rapid transformations. Numerous studies have emphasized the importance of measuring service quality in healthcare institutions to ensure patient satisfaction and institutional growth.

The SERVQUAL model, initially introduced by Parasuraman et al., has been extensively used across various healthcare settings to evaluate the gap between patients' expectations and their perceptions of received services. Addimulam et al. (2021) conducted a detailed analysis using the SERVQUAL framework in Indian healthcare systems and found significant gaps, especially in the dimensions of responsiveness and empathy. Similarly, Devarapu et al. (2019) reported that tangibility and assurance played a prominent role in enhancing patient trust in private hospitals.

In the South Asian context, Rahman (2017, 2020, 2023) has provided critical insights into the evolving landscape of Bangladesh's healthcare industry. His studies emphasized that while infrastructural development has been noticeable, the human-centric aspects of service—such as empathy and responsiveness—require sustained attention. Rahman et al. (2022) further highlighted the necessity of staff training and transparent communication in private hospitals to bridge the service quality gap.

Onteddu et al. (2022) underscored the role of patient-centered care in improving service quality outcomes, indicating that reliability and assurance are crucial in shaping patient perceptions. Kundavaram et al. (2018) explored service quality dimensions in tertiary care settings, where responsiveness was found to be a key determinant of patient satisfaction.

Asadullah et al. (2021) emphasized the competitive advantage of private healthcare institutions that consistently invest in quality improvement measures. They argued that such practices not only enhance patient loyalty but also strengthen the brand image of the hospital. Rodriguez et al. (2023) reinforced this perspective by linking service quality performance to long-term organizational sustainability, especially in emerging economies.

Collectively, these studies reveal a consensus that service quality in healthcare is multidimensional and deeply tied to patient satisfaction and institutional success. They provide a theoretical and empirical foundation for examining the quality of services in selected private hospitals in Bangladesh, using the SERVQUAL model as a guiding framework.

METHODOLOGY

As the study is about analyzing the impact of service quality of private hospitals, the population includes the patients of private hospitals located in the Shyamoli area. However, two private hospitals (Ibn Sina Hospital and Bangladesh Specialized Hospital) were selected for the study. The total valid sample size has been set at 155, and the sample was selected using a convenience sampling approach, which is based on easy accessibility to the sample. A self-administered questionnaire was applied to measure the perception of service quality based on the review of the literature on SERVQUAL and in-depth interviews with the service providers in the private hospital industry in Bangladesh.

The questionnaire was structured so that the patients were asked to rate their level of agreement with the hospitals from which they receive their services on a five-point Likert scale ranging from (1) indicating "strongly disagree" to (5) indicating "strongly agree". Some 250 questions were distributed; patients who had checked out from the hospital and were about to leave were approached. A total of 184 questionnaires were returned. Of those, 155 were fully completed and usable for data analysis, representing a response rate of about 62 percent.

Statistical software SPSS was used to analyze the patients' perception of service quality and to assess the factors affecting service quality of the hospitals. The secondary data were collected from various documents, reports, articles, case studies, books, the internet, and so on. The collected data were analyzed with the study's objective in mind. The period of study is February 2023 to July 2023.

Research Hypothesis

Hypothesis 1: There is no gap between perceived services and expected services of the selected private hospitals.

Hypothesis 2: There is no difference between the factors affecting service quality perceptions.

FINDINGS

Analysis of the Patients' Perception of Service Quality and Overall Service Quality Gap: In this study, 15 statements were used to measure the service quality across the above-mentioned five dimensions by using a five-point Likert scale. The inclusive perception of service quality of the selected private hospitals is presented in Table 1.

Table 1: Patients' perception of service quality of private hospitals in Bangladesh

Dimensions	Mean	St. Deviation
Tangibility	4.257	.5007
Reliability	1.773	.6826
Responsiveness	3.934	.6826
Assurance	3.063	.2973
Empathy	4.482	0.5002

From the analytical table 1 it is uncovered that, patients' overall perception is good with the physical appearance, medical equipment and different classes of facilities of the selected hospitals, and caring and individualized attention to each patient, and is moderate with the behavior of the doctors and other medical staffs, quality of treatments, quality of foods, and category of service standards. In contrast, the patient's perception is low regarding the reliability of the treatment of the private hospitals in Bangladesh. Table 2 largely depicts the service quality gap of the selected private hospital in the mentioned geographic area. The gap score points towards the degree of gap in service. The bigger the gap score is, the more the dissatisfaction.

Table 2: Service quality gap of the selected private hospitals

Dimensions	Mean	St. Deviation
Tangibility	0.743	.5007
Assurance	1.937	.6826
Reliability	3.227	.6826
Responsiveness	1.066	.2973
Empathy	0.518	0.5002

As shown in Table 2, the lowest gap is in the empathy and tangibility factors, and reliability shows the maximum gap. This means that the physical appearance, equipment, room facilities, etc. are good in private hospitals, but problems exist in the reliability of the hospitals' patient services.

Factor Analysis: The literature review suggests the variables that have a noteworthy impact on the perception of service quality of the private hospitals. A factor analysis has been conducted on those variables. The respondent's ratings are subject to principal axis factoring with varimax Rotation to minimize potential multicollinearity among the items and to improve reliability of the data. Fifteen items are reduced to five orthogonal factor proportions, which account for 75.671% of the overall Variance, demonstrating that these five factors well capture the Variance of the original values.

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	1918.005
	df	105
	Sig.	.000

Table 3 shows that KMO is 0.746, which falls short of the required value of 0.50. It describes that there is no error in 74.60% of the sample, and in the remaining 25.40%, there may be some error. Bartlett's test of sphericity designates that the strength of association among the variables is extreme. It presents a decent idea to continue with factor analysis of the data.

The value of the Chi-square test (1918.005 with a significance level of 0.000) indicates the rejection of the null hypothesis. It indicates that there are significant differences among the factors upsetting service quality perceptions. Communality of each statement refers to the Variance being shared or common by other statements. From the communality, it can be seen that the communality for each variable V1 to V15 is one.

Table 4: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.321	35.471	35.471	5.321	35.471	35.471	4.903	32.687	32.687
2	2.577	17.179	52.650	2.577	17.179	52.650	2.447	16.312	48.999
3	1.231	8.203	60.854	1.231	8.203	60.854	1.490	9.933	58.931
4	1.179	7.862	68.716	1.179	7.862	68.716	1.291	8.609	67.541
5	1.043	6.955	75.671	1.043	6.955	75.671	1.220	8.130	75.671
6	.806	5.376	81.047						
7	.696	4.637	85.684						
8	.670	4.469	90.153						
9	.548	3.654	93.807						
10	.366	2.437	96.244						
11	.242	1.615	97.858						
12	.203	1.350	99.209						
13	.069	.458	99.666						
14	.038	.254	99.921						
15	.012	.079	100.000						
Extraction Method: Principal Component Analysis.									

In Table 4, the eigenvalues of the factors are, as expected, in decreasing order of magnitude as going from factor or component 1 to 15. Eigenvalue for a factor designates the total Variance attributed to the factor. The eigenvalues of factors one to five are 5.321, 2.577, 1.231, 1.179, and 1.043, respectively, which exceed the required level of 1.

Factor one report for a variance of 5.321, which is 35.47 % of the total Variance. Factor 2 accounts for a variance of 2.577, which is 17.179% of the total Variance. Factor 3 explains a variance of 1.231, which is 8.203% of the total Variance. Factor 4 accounts for a variance of 1.179, which is 7.826% of the total Variance. Factor 5 accounts for a variance of 1.043, which is 6.955% of the total Variance. It can be interpreted that 15 variables are reduced to five components or factors contributing 75.671% of the total Variance, indicating that these five factors account for more Variance than the required 60% cumulative variance.

Table 5: Component Matrixa

	Component				
	1	2	3	4	5
The physical facilities of the hospital are visually appealing	-.629	.102	.147	.004	.240
If this hospital promises to do something by a certain time, they do it	-.200	-.385	-.563	.370	-.041
The hospital has modern equipment and materials associated with the service	.081	.541	-.252	-.351	-.016
Staff of this hospital are neat and clean	-.468	.770	-.073	-.076	-.049
When a patient has a problem, the hospital shows a sincere interest in solving it	-.258	.451	.488	.277	.121
The hospital insists on error-free records	.794	.022	-.170	-.279	-.054
Employees of the hospital tell patients exactly when the services will be performed	.651	.549	-.201	.073	.220
Employees of the hospital give prompt service to the patients,	-.099	.852	-.011	.140	-.047
The hospital has operating hours convenient for the patients	.847	.460	-.069	-.044	.031
The behavior of employees in the hospital puts confidence in the patients.	-.374	-.063	.567	-.345	-.308
The employees of the hospital are courteous to their patients	-.022	.227	.028	.696	-.545
Employees of the hospital will know how to answer patients' questions	-.402	-.026	.073	.271	.712
The hospital gives patients individual attention	.926	-.115	.215	.113	.060
Employees of the hospital are always willing to help customers.	-.926	.121	-.189	-.109	-.053
The hospital has its patients ' best interests at heart	.891	-.079	.317	.174	.085
Extraction Method: Principal Component Analysis. a. 5 components extracted.					

Table 5 reports the factor loadings for each variable on the unrotated component or factors. Each number represents the correlation between the items and the unrotated factors. This correlation helps to formulate and interpret the factors or components. It is possible to see items with significant loadings (more than the required level of 0.30) on several of the unrotated factors, which makes interpretation difficult. In these cases, it can be helpful to examine a rotated solution.

Table 6: Rotated Component Matrixa

	Component				
	1	2	3	4	5
The physical facilities of the hospital are visually appealing	-.517	.058	.436	.152	.740
If this hospital promises to do something by a certain time, they do it	-.433	.149	.156	.749	.155
The hospital has modern equipment and materials associated with the service	-.292	-.303	-.069	-.663	.604
Staff of this hospital are neat and clean	.001	.163	-.193	.003	.901
When a patient has a problem, the hospital shows a sincere interest in solving it	-.049	.257	.525	.653	.336
The hospital insists on error-free records	.667	.127	-.449	.734	-.260
Employees of the hospital tell patients exactly when the services will be performed	-.243	.677	.022	.378	-.026
Employees of the hospital give prompt service to the patients,	-.032	.783	.177	.087	.323
The hospital has operating hours convenient for the patients	.814	.579	-.198	-.070	-.020
The behavior of employees in the hospital puts confidence in the patients.	-.334	-.152	.806	.104	-.304
The employees of the hospital are courteous to their patients	.009	.058	.609	-.088	.004
Employees of the hospital will know how to answer patients' questions	-.208	-.074	.800	-.178	-.164
The hospital gives patients individual attention	.945	-.164	-.118	.007	.000
Employees of the hospital are always willing to help customers	-.937	.642	.135	.012	.005
The hospital has its patients' best interests at heart	.949	-.166	-.021	.074	.059

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

The rotated factor matrix in Table 6 makes it simple to make decisions. Factor 1 has a deep relationship with variables 9, 13, and 15. Factor 2 is related to 7, 8, and 14. Factor 3 has a relationship with 10, 11, and 12; factor 4 has a relationship with variable 2, 5, and 6; and factor 5 has a relationship with variable 1, 3, and 4. The highest loading of each variable is categorized under each factor.

Factor 1 includes the hospital providing individual attention to patients, focusing on the patients' interests at heart, and operating hours convenient to the patients, which can be broadly defined as empathy. Factor 2 includes employees providing prompt service to patients, the hospital disclosing to patients exactly when the services will be performed, and employees being always willing to help customers, which can be broadly defined as responsiveness. Factor 3 includes the behavior of employees in the hospital showing confidence in providing service to the patients, being courteous with their patients, and having knowledge to answer patients' questions, which can be defined as assurance. Factor 4 includes the reliability of services given to the patients, and factor 5 includes the physical appearance, availability of modern medical equipment in the hospitals to provide the required services, which can be termed as tangibility.

CONCLUSION

It is considered that the quality of healthcare services is the primary concern and is directly associated with the socio-economic improvement of the population. The quality of health services should be preserved to present hygienic and secure services that can increase patients' satisfaction level and diminish the gap between perception and expectation. Service providers have to allocate resources effectively and efficiently to enhance the service quality. In Bangladesh, private hospitals' management focuses more on tangible features than public hospitals' management due to their clean and organized premises, equipment, room amenities, etc. Empathy factor is satisfactory in the context of the selected

private hospitals in this study, as the employees are caring, understand customer needs, and provide individual attention to customers. Assurance factor is rated as mediocre according to the study, which indicates the interpretation of laboratory reports, diagnosis of exact diseases, and proper explanation of queries. Responsiveness is considered average where patients expect prescribed drugs to be available and administered well. Reliability is not up to the mark; some of the patients shared their dreadful experiences and sufferings during the study. They accused doctors of recommending unnecessary medical tests and specialists of being unavailable at the required time. Given these factors, the quality of service is not up to the mark. Many patients, who can afford the high expenses, are seeking treatment alternatives in other countries. It is directly affecting not only our medical sectors but also alarming our foreign exchange resources. Variety of activities like TQM (Total Quality Management), CQI (Continuous Quality Improvement), and restructuring can incite the professionalism of the health care providers to deliver what patients have long expected from them. Measures should be taken to monitor the extent and direction of change in the overall quality of services in the private hospitals in Bangladesh.

REFERENCES

Addimulam, S., Rahman, K., Karanam, R. K., & Natakam, V. M. (2021). AI-Powered Diagnostics: Revolutionizing Medical Research and Patient Care. *Technology & Management Review*, *6*, 36-49.

Andaleeb, S. S. (2000). Public and private hospitals in Bangladesh: service quality and predictors of hospital choice. Health Policy and Planning, 15(1), 95-102.

Andaleeb, S. S. (2001). Service quality perceptions and patient satisfaction: a study of hospitals in a developing country. Social Science & Medicine, 52(9), 1359-1370.

Asadullah, A., Rahman, K., Azad, M. M. (2021). Accurate and Predictable Cardiovascular Disease Detection by Machine Learning. *Journal of Cardiovascular Disease Research, 12*(3), 448-454.

Bateson, J.E.G. and Hoffman, K.D. (1991). Managing Services Marketing: Text and Readings. Dryden Press, London.

Butt, M.M. and Run, E.C. (2010). Private healthcare quality: applying a SERVQUAL model. *International Journal of Health Care Quality Assurance, 23*(7), 658-673.

Buyukozkan, G., Cifci, G. and Guleryuz, S. (2011). Strategic analysis of healthcare service quality using fuzzy AHP methodology. *Expert Systems with Applications, 38*(8), 9407-9424.

Calisir, F., Bayraktaroglu, A.E., Gumussoy, C.A. and Kaya, B. (2014). Effects of service quality dimensions including usability on perceived overall quality, customer satisfaction, and return intention in different hospital types. *International Journal of Advanced Operations Management, 6*(4), 309-323.

Caruana, A.M. and Berthon, P.R. (2002). Service quality and satisfaction and the mediating role of value. *European Journal of Marketing, 34*(11/12), 1338-1352.

D'Cunha, S. and Suresh, S. (2015). The measurement of service quality in healthcare: a study in a selected hospital. International Journal of Health Sciences and Research, 5(7), 333-345.

Devarapu, K., Rahman, K., Kamisetty, A., & Narsina, D. (2019). MLOps-Driven Solutions for Real-Time Monitoring of Obesity and Its Impact on Heart Disease Risk: Enhancing Predictive Accuracy in Healthcare. *International Journal of Reciprocal Symmetry and Theoretical Physics*, *6*, 43-55.

Fitzpatrick, R. (1991). Surveys of patient satisfaction: i – important general considerations. British Medical Journal, 302(6781), 887-889.

Kitapci, O., Akdogan, C. and Dortyol, İ.T. (2014). The impact of service quality dimensions on patient satisfaction, repurchase intentions and word-of-mouth communication in the public healthcare industry. *Procedia-Social and Behavioral Sciences, 148*, 161-169.

Kondasani, R.K.R. and Panda, R.K. (2015). Customer perceived service quality, satisfaction and loyalty in Indian private healthcare. *International Journal of Health Care Quality Assurance, 28*(5), 452-467.

Kundavaram, R. R., Rahman, K., Devarapu, K., Narsina, D., Kamisetty, A., Gummadi, J. C. S., Talla, R. R., Onteddu, A. R., & Kothapalli, S. (2018). Predictive Analytics and Generative AI for Optimizing Cervical and Breast Cancer Outcomes: A Data-Centric Approach. *ABC Research Alert*, *6*(3), 214-223.

Manaf, N.H.A. and Nooi, P.S. (2009). Patient satisfaction as an indicator of service quality in Malaysian public hospitals. *Asian Journal on Quality, 10*(1), 77-87.

Onteddu, A. R., Rahman, K., Roberts, C., Kundavaram, R. R., Kothapalli, S. (2022). Blockchain-Enhanced Machine Learning for Predictive Analytics in Precision Medicine. *Silicon Valley Tech Review, 1*(1), 48-60.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing, 49*(4), 41–50.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64*(1), 12–40.

Rad, N.F., Som, A.P.M. and Zainuddin, Y. (2010). Service quality and patients' satisfaction in medical tourism. *World Applied Sciences Journal, 10*(1), 24-30.

Rahman, K. (2017). Digital Platforms in Learning and Assessment: The Coming of Age of Artificial Intelligence in Medical Checkup. *International Journal of Reciprocal Symmetry and Theoretical Physics*, *4*, 1-5.

Rahman, K. (2020). Harnessing artificial intelligence for predictive analytics in cervical and breast cancer prognosis. *NEXG AI Review of America, 1*(1), 135–144.

Rahman, K. (2023). Post-COVID physical and mental health outcomes among adults in Dhaka North City Corporation, Bangladesh. *Asian Journal of Humanity, Art and Literature, 10*(1), 9–20.

Rahman, K., Pasam, P., Addimulam, S., & Natakam, V. M. (2022). Leveraging AI for Chronic Disease Management: A New Horizon in Medical Research. *Malaysian Journal of Medical and Biological Research*, *9*(2), 81-90.

Rodriguez, M., Rahman, K., Devarapu, K., Sridharlakshmi, N. R. B., Gade, P. K., & Allam, A. R. (2023). GenAI-Augmented Data Analytics in Screening and Monitoring of Cervical and Breast Cancer: A Novel Approach to Precision Oncology. *Engineering International*, *11*(1), 73-84.

Shabbir, A., Malik, S.A. and Malik, S.A. (2016). Measuring patients' healthcare service quality perceptions, satisfaction, and loyalty in public and private sector hospitals in Pakistan. *International Journal of Quality & Reliability Management, 33*(5), 538-557.

Subramanian, N., Gunasekaran, A., Yu, J., Cheng, J. and Ning, K. (2014). Customer satisfaction and competitiveness in the Chinese E-retailing: structural equation modeling (SEM) approach to identify the role of quality factors. *Expert Systems with Applications, 41*(1), 69-80.

Zarei, E., Daneshkohan, A., Pouragha, B., Marzban, S. and Arab, M. (2015). An empirical study of the impact of service quality on patient satisfaction in private hospitals, Iran. *Global Journal of Health Science, 7*(1), 1-9.

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