



Healthcare Service Quality Digitization with Enterprise Resource Planning

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Abstract

Background: Enterprise Resource Planning (ERP) systems can significantly enhance the quality and efficiency of healthcare services. However, their implementation is challenging in emerging nations due to high costs, complexity, and user resistance. This research aimed to assess medical professionals' opinions regarding enhancing service quality in healthcare facilities through implementing the Enterprise Resource Planning (ERP) platform. The total impact of integrated planning systems on the caliber of healthcare services has been assessed using individual characteristics, organizational perception, data, and ERP system quality. **Methods:** Triangulation is a mixed techniques approach to data collection and analysis. Using a self-administered questionnaire, data for the empirical study was gathered from 279 medical professionals working for five healthcare institutions in Dhaka city of Bangladesh. Reliability coefficients and descriptive statistics squared multiple correlations were employed as data analysis techniques. Additionally, AMOS 20 was used to perform the structural model's goodness of fit test. It is hypothesized that each of the ERP dimensions will improve the quality of healthcare

services. **Results:** The study found that healthcare service quality is significantly and favorably influenced by individual, organizational, information, and system quality, with all hypotheses validated ($p < 0.01$). The structural model fits nicely, accounting for 57.5% of the variation in healthcare service quality. **Conclusion:** The study showed a well-executed "Enterprise Resource Planning System" produces improved system output and empowers medical staff to deliver higher-quality healthcare services.

Keywords: Information Systems, Healthcare, Enterprise Resource Planning, Service Quality, Information Quality

Introduction

Information analytics and database management systems led to broad gains in productivity and quality in practically every aspect of life. Furthermore, the healthcare industry is not an exception, since information systems and technical developments are reshaping the industry with an integrated systems viewpoint. The majority of changes to healthcare systems are mostly directed toward improving the quality of services and lowering costs. Institutions and healthcare professionals lack the proper systems needed to implement strategic transformation. They feel compelled to utilize information technology as a result (Ervin Toçi, 2022). In contrast to other industries like finance and commerce, the healthcare sector is adopting IT-based integrated systems at a very

Significance | This study showed healthcare service quality by leveraging ERP systems for streamlined operations, improved patient care, and operational efficiency.

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modest pace, particularly in emerging economies. This necessitates an empirical study of the challenges facing the healthcare industry in implementing the Enterprise Resource Planning (ERP) system. ERP software enables a business to combine all of its departments and operations into a single, integrated system (Miklós Gubán, 2023). ERP mainly provides the business with two benefits that are typically absent from a non-integrated system; that is, (a) a unified database for ERP systems, which is where all of an organization's transactions are entered, saved, managed, and reported. A single business view for the enterprise that encompasses all organizational departments and their roles. According to Prasad Nagnath Rokade (2023), gaining a competitive advantage is another justification for ERP system implementation in healthcare companies.

ERP system design is predicated on an organization's increasing capacity to provide precise and timely information, which in turn increases the organization's competitiveness (Isazade, 2022). These systems are expensive to implement in an organization due to their complexity. Consequently, companies should reevaluate their ERP system adoption and purchase strategy (Niu et al., 2017). Although the ERP system has many advantages, it can also bring about unfavorable changes inside a business, and its failure rate varies. The healthcare industry is a highly intricate field with numerous departments and patient care systems (Sriramalakshmi et al., 2022; Rashid & Gürkan, 2022). The adoption of an information system to aid in disease diagnosis, enhance management, and provide better services has increased the healthcare system's dependability (Mucaraku & Ali, 2022). According to Mucaraku & Ali (2022), an information system (IS) in the healthcare industry is defined as a massive system of integration that can support the healthcare system's tremendous information needs, which include financial, clinical, auxiliary, and patient management. The application of information systems (IS) in healthcare has improved access to knowledge for clinical and administrative decision-making, improved the quality of patient treatment, and improved the management of health services (Niu et al., 2017). Integral systems are necessities in the healthcare industry for the creation of procedures and patient applications while taking capacity requirements into account. The application of ERP systems has enhanced the material management procedure in the healthcare sector.

The objectives of this study are to investigate how individual influence affects service quality, the relationship between organizational impact and service quality, the positive association between information quality and service supply, and the relationship between system quality and service excellence.

Practitioners are reluctant to adopt new technologies, particularly in developing economies like Bangladesh where the public sector is involved. Many people rely on continuing to operate in the conventional manner, and this is especially true in the public

healthcare industry. However, due to their commercialized nature, the private sector in developing nations is particularly privileged when it comes to technology. ERP is used extensively in the corporate sector; however, its application in public healthcare, especially in developing nations, is not as well understood. Therefore, by examining one of the earliest uses of public healthcare in Bangladesh's developing economy, this research seeks to advance the conversation about it. The article is organized as follows for the remainder of it: The literature on business resource planning and its use in the public healthcare sector is reviewed in the following section, with particular attention to developing economies. The theoretical model and the development of the hypotheses are then covered. The research design section provides further details on the research technique and framework in the next section. The conversation concludes with conclusions, research implications, and thought-provoking topics for additional research.

Together, the patient and the healthcare provider may provide high-quality healthcare services. Accordingly, the provider's personal traits, the patient's, and organizational elements all have an impact on the overall quality of the service (Lu et al., 2024). According to Syed Mudassar Ali Raza (2023) analysis of recent research on violent episodes involving doctors in South Asian nations, these incidents are often brought on by poor patient-provider communication, a negative public perception of the medical field, and subpar treatment. These issues can be resolved with the right ERP system. In the medical and healthcare fields, it is not uncommon for physicians to be ignorant about a specific illness. This is particularly true with junior physicians. According to Ikechukwu et al. (2019), the region of South East Asia has the highest rate of malaria cases. They proposed that this issue can be resolved by stepping up monitoring, surveillance, and international cooperation. According to Ikechukwu et al. (2019) active Comparative Effectiveness Research (CER) systems facilitate the exchange of knowledge, abilities, and resources. In this sense, ERPs can be useful since they facilitate real-time data exchange and regional networking amongst all stakeholders.

By defining 31 empowering benefits for this enterprise system and analyzing the literature, (Wang et al., 2023) conducted a survey to investigate the benefits of ERPs. They classified the benefits into four groups: communicative, informative, growth and learning, and strategic. The findings showed that the strategic, informational, and empowering effects are important advantages in communication. Miklós Gubán (2023) studied thirty SMEs in the Macedonian Republic using a survey. The results showed that while SMEs used standard project planning procedures, they did not view the planning stage as a separate ERP implementation phase. This survey found that, given the ERP deployments' performance, the majority of the representatives thought the project was beneficial in terms of perceived quality measures and client satisfaction.

Govrunova et al. (2022) used a multi-method approach to study the adoption and implementation of identical medical record systems in two different hospitals. They found that healthcare organizations gained from the deployment of the integrated medical system in terms of cost-effectiveness, data sharing, and information quality. According to Meiryani et al. (2021), the ERP system can combine data from the accounting, production, distribution, and human resources departments into a single computer system. ERPs give businesses a comprehensive understanding of every business process that is taking place within the company. It offers a single database, a single software program, and a single organization interface. According to M.M. Sulphay (2020), the ERP system can improve service quality, productivity, reduce service costs, and increase efficiency.

Material requirement planning (MRP) was the first component of the Enterprise Resource Planning system to be developed in 1960. Following then, the system underwent development and became MRP II (Javadi & Sadjadi, 2023). Many manufacturing businesses embraced the paradigm change from inventory control to MRP improvement between 1960 and 1970, since it allowed them to calculate the materials needed for their processes more efficiently. Subsequently, the MRP system underwent additional development to become a more complex system that featured resource planning, long-range planning, master scheduling, comprehensive capacity planning, and capacity planning (Kuswara & Yuwono, 2022). In addition, MRP II systems had a financial interface and planning for sales and operations. An effective instrument for organizing all kinds of resources found in an organization was the MRP II system. Although it made sense to plan the materials and production processes, businesses soon understood that profitability and customer happiness had to be taken into account as well (Yimsri et al., 2022). According to Kuswara & Yuwono (2022), the most recent version of the ERP system is capable of managing a number of business units, including purchasing, manufacturing, order processing, customer relationship management, human resource management, finance and accounting, material management, and operation and sales planning. Because of this, many businesses have already embraced ERPs, and the services industry is seeing a sharp rise in their use (Serhan & Hajj, 2019). The services sector has accounted for the majority of developed nations' GDP growth. As a result, pressure to provide new competitive offerings has been placed on the service sector by technological advancement, globalization trends, and communication technologies (Xiaojuan & Libin, 2020). In order to embrace current technology and make it user-friendly, corporations are interested in purchasing information systems. The healthcare sector faces challenges in using information technology due to the fact that the Enterprise Resource Planning system handles patient care (Iris Cathrina Abacan Pilaes, Bharanidharan Shanmug, 2022). A variety of players with a range

of interests and backgrounds also have an impact on the acquisition of this system. Health care stakeholders may oppose the adoption of information systems, so it is important to handle this issue cautiously because they will be involved in both the adoption and deployment of the systems (Ali Tarhini, 2020). A number of success criteria make the application of ERP system performance. According to (Hasan et al., 2019), the viewpoint covers the establishment of an ERP system, the implementation stage, the evaluation phase, the success of the ERP system, and its profit.

Akhzan et al. (2021) have provided twenty-two important success factors for the adoption of ERP systems at different phases of the implementation process. ERP system deployment success has also been associated with project management, upper management support, teamwork, change management programs, and ERP system team makeup. (Edwards & Edwards, 1 C.E.2021). There are numerous advantages to using an ERP system in practice. The advantages might be both real and intangible; for example, better cash flow, order handling, system integration, inventory reduction, logistics management, and improved information quality (Youssef Zaitar, 2022). By implementing an ERP system into their business processes, some firms have improved their position. For instance, Earthgains, a corporation, saw an increase in their operating margin from 2.4 to 3.3% after using an ERP system. In a similar vein, 99% of deliveries were made on schedule Youssef Zaitar (2022). Organizations face a variety of challenges during the various stages of the ERP system adoption process, which is an extremely complicated process. The high implementation costs have caused the deployment of ERP systems to fail in numerous occasions. ERP system process comprehension has improved as a result of the failure rate of ERP system implementation (S. C. Thushara, 2023). One issue with ERP systems is their extremely expensive implementation costs. Despite extensive public awareness of the Enterprise Resource Planning system's failure rate, firms continue to invest in ERP system adoption (Coşkun et al., 2022). The initial cost of the ERP software is three to ten times more than the cost of integrating it with the business process system. The high fees that system consultants and those working on system integration charge are the cause of this growth (Howard et al., 2019). There are additional costs associated with replacing the organization's current information system with the one needed for ERP.

Numerous research have examined how ERP has aided in the digitization of healthcare service quality. Bialas et al. (2023) used structural equation modeling to analyze data from an empirical study of 175 healthcare organizations in Jordan. They discovered a strong correlation between the ERP's antecedents and its implementation success, and they also proposed that user satisfaction is a key mediator between the ERP's ease of use and its successful implementation. According to Prasad Nagnath Rokade (2023) investigation into the use of ERP in public healthcare, the

benefits of the system may be categorized into four theoretical areas: strategy and performance management, operations efficiency, stakeholder satisfaction, and patient satisfaction. Staff involvement, process re-engineering, and project complexity are among the problems related to ERP installation. According to Afonso et al. (2023), efficiency and quality are components of healthcare service performance, hence there is unavoidably a relationship between the two. Although quality and efficiency are generally thought to be trade-offs, Afonso et al. (2023) argued that this belief cannot be entirely true.

The deployment of an ERP system is one way to reduce costs and capitalize on competitive advantage. Regarding undeveloped economies, practitioners tend to stick with established methods of doing things rather than embrace new technologies with hesitancy. Policymakers and scholars frequently discuss the acceptability of ERP systems in an effort to comprehend the psychological and social factors that underlie user adoption behavior. Scholars also aim to provide an explanation for why corporate stakeholders' use of ERP is still merely ceremonial (Saade & Nijher, 2020). A proposed expansion to the technology acceptance model was empirically investigated in an ERP implementation setting by (Gupta et al., 2022). It was demonstrated that project management and training have an impact on users' common perceptions of the technology's benefits as well as how common ideologies impact how quickly, simply, and intelligently something can be done. There are several factors that influence the ERP deployment, including user opposition. Based on the technological acceptance model (Kline, 2023) investigated the behavioral intention and real use of ERP installation. To verify the causal relationships between the variables, they employed the structural equation modeling program Lisrel. Analytical results show that perceived effectiveness and perceived ease of use are positively impacted by top leadership support. It was also discovered that genuine usage is positively impacted by behavioral intention.

METHODS AND MATERIALS

The ERP system's influence on the caliber of healthcare services is contingent upon its adoption by developing economies' public sectors. As a result, the Technology Acceptance Model's (TAM) implications became relevant and offered a concrete theory for research.

Individual impact: The term "impact on an individual" describes how using the ERP system within a business can boost an individual's productivity. This study focuses on four aspects of healthcare service quality: individual productivity, learning, effective decision-making, and individual awareness. It involves both physicians and nurses. The productivity and performance of each individual determines the overall quality of healthcare services. The utilization of ERP systems in the healthcare industry

is crucial for improving worker productivity. Systems for enterprise resource planning improve learning by providing people with new practices to learn. These technologies provide prompt access to all data and improve decision-making (Al-Lozi & Al-Qireem, 2021). Professionals can also learn more about the specifics of their jobs with the aid of the ERP system. In order to address the research objectives that were delineated in the introduction, the following hypotheses are proposed:

H₁: In the healthcare industry, individual influence and service quality are positively correlated.

Organizational impact: The benefits that an organization obtains from the deployment of an ERP system are referred to as organizational impact. In the healthcare industry, an information system's impact is measured by business performance (Kurolov, 2023). Organizational effectiveness, competitive advantage, market value, efficiency, and strategic value are used to quantify the impact of an organization. It consists of lowering expenses, increasing capacity, varying company processes, and raising productivity.

H₂: In the healthcare industry, organizational effect and service quality are positively correlated.

Information system quality is a factor in the quality of the information provided. Accuracy, currency, completeness, and consistency are among the aspects of information quality (Partiwi Dwi Astuti, 2023). ERP systems are useful for organizing information, but they are less effective at telling users about particular benefits.

H₃: In the healthcare industry, the influence of information quality positively correlates with the quality of services provided.

System Quality: System quality is the degree to which the technical and design features of the information system are assessed. As per (Mohammad Mahmoud Tarawneh, 2023), it is the assessment of the system's soundness. The characteristics of system quality measurement, such as data quality, data dependability, usability, and integration, are mentioned by (Wang et al., 2023). According to (Winter et al., 2023), system quality includes features like program quality maintenance, bug existence or absence, documentation quality, and ease of use.

H₄: In the healthcare industry, there is a positive correlation between system quality and service quality.

Based on the aforementioned ideas, a study model is suggested to assess how an ERP's system, organizational, informational, and individual quality affects the quality of healthcare services (Figure 1).

Questionnaire Design: Data is gathered using the survey instrument of the questionnaire. The questionnaire has been replicated from the information system and healthcare service quality dimensions. Three components form the basis of the research tool. The use and effects of ERP systems are covered in the

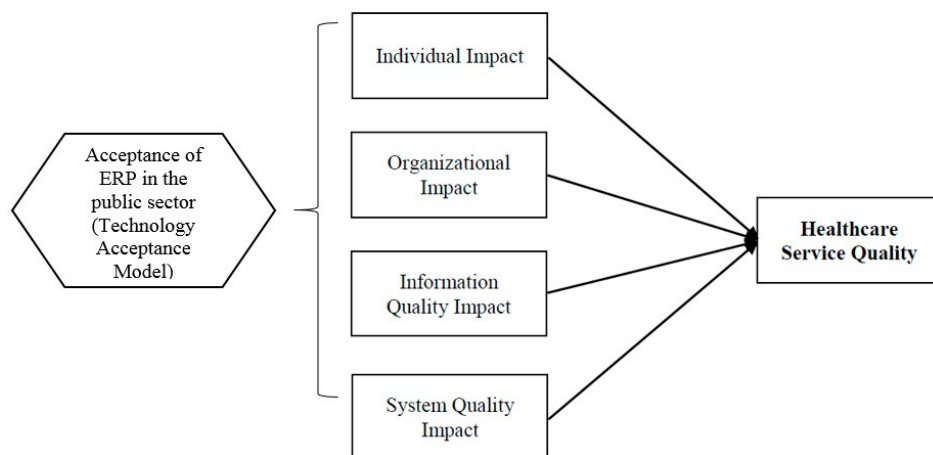


Figure 1. The Proposed Research Models.

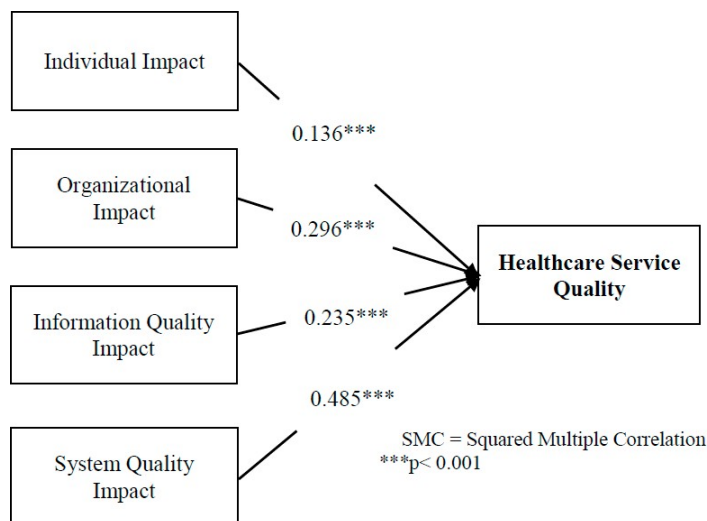


Figure 2. Structural Model Results.

Table 1. Demographic characteristics of the respondents.

Measure	Value	Frequency	Percentage
Gender	Male	123	44.1%
	Female	156	55.9%
Age	<25	104	37.3%
	26–30	95	34.1%
	31–35	57	20.4%
	36–40	13	4.7%
	>40	10	3.6%
Degree of Experience	<3	92	33.0%
	3–5	114	40.9%
	>5	73	26.2%
Job Title	Doctor	60	21.5%
	Medical Staff	149	53.4%
	Administration Staff	70	25.1%

Table 2. Descriptive, reliability coefficients & correlation matrix.

Construct	Mean	Standard Deviation	Reliability (α)	1	2	3	4
Individual Impact	3.78	0.59	0.74	1			
Organizational Impact	3.60	0.47	0.76	0.566 **	1		
Information Quality Impact	3.32	0.38	0.83	0.224 **	0.306 **	1	
System Quality Impact	3.59	0.57	0.85	0.444 **	0.405 **	0.309 **	1
Healthcare Service Quality	3.62	0.51	0.86	0.518 **	0.546 **	0.416 **	0.666 **

** Correlation is significant at the 0.01 level (2-tailed).

Table 3. Fit Indices of Structural Model.

Goodness-of-Fit (GOF) Measure	Score	Threshold Value
χ^2	36.708	
Df	13	
χ^2/df	2.8239	≤ 3
Normed fit index (NFI)	0.955	> 0.90
Tucker-Lewis index (TLI or NNFI)	0.934	> 0.90
Comparative Fit Index (CFI)	0.97	> 0.90
RMSEA	0.079	< 0.080

Table 4. Results of Hypotheses Testing

Hypotheses	Estimate	Results
H1: In the healthcare industry, individual influence and service quality are positively correlated.	0.136 ***	Supported
H2: In the healthcare industry, organizational effect and service quality are positively correlated.	0.296 ***	Supported
H3: In the healthcare industry, the influence of information quality positively correlates with the quality of services provided.	0.235 ***	Supported
H4: In the healthcare industry, there is a positive correlation between system quality and service quality.	0.485 ***	Supported

*** $p < 0.01$.

first section; healthcare service quality is covered in the second; and demographic variables are covered in the third.

The first section of the questionnaire is based on five impact variables that were analyzed using the questions proposed by Naqi et al. (2021): individual impact, system quality impact, organizational impact, information quality impact, and overall impact by the use of ERP in a healthcare setting.

System quality effect provides a technical description of the ERP's performance grade. It covers the following topics: user requirements, adaptability, dependability, accessibility, simplicity of use, efficiency, system features, ease of learning, and system accuracy. The impact of information quality on healthcare settings is related to the caliber of the data produced by the ERP system. The correctness of the medical field's content, the information's usability for medical professionals, its conciseness, availability, timeliness, uniqueness, importance, relevance, format, and comprehensibility are the ten questions used to quantify this variable. Organizational impact is measured by using eight questions that deal with improved outcomes, organizational cost, e-government, cost reduction, business process change, staff requirement, increased capacity, and overall productivity. The individual impact is analyzed with the help of four questions that cover individual productivity, awareness, and knowledge of doctors about their field, individual learning, and decision effectiveness. Overall, the variable 'impact' covers questions about overall ERP system including impacts on the individual and impact on the organization.

The performance of service quality in the healthcare industry is covered in the second section of the questionnaire. This variable can be measured by taking measures of Assurance, Empathy, Reliability, and Responsiveness. The SERVQUAL scale was used to replicate the seventeen questions that the respondents had to answer, which mirrored the characteristics of a hospital facility as described by (Dorota Krasowska, 2022).

These questions were close-ended with multiple choices on the five-point Likert scale. Closed questionnaires are easy to fill out by respondents and also suitable for analysis. The Likert scale in the present study ranged from 1 to 5. 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly disagree. The last part deals with the demographic information of the respondent (medical staff) and includes name, position in the organization, and relevant experience.

Collection of data: The study uses a mixed methods approach, wherein both primary and secondary sources are utilized for the collection of data. For the empirical investigation, questionnaires were used for the collection of primary data, whereas archival data is used to collect secondary data for model construction. In total, 500 self-administered questionnaires were disbursed to respondents of five healthcare organizations in the city of Dhaka,

Bangladesh. We selected both the private and public healthcare organizations, as the primary consideration was the implementation of ERP system. Out of which, we got feedback from 279 respondents, and this depicts that the response rate is 56%.

Results

The respondent's demographic characteristics are presented in Table 1.

The variables' inter-item correlations, reliability coefficient, and descriptive statistics are shown in Table 2. The study's descriptive statistical results show that the overall "ERPs impact" construct has a mean larger than 3. In light of this, it can be said that medical professionals think that using ERPs improves system, information, organizational, and individual quality. All dependability coefficient values fall between 0.74 and 0.86, which is well within Revelle's (2014) recommended threshold range.

The independent variable of individual impact has a substantial correlation ($r = 0.518$, $p < 0.01$) with the dependent variable of service quality in healthcare, according to the correlation matrix for the dependent and independent variables. Similarly, there exists a positive correlation ($r = 0.546$, $p < 0.01$) between organizational impact and service quality in the healthcare industry. The influence of information quality on service quality in healthcare also has a positive association ($r = 0.416$, $p < 0.01$) with it. In the field of healthcare, there is a positive correlation ($r = 0.666$, $p < 0.01$) between "system quality impact" and service quality. As a result, there is a high correlation between the independent variables—individual, organizational, and system quality impact—and the moderating effect of the correlation between "Information Quality Impact" and "Healthcare Service Quality,".

The Structural Model: AMOS 20.0 is used to assess the research model for goodness of fit, and the results indicate that the model as a whole can be classified as resilient (Figure 2). Table 3 also displays the recommended values and the structural model's fit indices. The ratio of the degree of freedom ($df = 13$) to the chi-square ($\chi^2 = 36.708$) is the first measure of the goodness of fit. According to Carmines and McIver (1981), the threshold value for this measure is ≤ 3 . Therefore, the computed value of 2.82369 in this research is appropriate. The comparative fit index (CFI) and Tucker-Lewis index (TLI or NNFI) values are all above 0.90, indicating a strong model fit according to the criterion set down by Jobst et al. (2021). Comparably, the Normed Fit Index (NFI) value is likewise greater than 0.90, indicating a satisfactory fit for the model (Murtagh and Heck 2012). Additionally, the RMSEA value is less than the significant value. According to various researchers' criteria, all of these fit indices are acceptable, indicating that a functional model fits the data.

The path analysis for the study variables is shown in Table 4, and it can be shown that each variable has a significant positive impact on

the quality of healthcare services ($\beta = 0.136, p < 0.001$), supporting hypothesis 1. The quality of healthcare services is significantly improved by the organizational impact ($\beta = 0.296, p < 0.001$). Hypothesis 3 is likewise supported, since information quality impact also significantly improves healthcare service quality ($\beta = 0.235, p < 0.001$). Hypothesis 4 is also validated because, similar to earlier hypotheses, system quality impact has a positive influence on healthcare service quality, which is likewise statistically significant ($\beta = 0.485, p < 0.001$). The squared multiple correlations (SMC) values and estimations are displayed in Figure 2, and they resemble the regression analysis's R square value. With an SMC value of 0.575, all the independent factors account for 57.5% of the variation in "Healthcare Service Quality."

Discussion

The outcomes of the investigation emphasize the pivotal role that diverse dimensions of ERP (Enterprise Resource Planning) impacts—individual, organizational, information quality, and system quality—play in augmenting healthcare service quality. The findings uncover significant positive associations between these independent variables and the reliant variable of healthcare service quality. Particularly, the individual impact ($r = 0.518$), organizational impact ($r = 0.546$), information quality impact ($r = 0.416$), and system quality impact ($r = 0.666$) are all strongly linked with enhanced healthcare service quality, indicating that the adoption of ERPs results in substantial enhancements across various aspects of healthcare provision. The adequacy of fit indices of the structural model, such as the χ^2/df ratio of 2.8239, NFI of 0.955, TLI of 0.934, CFI of 0.97, and RMSEA of 0.079, all lie within the acceptable range, signifying a sturdy and well-suited model. These findings substantiate the propositions that ERP implementation positively impacts healthcare service quality, thus affirming the research framework. The pathway analysis further affirms that each dimension significantly contributes to service quality, with system quality impact exhibiting the most substantial effect ($\beta = 0.485$). This implies that the technical and operational aspects of ERP systems are particularly essential in delivering top-notch healthcare services. Organizational impact ($\beta = 0.296$), information quality impact ($\beta = 0.235$), and individual impact ($\beta = 0.136$) also notably boost service quality, accentuating the multifaceted advantages of ERP systems in healthcare environments. In light of these discoveries, forthcoming research should delve into longitudinal studies to evaluate the enduring repercussions of ERP implementation on healthcare service quality. Moreover, scrutinizing the specific mechanisms by which ERP systems amplify different facets of healthcare provision could yield deeper insights. Exploring potential obstacles to ERP adoption and devising strategies to surmount these hurdles would also be advantageous. Lastly, broadening the research's scope to encompass

diverse healthcare settings and contrasting the effects of various ERP systems could furnish valuable comparative perspectives, guiding healthcare entities in selecting and optimizing ERP solutions tailored to their distinct requirements.

The all-encompassing examination of the research accentuates the beneficial influence of ERP systems on the quality of healthcare services, validating the crucial role of digitalization in augmenting healthcare results. The demographic data exposes a varied pool of participants, with an equitable representation spanning gender, age, experience levels, and job designations. This diversity fortifies the conclusions of the study by mirroring a wide array of viewpoints within the healthcare sector. The correlations between items and the reliability coefficients portray strong internal coherence across structures, with reliability coefficients ranging from 0.74 to 0.86. The descriptive data indicates that the average values for the structures consistently surpass 3, indicating favorable perceptions of ERP impact among healthcare practitioners. Specifically, the research emphasizes notable associations between the impacts of individual, organizational, informational, and system quality on healthcare service quality, with system quality impact displaying the most substantial correlation ($r = 0.666, p < 0.01$). The analysis of the structural model utilizing AMOS 20.0 further substantiates these connections, illustrating a properly fitting model with goodness-of-fit indicators such as CFI, TLI, and NFI surpassing the recommended thresholds. The pathway analysis affirms that all assumed connections are statistically meaningful, with impacts of individual, organizational, informational, and system quality positively affecting healthcare service quality (β ranging from 0.136 to 0.485, $p < 0.001$). The squared multiple correlation (SMC) value of 0.575 reveals that these factors jointly account for 57.5% of the variance in healthcare service quality.

This paper's uniqueness and significance stem from a revised categorization of advantages and challenges related to the application of enterprise resource planning in public health. Prior research (Seres et al., 2019) primarily ignored the distinctions between the public and private sectors in favor of concentrating on the technical components of the ERP system. This study advances our understanding by demonstrating that an effective ERP system implemented at a public institution can enhance system performance and help healthcare providers deliver higher-quality patient care. This study included five public and private sector entities in the healthcare industry. By creating a conceptual framework that gives policymakers a useful understanding of the variables influencing healthcare service quality, the article also advances healthcare practice. The relationship between system quality, individual impact, information quality impact, organizational impact, and service quality in the healthcare industry has been discussed. The findings indicate that the use of ERP has brought about numerous advantages for public healthcare

organizations as well. Every institute that was participating emphasized the operational benefits. The creation of reports, rapid access to vital information, improved products, and as well as budgeting. The installation of ERP has led to a decrease in corruption, according to the respondents. In light of Bangladesh's high rate of corruption, this is also a significant benefit. It is necessary to discuss the advantages and difficulties experienced by Bangladeshi businesses, as well as issues with infrastructure such as energy, problems integrating one module with another, adoption expenses, and a shortage of qualified ERP experts. Further research on cloud-based ERP, which is rapidly expanding globally, is advised in this regard. Furthermore, because the respondents were chosen from 'Dhaka cities' healthcare institutions, it is unable to extrapolate the findings to other industrialized nations. The research design has certain drawbacks. Because of the relatively limited sample size, it is advised to repeat the study with a bigger sample size and perhaps even expand its application to other industries.

The examination and outcomes of this research hold substantial pragmatic implications for the digitalization of healthcare service quality. The results underscore the crucial influence that different aspects of Enterprise Resource Planning (ERP) systems have on enhancing healthcare services. Specifically, the positive connections between individual, organizational, information, and system quality impacts on overall service quality suggest that incorporating ERP systems can significantly boost the efficiency and effectiveness of healthcare delivery.

Initially, the individual influence implies that healthcare professionals perceive a noteworthy enhancement in their performance and job satisfaction because of the improved functionality and user-friendliness of ERP systems. This is paramount as it emphasizes the significance of user-oriented design and educational programs to guarantee that staff can efficiently utilize these systems, thus enhancing patient care and administrative procedures.

Secondly, the strong relationship between organizational influence and service quality accentuates the advantages of ERPs in rationalizing healthcare operations. By promoting better coordination and communication within healthcare establishments, ERPs can result in more effective workflows, decreased errors, and enhanced patient outcomes. This indicates that healthcare organizations should prioritize integrating ERPs to support improved management practices and operational efficiencies.

The impact of information quality on service quality further stresses the significance of precise, prompt, and comprehensive data in healthcare environments. High-quality information systems aid in better decision-making, boost patient safety, and enhance clinical results. Consequently, investing in robust data management and

analytics capabilities is crucial for healthcare providers looking to utilize digital tools for quality enhancement.

Lastly, the substantial effect of system quality on service quality suggests that dependable, scalable, and well-maintained ERP systems are fundamental for achieving these enhancements. This highlights the necessity for continual investment in IT infrastructure, regular system upgrades, and stringent maintenance procedures to ensure the smooth operation of ERP systems.

In conclusion, the research's discoveries advocate for a strategic approach to healthcare digitalization, where ERPs are not solely seen as administrative instruments but as vital elements of a comprehensive strategy to boost healthcare service quality. By concentrating on these key impact areas, healthcare organizations can realize significant enhancements in efficiency, effectiveness, and patient contentment, thereby progressing the overall quality of care.

Conclusions

This article aims to investigate the relationship between ERP deployment success and its antecedents, such as information quality impact, system quality impact, or organizational impact. Comprehending the variables that impact the quality of health services aids in establishing best practices and lowering the number of errors in the delicate medical field. We looked into how ERP affected the caliber of healthcare services and found that ERP implementation had a beneficial effect. The medical practitioners our study looked at saw improvements in their professional job as a result of ERP. The ERP system also aided them in organizing themselves. Additionally, it has been proposed that one of the main ways healthcare firms can gain a competitive edge, particularly in the private sector, is by implementing ERP systems. Encouraging a decentralized decision-making process and including clinical personnel will guarantee the support of the entire medical team, which will accelerate the adoption of ERP-based solutions. In a current investigation, (Jones et al., 2023) noted that professional support (clinicians and nurses in particular) and strong support from clinical personnel are essential for the adoption and execution of the integrated medical system. Healthcare service providers ought to regularly assess the quality of healthcare and, in response, launch ERP and other ongoing quality improvement initiatives. Researchers can use the suggested model to assess how well the ERP system performs in a healthcare setting.

Author contributions

M. H. developed the hypothesis, performed data analysis, reviewed the manuscript. J. S., M.I.H., F.A., M.N.I., M.M., N.N.K. wrote the manuscript.

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Competing financial interests

The authors have no conflict of interest.

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