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The Role of Telemedicine in Digital Transformation Based on Patient Perceptions of Healthcare Accessibility and Efficiency

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ABSTRACT

The rapid adoption of telemedicine is transforming global healthcare systems by enhancing access and improving service efficiency, particularly in regions with limited healthcare infrastructure. However, the success of telemedicine depends not only on technology but also on how patients perceive and experience these services. This study aims to investigate the role of telemedicine in advancing digital transformation by analyzing patient perceptions of its impact on healthcare accessibility and service efficiency. A quantitative research method was applied using a structured questionnaire distributed to 150 patients who had used telemedicine services. Participants were selected from two developing countries, Libya and Indonesia, to provide cross-national perspectives. The collected data were analyzed using Structural Equation Modeling to evaluate the relationships among perceived accessibility, efficiency, and the contribution of telemedicine to digital transformation. The results show that patient perceptions play a significant role in determining the effectiveness of telemedicine in improving access and efficiency. Patients generally view telemedicine as a vital component of digital healthcare transformation, although variations exist due to differences in digital literacy and healthcare infrastructure. This study concludes that telemedicine can significantly support digital transformation if patient-centered design and localized implementation strategies are prioritized. The main contribution of this research is the empirical evidence highlighting the importance of patient perception in digital health adoption and offering insights for policymakers, healthcare providers, and technology developers to enhance telemedicine integration in diverse healthcare systems.

Keywords: Telemedicine, Digital Transformation, Patient Perception, Healthcare Accessibility, Service Efficiency

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1. INTRODUCTION

Advancements in digital technology have reshaped healthcare systems worldwide (Bhatia, 2021; Getachew et al., 2023). Over the past decade, the emergence of online-based medical services has fundamentally altered the way people interact with healthcare professionals. Telemedicine, as a key element of digital transformation, has evolved from a supplementary tool into an essential component of modern healthcare delivery (Cannavacciuolo et al., 2023; Palozzi & Ranalli, 2023; Stoumpos et al., 2023). The COVID-19 pandemic accelerated its adoption, revealing its potential to meet public demand for faster, more flexible, and location-independent healthcare services.

Despite this progress, according to Anawade et al. (2024), equitable access to healthcare and system efficiency remain fundamental challenges. Haimi (2023) and Gao et al. (2022) added that infrastructure limitations, uneven distribution of medical personnel, and administrative barriers exacerbate service disparities. Many individuals must travel long distances, endure prolonged wait times, or face financial obstacles to receive adequate care. When health systems fail to respond efficiently to community needs, service quality often declines, particularly among vulnerable populations and those in remote areas (Perez et al., 2025).

Telemedicine presents a promising alternative to address these challenges. Virtual consultations, remote monitoring, and digital data exchange enable services to be delivered more rapidly and equitably (Alrebh et al., 2024; Khanji et al., 2023). Through internet connectivity and communication devices, patients can access medical care without physical presence (Alenoghena et al., 2023). For providers, telemedicine reduces the burden on facilities and improves workflow efficiency. Research by Stoltzfus et al. (2023) shows that there has been technical efficiency in overcoming distance.However, successful implementation cannot be assessed solely from a technical or administrative perspective.

Patients' experiences and perceptions are critical in determining whether telemedicine adds real value. User acceptance, comfort in using digital systems, and perceived service quality serve as important indicators that are often overlooked. Grīnfelde (2022) said when patients feel supported, respected, and well-served despite the lack of face-to-face interaction, trust in the system grows. Conversely, negative perceptions may hinder adoption even when the technology is fully available. Moreover, the perception of impersonality or reduced empathy in virtual consultations can contribute to user dissatisfaction, particularly among elderly or first-time users. Understanding and addressing these experiential concerns is essential, according to Aytekin et al. (2025), this is for building sustainable patient-provider relationships in digital health environments.

Social conditions, varying levels of digital literacy, and infrastructure readiness significantly shape how communities perceive and utilize telemedicine services (Barwise et al., 2023; Norman et al., 2023). Understanding these contextual differences is crucial for capturing the full potential of telemedicine in advancing digital healthcare. According to (Ruh, 2025), exploring patient experiences across different socio-economic environments can yield valuable insights into the design of inclusive and effective digital health systems. Social diversity influences not only access and usage patterns, but also trust and long-term engagement with digital platforms. Therefore, addressing disparities in digital readiness is crucial to ensuring the benefits of telemedicine are equitably distributed.

In line with this, there is a growing need to investigate how patient perceptions relate to key aspects of healthcare delivery, particularly in terms of accessibility and efficiency. Many existing studies tend to emphasize technology adoption or general patient satisfaction without dissecting how these perceptions influence healthcare delivery outcomes in measurable ways. Previous research such as focused on operational telemedicine platforms (Chauhan et al., 2022; Mulgund et al., 2021; Patt & O'Neill, 2024) and examined systemic and infrastructure factors (Al-Emran et al., 2025; Chereka et al., 2024), yet very few integrated patient-centered perspectives that assess both accessibility and efficiency together. The novelty of this study lies in its specific focus on patient perceptions as a lens to assess the dual impact of telemedicine in enhancing access and optimizing service efficiency within the broader context of digital healthcare transformation.

The aim of this study is to analyze the role of telemedicine in supporting healthcare digital transformation based on patient perceptions of service accessibility and efficiency. The findings are expected to provide an empirical foundation for policymakers, service providers, and technology developers in designing systems that are more responsive and user-centered. This research is expected to support a broader agenda of digital transformation that embraces modernity while promoting inclusivity and a stronger focus on improving the patient experience

2. METHOD

This study employed a quantitative approach using a survey method to examine the relationship between patient perceptions of telemedicine services and their perceived healthcare accessibility and efficiency within the context of digital transformation. The research design was explanatory, aimed at testing causal relationships among variables through structural modeling.

The population in this study consisted of individuals who had used telemedicine services within the past six months. A purposive sampling technique was applied with the following inclusion criteria: (1) aged 18 years or older, (2) had used telemedicine at least once, and (3) voluntarily agreed to participate in the study. The questionnaire consisted of 15 measurement items across three main constructs. Following the maximum likelihood estimation principle and the widely accepted rule of thumb in SEM, which recommends at least 10 respondents per indicator, a minimum sample size of 150 participants was determined (15 items × 10). This sample size was achieved by collecting responses from 150 participants originating from Libya and Indonesia.

The research instrument was a structured questionnaire developed based on literature reviews and validated prior instruments. It consisted of three main constructs, each measured by five items on the Table 1. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1
Questionnaire Instruments

Patient Perceptions		Statements
Patient Perceptions of Telemedicine Services	TS1	Telemedicine services are easy to use
	TS2	Communication with healthcare providers via telemedicine is clear and efficient
	TS3	Information provided during telemedicine consultations is understandable
	TS4	Telemedicine services offer a sense of safety and comfort
	TS5	I am satisfied with my experience using telemedicine
Perceptions of Healthcare Accessibility	HA1	Telemedicine makes it easier to access medical services without traveling
	HA2	I can access healthcare services at any time through telemedicine
	HA3	The cost of telemedicine services is relatively affordable
	HA4	I do not have to wait long to receive care via telemedicine
	HA5	Telemedicine is available on multiple platforms that I can easily access
Perceptions of Healthcare Efficiency	HE1	Telemedicine speeds up the consultation process
	HE2	I can receive diagnoses or medical recommendations quickly
	HE3	Healthcare providers are efficient in addressing my needs via telemedicine
	HE4	The time I spend in telemedicine services is less than in face-to-face services
	HE5	Telemedicine improves the overall efficiency of healthcare services

Prior to the main analysis, validity and reliability tests were conducted for all items. The results indicated that all items had outer loading values greater than 0.70 and Average Variance Extracted (AVE) values above 0.50, satisfying the criteria for convergent validity. Reliability was confirmed through Cronbach's Alpha and Composite Reliability (CR) values exceeding 0.70 for each construct, indicating internal consistency.

Data were analyzed using Structural Equation Modeling (SEM) based on the Partial Least Squares (PLS) technique (Singh et al., 2024) with SmartPLS software. SEM was chosen for its capacity to analyze latent variable relationships simultaneously and its suitability for medium-sized samples. The analysis process included two main stages: (1) evaluation of the measurement model (construct validity and reliability) and (2) evaluation of the structural model (hypothesis testing and path analysis).

This study proposed three statistical hypotheses to examine the relationships among patient perceptions of telemedicine services, healthcare accessibility, and healthcare efficiency. The first hypothesis (H1) posits that patient perceptions of telemedicine services have a positive effect on perceived healthcare accessibility. The second hypothesis (H2) suggests that patient perceptions of telemedicine services positively influence perceived healthcare efficiency. Lastly, the third hypothesis (H3) states that perceived healthcare accessibility has a positive effect on perceived healthcare efficiency. These hypotheses were formulated to explore how patients' experiences with telemedicine contribute to their overall evaluation of healthcare service delivery in a digital context. Prior to completing the questionnaire, participants were informed of the research objectives, procedures, and data confidentiality. All participation was voluntary and anonymous, and the study adhered to ethical standards for social research involving human subjects.

3. RESULTS AND DISCUSSION

3.1. Results

The structural model was evaluated to test the proposed hypotheses using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method. The estimation was performed through a bootstrapping procedure with 5,000 subsamples, yielding path coefficients (β), t-values, and p-values for the relationships between latent variables. Three hypotheses were tested in the structural model, with the following results on Table 2.

Table 2
Hypothesis Testing

Hypothesis	Path	Path Coefficient (β)	t-value	p-value	Conclusion
H1	Patient perceptions of telemedicine → Perceived accessibility	0.631	11.142	0.000	Supported
H2	Patient perceptions of telemedicine → Perceived efficiency	0.326	5.748	0.000	Supported
H3	Perceived accessibility → Perceived efficiency	0.463	7.121	0.000	Supported

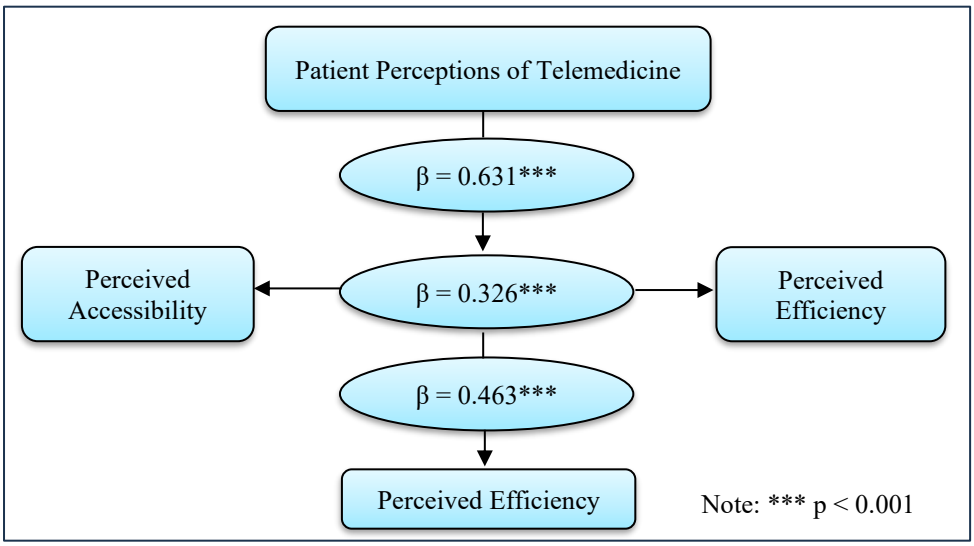
Based on Table 2, the analysis confirmed that all three hypotheses were supported. First, patient perceptions of telemedicine services were found to have a significant positive effect on perceived healthcare accessibility ($\beta = 0.631$, $t = 11.142$, $p < 0.001$), indicating that patients who perceive telemedicine as user-friendly, reliable, and satisfactory tend to regard healthcare as more accessible. Second, patient perceptions of telemedicine also had a significant positive effect on perceived healthcare efficiency ($\beta = 0.326$, $t = 5.748$, $p < 0.001$), suggesting that favorable views of telemedicine are associated with enhanced perceptions of service efficiency, such as time-saving, responsiveness, and streamlined consultations. Third, perceived healthcare accessibility significantly influenced perceived efficiency ($\beta = 0.463$, $t = 7.121$, $p < 0.001$), meaning that greater accessibility is closely linked to perceptions of a more efficient healthcare experience. The coefficient of determination (R^2) measures how much of the variance in the dependent variables can be explained by the independent variables. The R^2 results are shown in the Table 3.

Table 3
Hypothesis Testing

Hypothesis	R^2	Interpretation
Perceived Accessibility	0.406	40.6% of the variance is explained by patient perceptions
Perceived Efficiency	0.548	54.8% of the variance is explained by patient perceptions and perceived accessibility

Based on Table 3, the model demonstrated strong explanatory power, with 40.6 percent of the variance in perceived accessibility and 54.8 percent in perceived efficiency accounted for by the predictors. These results emphasize that telemedicine can enhance healthcare efficiency both directly and indirectly through its role in improving access, reinforcing the importance of integrating patient-centered digital health solutions within healthcare systems.

Figure 1
Structural Model Diagram



The findings on Figure 1 reveal that patient perceptions of telemedicine services significantly shape how they evaluate healthcare accessibility, as indicated by a strong positive relationship ($\beta = 0.631$, $t =$

11.142, $p < 0.001$). Patients who view telemedicine as convenient, user-friendly, and dependable are more inclined to perceive healthcare services as easier to reach and utilize. Furthermore, patient perceptions of telemedicine also have a substantial impact on their assessment of healthcare efficiency ($\beta = 0.326$, $t = 5.78$, $p < 0.001$), suggesting that favorable experiences with digital healthcare platforms lead to increased perceptions of efficiency in terms of time savings, quicker response times, and more streamlined consultations. In addition, the perception of healthcare accessibility was found to significantly enhance perceived efficiency ($\beta = 0.463$, $t = 7.121$, $p < 0.001$), indicating that when healthcare services are seen as more accessible through telemedicine, they are also perceived to be more efficient in their delivery. Collectively, these results demonstrate that telemedicine contributes to improved healthcare efficiency not only directly but also indirectly through its influence on accessibility. The structural model explains 40.6 percent of the variance in perceived accessibility and 54.8 percent in perceived efficiency, highlighting its strong explanatory power and supporting the role of telemedicine in advancing digital transformation within healthcare systems.

3.2. Patient Perceptions and the Acceptance of Telemedicine

The successful implementation of telemedicine heavily relies on patient perceptions regarding the quality and benefits of digital health services (Abdulwahab & Zedan, 2021; Belachew et al., 2023). When patients feel actively involved in their medical consultations and perceive clear advantages, such as convenience and responsiveness, their willingness to adopt the system increases. Positive perceptions foster confidence and trust in remote healthcare delivery, which is essential for long-term integration.

This study found that patients generally held favorable views of telemedicine, particularly regarding its user-friendliness, comfort during virtual consultations, and flexibility in scheduling. These findings indicate that digital health systems are not simply adopted passively; instead, patients actively assess their value based on real experiences. As a result, patient satisfaction plays a crucial role in shaping the continued use of such platforms. To better understand these dynamics, the concept of Therapeutic Relational Connection (TRC) offers a useful theoretical lens. TRC emphasizes the importance of intention, empathy, mutual respect, cultural awareness, and trust within the virtual patient-provider relationship. A study by Duffy et al. (2023) found that when these relational elements are present in digital consultations, patient satisfaction and engagement increase significantly. This aligns with relational ethics theory, which asserts that health communication must go beyond information exchange and include emotional and interpersonal connection.

In addition, Hartasanchez et al. (2022) and (Talal et al., 2020) identified that patient-centered care models, empowerment theory, and shared decision-making are critical theoretical foundations in explaining telemedicine acceptance. Their scoping review concluded that digital health tools are more likely to be adopted when patients feel heard, respected, and involved in decision-making processes. Understanding and responding to patient perceptions is fundamental to creating a digital healthcare system that is inclusive and sustainable (Papavasiliou et al., 2021; Ruh, 2025). When policymakers and service providers are responsive to the voices of users, telemedicine can go beyond its technical function to become a tool that enhances relationships between healthcare systems and the communities they serve.

3.3. Perceived Accessibility of Healthcare Services through Telemedicine

Access to healthcare remains a persistent challenge in many regions, particularly in low- and middle-income countries. Telemedicine has the potential to bridge this gap by providing services that are not limited by geographic distance (Haimi, 2023; Javed, 2025). Patients' perceptions of accessibility significantly affect their readiness to use such services and their overall satisfaction with digital healthcare. This research shows that most patients perceive telemedicine as improving their ability to access healthcare quickly and conveniently. Many reported that they no longer need to travel long distances or face long waiting times, which makes healthcare more reachable. These perceptions contribute to the belief that digital services are more inclusive and practical than traditional care models.

Despite these advantages, disparities in accessibility still exist. Factors such as internet connectivity (Terry & Buntoro, 2021), limited access to digital devices (Curtis et al., 2022), and varying levels of digital literacy (Dopelt et al., 2021) continue to influence the perceived ease of using telemedicine. These obstacles are especially pronounced in rural or underserved communities where digital infrastructure may be lacking. According to Ali et al. (2023) and Cheung et al. (2023), digital exclusion remains a significant barrier, as patients without reliable access to technology often experience delays in care or avoid using telehealth services altogether. This digital divide not only reduces equity but also limits the scalability of telemedicine interventions. The concept of eHealth Equity (Petretto et al., 2024), emphasizes that accessibility in digital health must be evaluated not only in terms of availability but also in terms of usability, comprehension, and cultural appropriateness. Ensuring equitable access requires multifaceted strategies, including infrastructure development, digital literacy education, and inclusive platform design.

This study highlights the importance of aligning technological advancement with social policy. Governments and healthcare providers are encouraged to integrate telemedicine into broader public health efforts (Leite & Hodgkinson, 2021). By doing so, they can extend services to vulnerable populations and

improve trust in digital healthcare solutions. Ensuring that patients across different socio-economic backgrounds can access and use telemedicine effectively will be key to its long-term success and sustainability.

3.4. Efficiency of Healthcare Delivery from the Patient's Perspective

Efficiency in healthcare is increasingly being measured not only by cost and speed but also by the perceived effectiveness of the service experience (K. Liu & Tao, 2022; Marzban et al., 2022). From a patient's point of view, an efficient service is one that respects their time, offers timely responses, and minimizes unnecessary processes. These qualities are particularly relevant in telemedicine, where expectations of speed and convenience are high. According to the results, patients viewed telemedicine as significantly more efficient than traditional services. They appreciated shorter consultation times, faster access to prescriptions and diagnostics, and fewer logistical burdens. The streamlined communication and digital documentation also contributed to a perception of higher efficiency in managing their health needs.

Still, some patients noted that system interruptions, slow responses from providers, or application limitations reduced the effectiveness of the service. According to AlDhaen (2025), Technical reliability plays a central role in shaping perceptions of efficiency. As noted by Persson & Rydenfält (2021) and Ziebland et al. (2021), inconsistent functionality or communication lags can negatively influence how patients assess the overall value of digital healthcare platforms. To guide improvements, the Technology Acceptance Model (TAM) offers a relevant theoretical framework (Mustafa & Garcia, 2021). According to Chen et al. (2023), perceived usefulness and ease of use are key determinants of a user's intention to adopt technology. These two components strongly influence patient perceptions of efficiency in digital health systems (Carini et al., 2021). When platforms are intuitive and demonstrate clear benefits, such as reducing wait times and improving care coordination, patients are more likely to perceive them as effective and continue using them. Vallée & Arutkin (2024) emphasizes the importance of integrating continuous patient experience data into digital platform development to improve workflow, responsiveness, and personalization in virtual care delivery.

For telemedicine to sustain high levels of perceived efficiency, healthcare providers must ensure responsive communication, robust system performance, and interfaces that are accessible across diverse patient groups. Systems should be designed to minimize delays, technical errors, and usability issues that could disrupt the patient experience. Achieving this requires a user-centered approach that prioritizes patient needs, expectations, and feedback in every stage of development.

3.5. Linking Accessibility and Perceived Efficiency

There is a strong connection between how patients perceive access to healthcare and how they judge its efficiency. When health services are easy to reach, they are more likely to be viewed as effective, practical, and respectful of patients' time. This association suggests that accessibility is not merely a gateway to care but also a core component influencing patient judgments about service quality. As such, convenience and ease of connection can directly enhance the perceived value of telemedicine platforms (Dawkins et al., 2021).

This study demonstrates that improved access contributes significantly to how patients experience the efficiency of healthcare delivery. When users can consult medical professionals without delays, long travels, or complex procedures, they are more inclined to consider the service efficient. Furthermore, streamlined digital interactions that reduce waiting times and eliminate redundant steps reinforce these perceptions. Therefore, digital health systems must treat accessibility as a driver of both satisfaction and operational effectiveness.

According to Jameel et al. (2025), the Patient-Centered Access to Care (PCAC) framework emphasizes that clarity in communication, timely availability, and comfort with the service environment are essential dimensions that shape both access and efficiency. These components work together to ensure that digital care does not only reach the patient but also performs in a way that meets expectations. When users experience minimal friction during service use, their overall impression of efficiency increases. This synergy helps strengthen long-term engagement with digital platforms. In addition, research by Mason (2022) finds that patients equate accessible telemedicine with reliable and dependable care. According to Rush et al. (2022), telehealth users across urban and rural clinics, ease of access was one of the strongest predictors of patient-reported efficiency and satisfaction. Patients who could initiate consultations quickly and receive prompt feedback rated the service much higher in terms of both responsiveness and usefulness.

Theoretical support for this relationship also comes from Rogers' Diffusion of Innovations Theory (Iqbal & Zahidie, 2022; Silva et al., 2022), which explains that individuals are more likely to adopt a technology when it is compatible with their existing needs and demonstrates a clear advantage. In the context of telemedicine, improved access and user efficiency are key attributes that make the innovation more desirable and sustainable. When these elements are optimized, they support faster adoption and

build greater trust among patients. Consequently, a dual focus on both accessibility and performance can ensure the long-term success of digital health systems.

Investments in infrastructure, education, and user-centered platform design are necessary to improve this connection. Reliable internet access, affordable digital devices, and personalized assistance for users can help reduce the digital divide. These elements make digital health services more reachable and functional for diverse populations. Therefore, improving access is not just a technical goal, but a strategic pathway toward a more efficient and inclusive healthcare system.

3.6. Telemedicine and Patient-Centered Digital Healthcare Transformation

Digital transformation in healthcare must begin by acknowledging patient expectations, preferences, and daily challenges in accessing services. Telemedicine is not merely a technological solution, but a patient-driven innovation that addresses long-standing gaps in convenience, responsiveness, and continuity of care. Patients' needs should guide the development of digital services to ensure they are relevant and accessible. According to Ha et al. (2023), effective digital health transformation must be grounded in inclusive design that prioritizes equity and user-centered outcomes.

Findings from this study show that patients from various demographic and geographic backgrounds value telemedicine for its flexibility, time efficiency, and ease of use. Many users reported that digital consultations helped them avoid long-distance travel, reduce costs, and receive faster responses from providers. These experiences highlight that the success of telemedicine depends not only on infrastructure but also on how well platforms adapt to the everyday realities of patients. This supports the patient-centered care model described by Siebinga et al. (2022), which emphasizes shared decision-making, respect for individual preferences, and communication that builds trust.

To ensure digital health transformation is sustainable and inclusive, according to Havelin & Hampton (2022), health systems must actively involve patients in the design, testing, and evaluation of telemedicine services. Feedback mechanisms and participatory approaches are essential for ensuring that technology meets diverse user needs and expectations. Relational factors such as trust (C. Liu et al., 2024), empathy (Abou Hashish, 2025), and responsiveness (Alabdali & Husain, 2025) play a significant role in patient acceptance of telehealth platforms. By consistently engaging patients in service development, healthcare systems can build digital tools that not only function effectively but also foster long-term engagement and equitable outcomes.

3.7. Implications for Service Improvement Based on Patient Perceptions

The findings of this study highlight the critical importance of patient perceptions in shaping the success and sustainability of telemedicine services. When patients feel that digital healthcare is accessible, efficient, and responsive to their individual needs, their level of trust and engagement increases significantly. These perceptions extend beyond personal experience and contribute to wider societal acceptance of digital health platforms. As a result, patient perceptions should be treated as a central metric in evaluating and improving the quality of telemedicine delivery.

One key implication is the need to integrate patient feedback into the ongoing development and refinement of telemedicine systems. Technical performance alone is not sufficient if users experience difficulty with communication, interface navigation, or responsiveness. According to Abdulwahab & Zedan (2021), and Alabdali & Husain (2025), perceived ease of use, reliability, and communication quality are among the most influential factors in patient satisfaction with telemedicine platforms. Incorporating patient-centered factors into digital health service design can lead to more intuitive, usable, and effective healthcare experiences.

Furthermore, embedding structured mechanisms for gathering patient feedback, such as post-visit surveys or focus group discussions, allows health providers to identify and address user concerns in real time. This participatory approach not only supports continuous service improvement but also empowers patients to play an active role in shaping their care experience. When patients are included in the decision-making and design process, telemedicine becomes more inclusive, equitable, and resilient. Ultimately, a patient-centered digital transformation ensures that technological innovation aligns with the real needs and values of the communities it is meant to serve.

4. CONCLUSION

This study highlights the crucial role of patient perceptions in determining the success of telemedicine, particularly within the broader context of digital transformation in healthcare. The findings reveal that patients generally have a favorable view of telemedicine services, especially in terms of accessibility and efficiency. These perceptions are interconnected, as improved access tends to enhance patients' sense of system efficiency and overall satisfaction. The statistical analysis confirms that all three variables examined in the study, namely perceptions of telemedicine, healthcare accessibility, and service efficiency, are significantly related. These results underscore the importance of placing patient experiences and perceptions at the center of digital health strategies.

However, several limitations should be acknowledged. First, the data were collected from participants in only two developing countries, Indonesia and Libya. Although the inclusion of these distinct contexts adds value, the findings may not be generalizable to other regions with different healthcare infrastructures or cultural attitudes toward digital health. Second, the study focused only on three dimensions of perception and did not explore other relevant aspects, such as patient trust, perceived privacy, emotional comfort, or satisfaction with the quality of provider interaction during virtual consultations. Future research is encouraged to expand the scope of inquiry by including other dimensions of patient experience, such as perceived safety, trust in technology, and the emotional aspects of remote care. Additionally, longitudinal studies could offer valuable insights into how perceptions evolve as patients become more familiar with digital health platforms.

This study contributes to the growing body of literature on digital healthcare transformation by offering an evidence-based view of how patient perceptions shape the acceptance and effectiveness of telemedicine. The findings provide practical insights for policymakers, healthcare providers, and system developers in designing patient-centered telemedicine services that prioritize accessibility, efficiency, and user trust. By focusing on the patient perspective, this research supports the development of more equitable and responsive digital health ecosystems.

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