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Utilizing Digital Health Technologies to Improve Patient Experience and Care Quality in Global Healthcare: A Systematic Review

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Abstract:

Innovations in mobile applications, wearable devices, artificial intelligence (AI), and telemedicine are transforming healthcare by enhancing accessibility and the quality of care. Digital health technologies (DHTs) encompass telemedicine, electronic health records, mobile applications, wearable devices, and AI-enabled systems, which enhance patient management and support evidence-based clinical decision-making. While their potential benefits are evident, adoption remains constrained by inadequate infrastructure, limited digital literacy, and ethical concerns, including data privacy and trust in AI. This study systematically reviews evidence from 14 peer-reviewed articles published between 2015 and 2025, identified through major databases and analyzed according to PRISMA 2020 standards. The review applies three theoretical frameworks—the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI), and Patient-Centered Care (PCC)—to interpret findings from the perspectives of individual adoption, systemic change, and alignment with patient values. The results cluster into four thematic areas: the global diffusion of DHTs, their impact on patient experience and care quality, key barriers and facilitators to adoption, and implications for policy and practice. While DHTs improve efficiency, access, and engagement, they risk widening inequities if inclusivity is neglected. Effective implementation requires interoperability, ethical governance, equitable access, and patient-centered design to ensure sustainable transformation of healthcare systems.

Keywords:

Digital Health Technologies, Patient Experience, Care Quality, Global Health Care, Systematic Review

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Introduction

The digital transformation of healthcare, driven by Digital Health Technologies (DHTs), is reshaping interactions among patients, providers, and systems. Core tools, including telemedicine, mHealth, EHRs, and AI, enable accessible, efficient, and patient-centered care (Eysenbach, 2001; Topol, 2019; Sands & Finn, 2025). The COVID-19 pandemic accelerated the adoption of virtual platforms to sustain continuity of care (Keesara, Jonas, & Schulman, 2020; Torous et al., 2020). DHTs enhance patient experience by improving communication, reducing waiting times, and empowering self-monitoring (Dodson et al., 2023; Ibrahim et al., 2022), aligning with patient-centered care that emphasizes respect for preferences, needs, and values (Epstein & Street, 2011).

At the same time, the quality of healthcare is closely linked to digital innovation. In this sense, telemedicine expands services to rural and underserved areas; EHRs facilitate better coordination of care and the safety of interventions; and AI tools improve diagnostic accuracy (Powell et al., 2019; Ongena et al., 2020). This new trend also aligns with the global landscape, as exemplified by the WHO's (2020) Global Strategy on Digital Health 2020-2025, which identifies digital health as a key enabler for universal health coverage. Additionally, the European Commission (2021) emphasizes the potential of digital health to foster more sustainable, equitable, and resilient healthcare systems.

For all the promises, however, an uneven incorporation of DHTs continues to characterize the healthcare sector. These barriers include usability issues, a lack of interoperability between systems, digital literacy issues, privacy concerns, and data security concerns (Gagnon et al., 2016; Rotheram-Borus et al., 2022). Poor marginalized populations are disproportionately affected, raising concerns about the healthcare digital divide. While their immediate benefits have been well-documented in most studies, less research has been done on digital tools regarding long-term impact on patients' outcomes. Considering these anomalies, models for the governance of AI and the ethical use of patient data in various medical settings have been a perennial question.

Fast-paced growth within digital health calls for a richer theoretical account of how and why patients and providers adopt these new technologies. Models such as the Technology Acceptance Model (TAM) (Davis, 1989), the Diffusion of Innovations (DOI) (Rogers, 2003), and the Patient-Centered Care (PCC) framework (Epstein & Street, 2011) offer helpful lenses through which to study adoption processes and patient outcomes. They theorize the role of usefulness perception, ease of use perception, compatibility, and shared decision-making in human adoption trajectories. Unfortunately, such theorizing is somewhat resistant to integration in empirical digital health research.

The literature demonstrates that DHTs can significantly enhance patient experience and care quality, but contextual barriers, uneven infrastructure, and unresolved ethical challenges shape their adoption.

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Also, the evidence base is fragmented with little synthesis between theoretical models. Thus, this study aims to provide a systematic review of the literature on the effectiveness of DHTs in enhancing patient experience and quality of care from an international perspective. Based on the synthesis of results extracted from 14 peer-reviewed papers published between 2015 and 2025, this study intends to:

- Understand how digital health technologies can lead to improvements in patient experience and care quality.
- Understand the barriers and facilitators to adoption.
- Interpret findings through the application of the TAM, DOI, and PCC models.
- Propose a conceptual framework for the equitable patient-centered adoption of digital health.

This study enriches digital health scholarship by offering insights and recommendations for policymakers, providers, and researchers. Emphasizing digital health as a cultural shift beyond technological novelty, it outlines the methodology (PRISMA), presents key findings on the determinants of DHTs, and concludes with contributions and implications for future healthcare research and practice.

Methodology

Systematic Review Design

The objective of this systematic review is to synthesize empirical evidence on the impact of DHTs on patient experience and healthcare quality. Systematic reviews are considered rigorous and transparent when synthesizing research evidence in a critical synthesis across multiple contexts (Moher et al., 2009). The review process was therefore carried out based on the PRISMA 2020 guideline to afford comprehensiveness in the identification, selection, and synthesis of studies (Page et al., 2021).

Three salient objectives guided the design of the review protocol: mapping the existing evidence of DHTs interacting with patient experience and quality of care; identifying barriers and facilitators of adoption; and conducting thematic analysis of the findings using the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI), and Patient-Centered Care (PCC).

Search Strategy

A comprehensive search was conducted across all major bibliographic databases, including PubMed, Scopus, Web of Science, and IEEE Xplore, for the period from January 2015 to January 2025. This period was selected to give an account of the most recent 10-year period in digital health literature, as technological innovations have increasingly gained prominence, especially with the advent of the COVID-19 pandemic.

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Boolean operators and Medical Subject Headings (MeSH) terms, comprising three significant clusters of concepts, were used for the search: digital health technologies, patient experience, and care quality. The terms “telemedicine”, “mHealth”, “electronic health record”, and “artificial intelligence” were coupled with “patient satisfaction”, “patient-centered care”, “patient engagement”, and “quality of care”. For instance:

(“digital health” OR telemedicine OR “mobile health” OR “electronic health records” OR “artificial intelligence”) AND (“patient experience” OR “patient satisfaction” OR “patient-centered care”) AND (“quality of care” OR “healthcare quality” OR “health outcomes”).

To ensure a more comprehensive search, manual searching was conducted by reviewing the reference lists of relevant articles and scouring key grey literature, including reports from the World Health Organization (WHO) and the European Commission.

Screening and Selection

The database search identified 1,247 records, with 412 duplicates removed, leaving 835 articles for screening. Two reviewers independently applied predefined inclusion criteria—peer-reviewed empirical studies (2015–2025) on digital health technologies related to patient experience or care quality using qualitative, quantitative, or mixed-methods designs—while excluding non-English works, technical-only studies, and opinion pieces. After screening, 64 full-text articles were assessed, and 14 studies met the eligibility criteria for final synthesis. Disagreements were resolved through consensus, ensuring methodological rigor in the selection process.

Data Extraction and Coding

Data were extracted systematically from each study using a structured template. Data on authorship, year of publication, country of study, research design, study population, types of digital health technology examined, and reported outcomes concerning patient experience and care quality were extracted. Barriers and facilitators to adoption were also recorded, as well as any theoretical framework employed.

Coding was carried out in two steps. First, use descriptive codes to sort the findings based on existing domains, such as patient experience outcomes, quality of care outcomes, and adoption challenges. Second, overarching themes should be codified-themes, such as empowerment, equity gaps, usability issues, and cultural influences, which recur in various studies. Hence, the process enabled the review to move beyond descriptive summaries, detecting cross-cutting patterns and deriving conceptual insights.

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Quality Appraisal

To assess methodological quality, the 2018 version of the Mixed Methods Appraisal Tool (MMAT) was applied. The MMAT is best suited for reviews that encompass qualitative, quantitative, and mixed-methods designs, providing a single framework within which to appraise them. Each study was assessed in five domains: whether the study's aim was well-conceived, the methodology was appropriate, the data collection methods were relevant, the analysis was coherent, and the findings were clearly presented.

Overall, the included studies were considered moderate to highly relevant. Most studies clearly described the aims of the research and adequately justified their data collection methods, although a small sample size was an issue affecting some of the qualitative studies, while several of the quantitative ones lacked long-term follow-up data. These limitations were clearly explained in the synthesis and taken into consideration when drawing conclusions.

PRISMA Flow Diagram

A PRISMA 2020 Flow diagram for the selection process (Figure 1) has been depicted for this review. It documents the number of studies identified, screened, assessed for eligibility, and included in the synthesis, thereby allowing greater transparency and aid in compliance with best-practice reporting standards (Page et al., 2021).

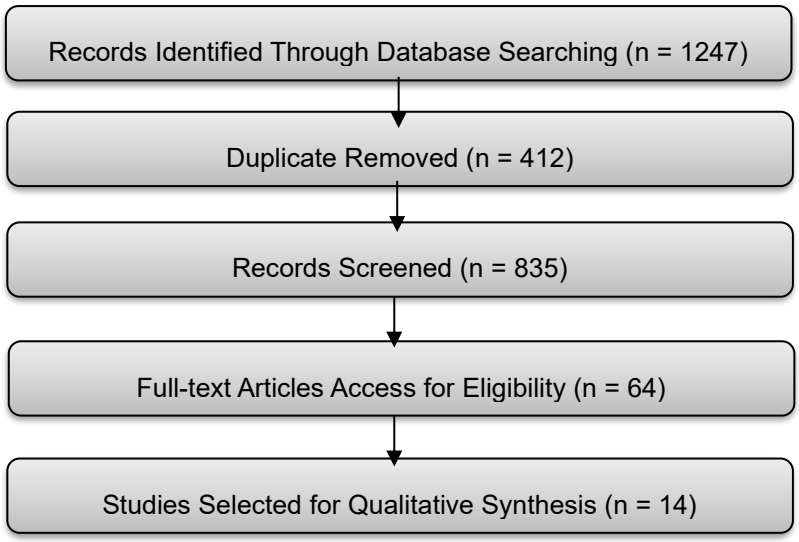

Figure 1. - PRISMA 2020 Flow Diagram of Study Selection

Note. Records identified through database searching (n = 1247); duplicates removed (n = 412); records screened (n = 835); full-text articles assessed for eligibility (n = 64); studies included in qualitative synthesis (n = 14).

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Theoretical Framework Application

The findings in this review were interpreted using the three complementary theoretical frameworks: the Technology Acceptance Model, Diffusion of Innovations, and Patient-Centered Care. These frameworks were selected because they operate on multiple, often contradictory, or intersectional levels, providing a multidimensional view of digital health adoption.

The integration of TAM, DOI, and PCC provided a rich interpretive framework for analyzing evidence in this review. TAM highlights the influence of perceptions in shaping adoption, DOI reveals patterns at a broader systemic level of innovation spread, and PCC ensures that the analysis is grounded in patient-centered values. Together, these three paradigms ensure an interpretation that considers usability, systemic adoption, and ethical patient-centeredness, thereby providing a comprehensive description of digital health technologies in a global healthcare setting.

Ensuring Methodological Rigor and Reflexivity

Several steps were taken to ensure the rigor of this review. To ensure transparency, the inclusion and exclusion criteria, coding strategies, and appraising methods are explicitly reported. Triangulation was ensured by cross-checking the interpretations of findings against more than one theoretical framework. Reflexivity was maintained by acknowledging that the adoption of digital health is context-dependent, situated within sociocultural, economic, and policy environments; thus, interpretations of the findings are attuned to these differing contexts.

Limitations of the Methodology

Several limitations should be acknowledged despite adherence to the PRISMA standards. Restriction of review to English-language publications could have led to excluding relevant evidence from non-English-speaking regions. Although the grey literature was partially considered through the WHO and European Commission reports, other non-peer-reviewed evidence was likely missed. Moreover, the small number of included studies (n = 14) itself reflects that too few investigations address patient-centered outcomes in digital health research. On the other hand, limitations such as these highlight more significant contributions of this review, which synthesizes and critically addresses a body of literature that remains fractured and underdeveloped.

Result and Discussion

The empirical evidence is clarified in Table 1. It provides a summary of the 14 reviewed papers, including the authors, subjects, methods used, and major conclusions. The table, which groups the studies by the year of their publication, helps the reader understand where each study fits within the broader body of research and illustrates the different methods and perspectives employed by the studies. It is essential

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to present the information to make the review more credible and help to compare the studies more clearly, which is vital for the later analysis and discussion.

Author(s) & Year	Topic / Focus	Methodology	Key Findings
Aytekin, Alan, Demirel, & Onur (2025)	Inside patient experience with digital health technologies	Review	Enhancing digitalization has promoted health communication and patient engagement.
Alghamdi, Nishaily, Kinani, & Almalki (2024)	The impact of emerging technologies on the quality of healthcare	Systematic Review	Regarding adoption challenges, evidence suggests a substantial improvement in the quality of care with digital health tools.
Dodson, Haase, Jeffreys, & Hales (2023)	Digital platforms and Patient experiences of patient care	Review	Digital platforms function with high effectiveness to capture patient experiences, evaluate, and personalize services.
Alrashdi (2024)	Digital health, healthcare, and healthcare delivery outcomes	Systematic Review	Both telemedicine and mobile health have increased patient satisfaction and the availability of services.
Canaud, Davenport, Leray-Moragues, et al. (2022)	Digital health influences in chronic care	Narrative Review	Digital solutions are significantly impacting the continuity of care, particularly for patients with dialysis and long-term conditions.
Keesara, Jonas, & Schulman (2020)	Digital health acceleration after the COVID-19	Conceptual Review	The pandemic accelerated telehealth adoption, with the expectation that digital tools will continue to dominate health delivery in the future.
Powell, Henstenburg, Cooper, & Rising (2019)	Telehealth and Its Patient Perceptions	Empirical Study	Today, patients appreciate telemedicine for its convenience, efficiency, and the ability to have real-time consultations.

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Zhou, Bao, Setiawan, Saptono, & Parmanto (2019)	Usage of mHealth applications	Mixed-Methods	Usability and accessibility were emphasized as key factors predictive of continued adoption by patients.
Wang, Ng, & Brook (2020)	Big data and digital health situation in Taiwan after the COVID-19 responses	Case Study	Provided examples about how proactive testing, big data integration, and new technologies have served public health.
Ongena, Haan, Yakar, Kwee, & Haverkamp (2020)	Applied AI in radiology and digital care	Systematic Review	Comparatives showed integration of AI improved diagnostic accuracy and workflow efficiency.
Torous, Myrick, Rauseo-Ricupero, & Firth (2020)	COVID-19 pandemic and Digital mental health interventions	Review	The tele- and mHealth platforms extended the reach of mental health services.
Topol (2019)	Future of medicine supporting AI	Conceptual Book	Predicting the transformative potential of AI in personalized care and clinician support.
Mahajan & Alok (2022)	Low-income situations and how DHTs bridge the healthcare gaps	Empirical Study	Identified mobile and telehealth platforms as low-cost solution alternatives in resource-scarce settings.
Epstein & Street (2011)	Suggestion on the Patient-centred care framework	Conceptual Paper	Promoted the use of digitally enabled PCC models for shared decision making.

Table 1: Summary of Selected Studies on Digital Health and Patient Experience

Thematic Analysis

A systematic literature review analyzed 14 peer-reviewed studies that describe the role of digital health technologies (DHTs) in enhancing patient experiences and improving the quality of healthcare worldwide. The discussion synthesizes thematic findings and aligns them with the guiding frameworks (TAM, DOI, and PCC) to provide a structured interpretation of the results. The thematic analysis identified four major themes that describe the way digital health technologies (DHTs) contribute to

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defining patient experience and care quality. These were further divided into subthemes and supported by evidence from the 14 studies under review. A summary of the results is shown in Table 2.

Theme	Subtheme	Supporting Authors
1. Use of Digital Health Technology in Global Healthcare	1.1 Perfection in efficiency and accessibility	Aytekin et al. (2025); Wang, Giunti, Melles, & Goossens (2022)
	1.2 Improved patient engagement	Dodson et al. (2024); Ibrahim et al. (2022); Khanbhai, Flott, Darzi, & Mayer (2019); Alrashdi (2024)
	1.3 Patient fulfilment and satisfaction	Alrashdi (2024); Ibrahim et al. (2022)
	1.4 Overall patient involvement	Leonardsen, Hardeland, Helgesen, & Grøndahl (2020)
2. Care Quality	2.1 Patient-centered care in healthcare settings	Brands et al. (2022); Epstein & Street (2011)
	2.2 Safety and quality of care	Ibrahim et al. (2022); Gagnon et al. (2016)
	2.3 Enhanced access and continuity of care	Powell et al. (2019); Monaghesh & Hajizadeh (2020)
3. Adoption Barriers and Facilitators	3.1 Barriers (digital literacy, usability, interoperability)	Rotheram-Borus et al. (2022); Gagnon et al. (2016)
	3.2 Facilitators (policy, funding, acceptance)	Alrashdi (2024); Mahajan & Alok (2022)
4. Future Directions	4.1 Post-COVID acceleration and innovation	Keesara, Jonas, & Schulman (2020); Torous et al. (2020)
	4.2 Emerging technologies (AI, big data)	Ongena et al. (2020); Wang, Ng, & Brook (2020); Topol (2019)

Table 2: Thematic Analysis of Digital Health and Patient Experience

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Use of DHTs in Global Healthcare

The reviewed articles make it clear that DHTs are in their infancy and have undergone rapid and widespread diffusion across various healthcare terrains. The most studied interventions reflected telemedicine, electronic health records (EHRs), mHealth apps, wearable devices, and AI-empowered management platforms, which shows that there is traction in building digitally enabled health systems globally. Sophisticated-level uses for larger countries, as reviewed in Canada, the U.K., Spain, and Australia, included integrated patient portals, advanced EHRs, and AI-empowered triage tools for efficiency improvements, patient empowerment, and data-driven decision-making. Conversely, in low- and middle-income contexts, such as Ghana, India, and rural China, basic teleconsultation platforms and appointment scheduling systems were foregrounded to fill fundamental access gaps and reduce inequalities in service delivery.

The global distribution of DHTs is consistent with broader international evidence that healthcare systems are being digitally transformed in a staggered fashion, often depending on infrastructure readiness, policy support, and resource allocation (World Health Organization [WHO], 2021). The DOI theory posits that the adoption patterns of innovations are strongly influenced by the perceived relative advantage of digital tools (such as telemedicine and reduced travel costs), compatibility with existing work patterns, and observability of outcomes (Rogers, 2003). In other words, telehealth services yielded an obvious outcome in research from rural Ghana and India, where they improved accessibility; hence, they were accepted despite infrastructural problems. Likewise, in advanced healthcare systems, AI-driven tools integrated with EHRs ensured compatibility with existing data infrastructures, thereby facilitating their adoption among institutions.

However, this difference in adoption patterns reflects salient digital divides. Advanced use of AI and predictive analytics is being explored in high-income contexts, while basic connectivity remains a concern in low-income areas. This distinction lends credence to the concerns expressed by the WHO as to how digital health innovations, unless tackled globally in terms of affordability and inclusivity, may further act as an inhibiting factor toward inequities (WHO, 2021). These studies, gathered together, paint a picture in which, despite the worldwide diffusion of DHTs, the how and what of adoption are context-dependent and shaped by socioeconomic realities and policy environments.

Care Quality

Currently, the central question addressed by the reviewed literature is: Do DHTs really increase the quality of care? Evidence suggests that digital innovations enhance the quality of care in several key aspects, including clinical outcomes, efficiency, safety, and patient experience. Randomized controlled trials of remote monitoring in populations with diabetes and cardiac care have demonstrated measurable

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improvements in health outcomes, including better glycemic control and increased adherence to rehabilitation programs. Additionally, mobile applications enable continuous patient monitoring through bilateral feedback loops between the patient and provider, thereby enhancing engagement in shared decision-making.

Given an all-encompassing patient-centered care (PCC) perspective, DHTs have been validated as fostering autonomy and empowerment. Patients appreciated the ability to freely access their personal health data, track their progress, and communicate with providers—the very essence of transparency, active participation, and co-creation of decision-making processes. Portals and EHRs, in European studies, aimed to ensure continuous care under coordination, reduce care fragmentation, and optimize multidisciplinary team collaboration.

Apart from the clinical outcomes, accruals were improved at the system level, increasing efficiency for the benefit of the system. Digital check-in kiosks were introduced in Australian hospitals to reduce patient waiting times, while in China, appointment scheduling systems were implemented to improve public trust in their health institutions due to bureaucratic inefficiencies. In Saudi Arabia and the UAE, AI tools have been utilized in diagnostic triage and workflow acceleration, albeit with some skepticism surrounding the accuracy of AI. These findings align with systematic reviews that have found EHRs and AI technologies facilitate better efficiency and safety, but must be cautiously integrated to prevent unintended disruptions (Campanella et al., 2016).

On the contrary, the evidence was not all positive. Several studies have indicated that digital technologies can lead to depersonalization due to reduced direct face-to-face interaction, a finding also documented in prior meta-analyses (Kruse et al., 2017). Although the efficiency gains can be obtained, patients in Spain and Italy also felt that the relational aspects of care were lessened. This tension also distinguishes the dichotomy of digital health: while digital health improves certain domains of care quality, it appears to simultaneously decrease others, especially those related to therapeutic alliance.

Barriers and Facilitators to Adoption

The studies also highlighted several persistent barriers that prevent the equitable and effective adoption of DHTs. These can be broadly classified into four groups: usability challenges, infrastructural and equity barriers, cost considerations, and regulatory and ethical issues.

In terms of usability, the challenge is particularly pronounced among elderly populations or those with low digital literacy. In the case of wearable devices, applications, and so forth, the perceived bewilderment led to disengagement on the audio side, and indeed, this aligns with the model put forth by TAM; one such factor is perceived ease of use affecting adoption intentions (Davis, 1989). The good news about digital technologies does not gain sustained adoption if the interface is not intuitive.

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Infrastructural and equity barriers stood out in the study's findings from the low-context setting. Patients in rural Ghana and India benefited from teleconsultations; however, unreliable Internet connectivity and power supply posed a significant challenge. These arguments align with those worldwide, which suggest that without investment in digital infrastructure, marginalized populations will continue to be denied the benefits of digital health (OECD, 2020).

Cost considerations have also surfaced as a constraint. Patients in low- and middle-income countries often have difficulty in affording devices, subscriptions, or data plans. Therefore, highlights the urgency for exploring different financial models and subsidies to support equitable adoption of digital health.

Last but not least, there were some regulatory and ethical concerns. In the fields of Spanish and Saudi Arabian studies, concerns were expressed about data privacy and clinician resistance to AI-enabled decision-making tools, echoing a broader debate in the literature regarding the ethical governance of digital health, particularly around issues of data ownership, cybersecurity, and algorithmic accountability (Morley et al., 2020).

On the facilitating side, being supported institutionally and demonstrating benefits very clearly persists as a key obstacle to adoption. When patients and providers clearly recognized better care outcomes or efficiency, the propensity for adoption increased dramatically. It resonates with DOI in that observability and trialability help to accelerate diffusion.

Future Directions

Synthesizing findings from the 14 studies identified numerous issues for future research, policy, and practice. The first issue centers on the need for greater inclusion of marginalized and rural populations in empirical studies. Much of the current evidence originates from high-income or urban settings, thereby limiting its generalizability. It is of the utmost importance to extend research into contexts that remain underrepresented to this day, fostering equity in digital health.

Second, the focus of research should increasingly be on long-term outcomes, with ever-shorter duration evidencing improvements in access and efficiency; however, with little evidence to attest to whether clinical benefits hold over time and whether such a form of intervention can actually be cost-effective on a large scale, and yet system-wide impact might be evaluated only across shorter spans. Such an assessment would, therefore, call for longitudinal studies.

Third, the issue of interoperability remains insufficiently covered. The disintegration of digital systems at the national and institutional levels compromises the continuity of care. Interventions on integration across platforms and data-sharing mechanisms should therefore be reviewed in future studies, selected around international standards such as HL7 FHIR.

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Fourth, there is a significant need for evaluating frameworks related to the use of AI and big data in healthcare operations. Concerns surrounding algorithmic bias, transparency, and patient consent require rigorous scrutiny to ensure that technical progress remains on the right side of ethics and remains patient-centered.

Fifthly, explicitly integrating theoretical frameworks such as TAM, DOI, and PCC into future research may strengthen the interpretive capacity of the investigations undertaken. For illustrative purposes, TAM will offer insight into patterns linked to ease of use, DOI will provide insight into adoption patterns at a systemic level, and PCC will keep technologies focused on the values espoused by humans. Embracing these frameworks can aid in creating multiple layers of understanding of the often complex interactions between technology, users, and systems.

Integrated Discussion

Bringing these thematic findings together, it becomes clear that digital health technologies have the potential to further transform patient experiences and, ultimately, inform governance for optimal care. However, the development of these technologies has not been uniform or unproblematic. Usability barriers, equity gaps, and unresolved ethical concerns temper benefits in access, empowerment, and efficiency.

This review's findings reveal the complex, dimensional dynamics of digital health technology (DHT) adoption and its implications for health systems. From a Technology Acceptance Model (TAM) perspective, perceived usefulness and ease of use consistently emerged as key determinants of uptake, regardless of whether patients or providers were involved. When patients perceived direct health benefits such as increased access, symptom monitoring, or more efficient communication, uptake rose dramatically. Conversely, when the tools were politically considered difficult to use or incompatible with digital literacy levels, uptake was low. This insight confirms that technological design is not merely a technical concern, but also an instrumental component of behavior in HST transformations.

An important meso- and macro-level analytical lens is the Diffusion of Innovations (DOI). The studied instances here illustrate adoption processes, influenced not only by an actor's perceptions but also, at the other end of the scale, by system-level factors such as infrastructure readiness, organizational support, and regulatory environment. Telemedicine adoption in rural Ghana was successful because the relative advantage was obvious and observable. The lack of robust internet infrastructure obstructed the very sustainability of such systems. Second, incompatibility concerns with established workflows arose among clinicians as a source of resistance to the adoption of such AI-enabled systems, which, otherwise, in a high-income context could have led to faster triage. It means the diffusion of a system needs to be both technologically legitimate and contextually fitting.

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On the other hand, adoption with the PCC perspective ensures that it will be considered beyond the narrow confines of efficiency or clinical outcomes to include patient values, trust, and equity. These studies show that while digital tools promote empowerment and access to care, they may also create new inequalities and undermine relational care. By triangulating TAM, DOI, and PCC perspectives, this review highlights that digital health adoption is best thought of as a socio-technical process shaped by perceptions, systemic structures, and patient-centered values. This multi-theoretical analysis significantly enhances the depth of explanation and practical relevance of the findings.

Implications

Policy Implications

The findings highlight the urgent need to implement policies that facilitate the equitable adoption of digital health-related applications. Governments, along with health authorities, should invest in infrastructure development, particularly in rural and socially disadvantaged areas where the digital divide is most pronounced. The investment should focus on broadband connectivity, subsidization of device access, and ensuring a steady supply of electricity in these areas, as failing to do so would contribute to deepening healthcare inequalities. The policy framework will then be able to address interoperability standards—that is, the ability of different digital platforms to communicate effectively. Favored mechanisms might be the establishment of common standards, without which would give rise to data silos, obstructing continuity in the provision of care.

Another important policy topic is establishing a robust governance framework for data protection and AI ethics. Studies within this scoping review evidenced that patients are concerned about privacy, security, and algorithmic trust. Governments should therefore enact comprehensive frameworks to ensure transparency in algorithmic decision-making, patient consent protocols, and clear directives on data ownership. The absence of these frameworks would lead to a gradual erosion of legitimacy in digital health systems. Furthermore, reimbursement mechanisms and insurance policies should undergo a transformation that recognizes and reimburses digital health services, such as telemedicine, as part of mainstream healthcare financing. It would encourage wider adoption and circumvent the need for ongoing pilot phases.

Practice Implications

For the medical authorities, the evidence suggests building human-centered implementation strategies. It is not possible to introduce technologies into the clinical setting and expect them to align well with workflows or for the staff to be ready to accept them. Training programs should be designed according to the specific interests of particular professional groups, especially for older clinicians who prefer the traditional system over digital tools. It is mainly helpful in minimizing resistance, which consequently

leads to success in adoption. The other side of this is to have patient education programs that will work on boosting their digital literacy and confidence, especially for the elderly and marginalized groups who view DHTs as a bastion of intimidation.

Providers must strive to balance technological efficiency with relational care as a complementary approach. Telemedicine and patient portals may make care convenient, but these mechanisms could erode interpersonal relationships unless they are reinforced by strategies that foster empathy and trust. Clinicians, therefore, should utilize digital platforms to augment, not replace, the interpersonal components of healthcare. Additionally, both implementations should have a continuous feedback loop design where health providers and patients can directly report user experience concerns, thereby contributing to evolving improvement.

Interdisciplinary collaboration is essential. Digital health spans medicine, informatics, engineering, and social sciences, and successful integration requires collaborative teams that can address technical, clinical, and ethical concerns simultaneously. Environments conducive to such collaborations are more likely to produce positive outcomes from DHTs while minimizing disruptions.

Research Implications

This review has therefore pointed out a multitude of priorities for consideration in future research. The first being a greater representation of low- and middle-income countries in empirical studies. Much of the evidence currently documented originates from high-income contexts, which already biases conclusions on the effectiveness of digital health. LMIC research can provide valuable insights into these unique challenges, including infrastructural limitations, barriers to affordability, and cultural differences in the use of technology.

The second comprises needs for longer longitudinal studies to observe the remedial effects of DHTs on patient outcomes and health systems. While studies have showcased short-term benefits, there is an underlying lack of clarity on whether these improvements scale over time, whether they translate into cost savings or systemic efficiencies with larger-scale implementations. The third research extension would target issues in interoperability and integration, focusing on how harmonization can be implemented in fractured systems to deliver frictionless patient experiences.

Additionally, there is an urgent need for ethical and regulatory research to investigate algorithmic bias, patient consent, and data security. As AI and predictive analytics become increasingly embedded in health systems, the ethical considerations of the field become even more rigorous. Finally, theoretical integration should be considered a priority. The application of frameworks such as TAM, DOI, and PCC provides more depth in explanation, which bridges to actionable insights framing, proving helpful for policymakers and practitioners. If research comprises explicit contextualization within these frameworks,

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then beyond merely descriptive analyses, future research would offer informally much more valuable strategic directions for the global healthcare domain.

Having been discussed together in the systematic review, it is evident that digital health technologies are reshaping the contours of healthcare delivery worldwide; however, their acceptance is unevenly distributed and depends on various factors. The thematic synthesis clearly demonstrated that these technologies have a positive impact on access, empowerment, communication, and the quality of care; however, barriers persist in usability, infrastructure, equity, and ethics. From the combined standpoints of the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI), and Patient-Centered Care (PCC), it is suggested that the most useful paradigm is that the implementation of digital health is best viewed as a socio-technical approach. At the micro level, adoption depends on perceptions of usefulness and ease of use. At the system level, diffusion is shaped by compatibility with infrastructure, workflow, and regulatory frameworks. At the ethical level, and finally, for acceptance, alignment is necessary between innovation and trust, autonomy, and equity.

Conclusion and Recommendations

The purpose of this systematic study was to examine how the patient experience and quality of care are affected by digital health technologies (DHTs), with particular emphasis on global adoption, benefits, and barriers. This review shows how fourteen empirical papers, set in diverse geographical and health contexts, portray the transformation of health delivery through telemedicine, EHRs, mobile apps, gadgets, and AI-enabled platforms. These results have revealed that although DHTs may expand access, facilitate patient empowerment, enhance communication, and improve the quality of care, their adoption has been uneven and delayed by significant systemic, technical, and ethical hurdles.

Evidence highlights three key themes: DHTs expand healthcare access, especially in underserved areas, through telemedicine, patient portals, and mHealth tools that empower self-care and autonomy. EHRs and AI systems improve communication, coordination, and outcomes. However, barriers persist, including usability issues for older or digitally unskilled users, affordability and infrastructure gaps in marginalized communities, unresolved privacy and data ownership concerns, and ongoing mistrust of AI, underscoring the need for urgent governance and equitable implementation.

These findings gain additional depth when interpreted using selected theoretical lenses. From the perspective of the Technology Acceptance Model (TAM), perceived usefulness and ease of use were among the most consistent factors influencing adoption. The Diffusion of Innovations (DOI) model situates adoption within a systemic and organizational context, extending the understanding of how infrastructure readiness, policy incentives, and workflow compatibility relate to the spread of innovations. From the Patient-Centered Care (PCC) perspective, we see that digital health, more broadly, and its

adoption should not only be evaluated based on efficiency or clinical outcomes, but also on how this value aligns with patients' values and views on trust and equity. The triangulation of these different frameworks provided by this study leads to the understanding that digital health adoption is not just a technical issue, but a socio-technical one, involving interactions among human, system, and ethical dimensions.

This research offers applied contributions for multiple stakeholders. Policymakers must prioritize infrastructure investment in Low- and Middle-Income Countries (LMICs) and establish interoperability standards and ethical regulations. Healthcare providers require training aligned with workflows to ease burdens while sustaining relational care. Developers should design intuitive, inclusive, and affordable tools accessible to populations with limited digital literacy. Researchers must address gaps in longitudinal evidence, LMIC representation, and interoperability. The future of digital health relies on the equitable, sustainable, and ethical adoption of technology—ensuring affordability, seamless system integration, transparent AI regulation, and respect for patient privacy, consent, and dignity, while avoiding fragmentation in data-driven healthcare.

In summary, while digital health technologies have immense potential to transform patient experiences and the realities of care, this potential can only be unlocked through a coordinated approach that incorporates patient-centered, equity-focused strategies. Self-theorizing hallmark frameworks establish the proposed study's vantage point, providing a multidimensional understanding of the forces shaping digital health adoption. Policymakers, practitioners, and researchers will need to converge on developing solutions that ensure technical efficacy is bonded with ethical bases, social inclusion, and global access. This review, hence, can be understood as both a synthesized view of the current evidence and a call to arms. We must work toward ensuring digital health is harnessed for the advancement of all by prioritizing innovation that is sustainable, equitable, and patient-centered.

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