

Global Health Inequities and the Role of Agentic AI in Low-Income Settings: A Healthcare Management Perspective

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DOI: <https://doi.org/10.51244/IJRSI.2026.1315PH00139>

Received: 06 July 2026; Accepted: 11 July 2026; Published: 28 July 2026

ABSTRACT

Global health inequities continue to restrict access to timely and quality care in low-income settings which have limited infrastructure, workforce shortages, financial barriers & geographic disparities that remain persistent challenges. Emerging advancements in artificial intelligence, particularly agentic AI, offer new opportunities to strengthen healthcare delivery in the resource constrained environments. These systems can support in decision making, improve early diagnosis, and enhance service reach.

This chapter adopts a narrative literature review and conceptual analysis. It synthesises the evidence from peer reviewed studies, global health reports, and the policy documents. The analysis examines applications of agentic AI in areas such as telehealth, disease surveillance, clinical support and the community based care. It also evaluates critical concerns including digital exclusion, algorithmic bias, data privacy, and infrastructural limitations.

The chapter argues that agentic the AI can help in reducing healthcare disparities when implemented within inclusive and ethically governed frameworks. It also highlights the need for context-sensitive design, local capacity development & the supportive policy environments. The study also provides the structured understanding of how AI-driven solutions can help in improving accessibility, efficiency and equity in the underserved populations.

Keywords:- Agentic AI; Equity; Healthcare; Ethics; Accessibility

INTRODUCTION

Background of the Study

Global health inequities actually continue to undermine progress toward universal health coverage and sustainable development. In spite of remarkable advances in the field medical science and healthcare delivery. There exist substantial disparities in healthcare access and health outcome and particularly in low- and middle-income countries (LMICs). Limited healthcare infrastructure, shortages of skilled health professionals along with inadequate diagnostic services, financial constraints and geographical barriers continue to restrict equitable healthcare delivery thereby disproportionately affect vulnerable populations (World Health Organization [WHO], 2023; United Nations, 2023).

Artificial intelligence (AI) has emerged as a transformative technology capable of strengthening healthcare systems through improved diagnostic accuracy, clinical decision support, disease surveillance, predictive analytics, telemedicine, and healthcare resource optimization (Topol, 2019; Kaushik et al., 2024). More recently, the development of agentic AI has expanded these capabilities by enabling autonomous and goal-directed decision-making systems that can independently perform complex healthcare tasks while adapting to dynamic clinical and operational environments (Hosseini & Seilani, 2025; Rashid et al., 2025). These

advancements have created new opportunities to improve healthcare accessibility and operational efficiency, particularly in resource-constrained settings.

However, technological innovation alone cannot eliminate health inequities. The impact of AI depends on equitable implementation, high-quality data, appropriate governance, digital infrastructure, workforce readiness, and community engagement. AI systems developed using incomplete or non-representative datasets may reinforce existing disparities through algorithmic bias, unequal service delivery, and digital exclusion. Similarly, inadequate regulatory oversight and weak governance frameworks may compromise transparency, accountability, patient privacy, and public trust (Pinto et al., 2023; Solano-Kamaiko et al., 2024). Consequently, the successful integration of AI into healthcare requires not only technological advancement but also effective healthcare management, ethical governance, and context-specific implementation strategies.

Healthcare management provides the organisational framework necessary to translate technological innovation into meaningful improvements in health system performance. Strategic leadership, policy development, workforce capacity building, digital infrastructure, quality improvement, and data governance determine whether AI technologies contribute to equitable healthcare delivery or widen existing disparities. Recent evidence highlights that AI interventions are most effective when integrated into broader health system strengthening initiatives that prioritise equity, transparency, sustainability, and community participation (Pinto et al., 2023; Public Health Nursing, 2025).

Justification of the Study

Although AI applications in healthcare have expanded considerably, existing literature has primarily focused on technological performance and clinical applications. Comparatively fewer studies have examined agentic AI from a healthcare management perspective while considering its implications for global health equity, implementation challenges, governance mechanisms, and health system sustainability. Furthermore, evidence regarding the responsible adoption of agentic AI in LMICs remains fragmented. Given the rapid evolution of autonomous AI technologies, there is a need to synthesise current evidence to support healthcare managers, policymakers, and researchers in designing equitable, ethical, and sustainable implementation strategies. This study addresses this gap by examining the role of agentic AI in reducing global health inequities through the lens of healthcare management.

Objectives of the Study

The primary objective of this study was to examine the role of agentic AI in addressing global health inequities from a healthcare management perspective.

The specific objectives were to:

1. Examine the applications of agentic AI in improving healthcare accessibility and service delivery;
2. Identify the ethical, infrastructural, governance, and implementation challenges associated with AI adoption in healthcare;
3. Analyse the implications of agentic AI for health equity in low-resource settings; and
4. Propose healthcare management strategies for the responsible, equitable, and sustainable implementation of agentic AI.

Research Questions

This study was guided by the following research questions:

1. How can agentic AI contribute to reducing global health inequities in low-resource settings?

2. What ethical, infrastructural, governance, and implementation challenges influence the adoption of agentic AI in healthcare?
3. Which healthcare management strategies can facilitate the equitable and sustainable implementation of agentic AI in LMICs?

Definition of Key Terms

Agentic AI: Autonomous or semi-autonomous artificial intelligence systems capable of performing goal-directed tasks, supporting clinical and managerial decision-making, and adapting to changing healthcare environments with limited human intervention (Hosseini & Seilani, 2025).

Global Health Inequities: Avoidable and unjust differences in health status, healthcare access, and health outcomes among populations resulting from social, economic, geographical, environmental, and systemic determinants (WHO, 2023).

Health Equity: The principle that every individual should have a fair and just opportunity to attain the highest attainable standard of health without avoidable barriers related to social, economic, or environmental conditions (WHO, 2023).

Low- and Middle-Income Countries (LMICs): Countries classified by the World Bank according to gross national income per capita and commonly characterised by constrained healthcare resources, workforce shortages, and limited health infrastructure

LITERATURE REVIEW

1. Overview of AI in Healthcare

Artificial Intelligence has emerged as a transformative tool in the healthcare which enables early diagnosis, predictive analytics & personalised treatment planning. Technologies such as machine learning, deep learning, and natural language processing have improved clinical decision making & the operational efficiency (**Dangi et al 2024 ,Batani et al 2026**). Artificial Intelligence applications have demonstrated effectiveness across different specialties including radiology, cardiology, oncology & public health.⁽⁶⁾

However, the benefits of Artificial Intelligence are not evenly distributed. While the high-income countries are rapidly adopting AI systems, most of the low- and middle-income countries (LMICs) continue to face structural limitations which is resulting in persistent disparities in healthcare access and outcomes (**Berdahl et al., 2023**).

2. AI and Health Equity

Artificial Intelligence shows both opportunities & risks for health equity The Studies indicate that Ai can improve access to healthcare services in underserved regions but it may also reinforce existing inequalities if it's not designed carefully. Berdahl et al (2023) identifies key equity concerns related to data bias, model design & deployment contexts.⁽⁴⁾

Inadequate representation of vulnerable populations in datasets can lead to biased outcomes disproportionately affecting marginalised groups. Therefore, equity focused frameworks are become essential part to ensure inclusive Artificial intelligent development & its deployment in healthcare systems (Berdahl et al 2023).

3. Applications of AI in Low-Resource Settings

The literature highlights several applications of Artificial Intelligence in resource constrained environments. AI-assisted diagnostic tools have shown high accuracy in detecting diseases such as tuberculosis, malaria & cardiovascular conditions (**Batani et al 2026**). The deep learning models, particularly convolutional neural networks (CNNs) have demonstrated diagnostic accuracies that exceed 95% in imaging-based analysis.⁽³⁾

Additionally, AI-based tools which include mobile health applications, chatbots, and telemedicine platforms enhance healthcare accessibility thereby reducing dependence on physical infrastructure and specialist availability (**Dangi et al 2024**). These innovations are particularly valuable in rural and underserved areas.⁽⁶⁾

4. AI, Telemedicine, and Digital Health Integration

The integration of Artificial Intelligence with telemedicine has been identified as key strategy for improving healthcare delivery in low resource settings studies show that Artificial Intelligence driven telehealth systems enable remote consultations patient monitoring & clinical decision support, thereby improving access to care.⁽⁹⁾ Furthermore Artificial Intelligence powered predictive analytics assist in risk assessment and resource allocation, enhancing the efficiency of healthcare systems. However, the effectiveness of these systems depends on digital infrastructure and user readiness.⁽¹¹⁾

5. Data and Infrastructure Challenges

The major barrier to the implementation of Artificial Intelligence in LMICs is the lack of reliable data and infrastructure. Kaushik et al in (2024) highlights that data sharing challenges are multidimensional, including technical, economic, legal, ethical, & the organizational factors.

Common issues include poor internet connectivity, lack of equipment, fragmented data systems & low data literacy. These challenges significantly limit the development and deployment of AI tools in healthcare. Moreover, the absence of standardized data sharing frameworks further restricts the large scale implementation (**Kaushik et al 2024**).

6. Ethical and Governance Concerns

Ethical considerations are given importance for the adoption of the Artificial Intelligence in healthcare. Key concerns include data privacy, algorithmic bias, lack of transparency & accountability. Artificial Intelligence systems often function as black boxes, making it difficult for healthcare professionals to interpret decision making processes.⁽⁵⁾ Regulatory frameworks in many LMICs remain underdeveloped, thus creating additional challenges for safe and ethical implementation. Studies emphasise the need for explainable AI, Robust data protection policies & clear governance structures to ensure responsible use of AI technologies (Berdahl et al 2023).

7. Real-World Evidence from Implementation Studies

Recent studies provide real world evidence use of AI in low-resource settings. A trial was conducted in Nigeria that demonstrated that AI assisted screening significantly improved the detection of cardiomyopathy among pregnant women, that doubled the diagnosis rates compared to standard care (**Adedinsewo et al 2025**).

Despite these promising results, the study also identified contextual challenges such as workforce shortages, infrastructure limitations & implementation barriers. These findings highlight the importance of adapting AI solutions to local healthcare environments.

8. Opportunities and Future Directions

Artificial Intelligence has potential to improve global health outcomes. It will help in early diagnosis, helping to optimise treatment strategies & support to public health interventions. Its applications include precision medicine, wearable health technologies, Disease surveillance systems (Dangi et al 2024).

In order to realise these benefits, the investments in digital infrastructure are required, workforce training, and policy development are very essential. Collaborative efforts between governments, healthcare providers & technology developers are also critical.⁽¹¹⁾

9. Research Gap

Despite the growing interest in Artificial Intelligence for healthcare, existing research remains fragmented. There is a lack of integrated frameworks that addresses technical, ethical & contextual challenges simultaneously. Additionally, many Artificial Intelligence models lack real-world validation, scalability & explainability.

There is a need for context specific approaches that incorporate health care systems, data governance, & infrastructure readiness to ensure sustainable AI implementation in LMICs (**Kaushik et al., 2024; Berdahl et al. 2023**).

The literature suggests that the use of Artificial Intelligence has the potential to transform the healthcare delivery in low resource settings. The success depends on addressing the main challenges which are directly related to the data, the infrastructure, ethics & policy. A balanced and inclusive approach is necessary to ensure that Artificial Intelligence contributes to sustainable healthcare systems.

METHODOLOGY

Study Design

This study employed a qualitative narrative literature review to examine the role of agentic artificial intelligence (AI) in addressing global health inequities from a healthcare management perspective. A narrative review design was considered appropriate because it facilitates the integration and critical interpretation of evidence from diverse sources, enabling a comprehensive understanding of emerging concepts, implementation challenges, ethical considerations, and healthcare management implications. Unlike systematic reviews, the objective of this study was to provide a broad synthesis of existing knowledge rather than quantitatively evaluate intervention effectiveness.

Study Area

The review focused on global healthcare systems, with particular emphasis on low- and middle-income countries (LMICs), where disparities in healthcare access, infrastructure, workforce capacity, and digital health implementation remain significant. Literature from both developed and developing countries was considered to enable comparison of implementation approaches and identify strategies applicable to resource-constrained settings.

Method of Data Collection

Secondary data were collected through a structured search of published literature. Peer-reviewed journal articles, review papers, policy documents, reports from international organisations, and relevant scholarly publications addressing artificial intelligence, agentic AI, digital health, healthcare management, and global health equity were included. Literature was identified from electronic databases including PubMed, Scopus, Google Scholar, and other credible academic sources.

Data Collection Procedure

A structured literature search was conducted using combinations of keywords including Artificial Intelligence, Agentic AI, Global Health Equity, Healthcare Management, Digital Health, Health Systems, Low- and Middle-Income Countries, and Health Equity. Additional relevant studies were identified through reference lists of selected publications.

Studies published in English that discussed AI applications in healthcare, health system strengthening, implementation challenges, governance, ethics, and healthcare management were considered for inclusion. Publications lacking relevance to the study objectives, duplicate records, opinion pieces without substantive evidence, and non-English publications were excluded. The selected literature was reviewed comprehensively to identify recurring concepts and evidence relevant to the objectives of the study.

Study Instrument

The primary instrument for data collection was a structured literature review matrix developed by the researchers. The matrix was used to systematically record bibliographic information, study characteristics, AI applications, implementation settings, key findings, ethical considerations, healthcare management implications, and recommendations. This facilitated consistent extraction and organisation of information across the included literature.

Sampling Technique

Purposive sampling was adopted to identify literature directly relevant to the objectives of the study. Priority was given to recent peer-reviewed publications, systematic reviews, policy reports, and authoritative international publications addressing artificial intelligence in healthcare, agentic AI, digital health implementation, and global health equity.

Data Analysis

Data were analysed using qualitative thematic analysis. Evidence extracted from the selected literature was organised into major themes, including AI applications in healthcare, healthcare accessibility, implementation challenges, ethical and governance considerations, digital infrastructure, workforce preparedness, and healthcare management strategies. Similar findings across studies were synthesised to identify emerging patterns, knowledge gaps, and implications for equitable implementation of agentic AI within healthcare systems. The findings are presented as a narrative synthesis supported by relevant literature.

RESULTS

1. Classification of Agentic AI Applications Across Levels of Healthcare

To better understand the contribution of agentic AI to health system strengthening, its applications can be classified according to the major levels of healthcare service delivery. This classification demonstrates how AI supports health promotion, disease prevention, diagnosis and treatment, rehabilitation, and palliative care while contributing to equitable healthcare delivery.

Preventive Care

Agentic AI supports preventive healthcare through disease surveillance, outbreak prediction, risk stratification, vaccination planning, population health monitoring, and early identification of individuals at high risk of developing chronic or infectious diseases. AI-enabled predictive analytics facilitates timely public health interventions, reducing disease burden and improving health outcomes, particularly in resource-constrained settings.

Promotive Care

In promotive healthcare, agentic AI enhances health education, behavioural change interventions, lifestyle modification programmes, personalised wellness recommendations, and community engagement through digital health platforms, mobile health applications, and virtual health assistants. These technologies improve health literacy and encourage preventive health behaviours among individuals and communities.

Curative Care

Within curative healthcare, agentic AI assists healthcare professionals through clinical decision support systems, diagnostic imaging interpretation, precision medicine, treatment planning, medication optimisation, robotic-assisted procedures, and telemedicine services. These applications improve diagnostic accuracy, support timely clinical decision-making, optimise healthcare resource utilisation, and enhance patient outcomes.

Agentic AI contributes to rehabilitative care by supporting personalised rehabilitation programmes, remote patient monitoring, wearable health technologies, assistive devices, speech and physical therapy, and continuous assessment of patient recovery. These applications Rehabilitative Care facilitate continuity of care, improve functional outcomes, and enhance patient engagement during rehabilitation.

Palliative Care

In palliative care, agentic AI supports symptom monitoring, pain management, psychosocial assessment, medication management, advance care planning, and virtual follow-up services. AI-driven decision support enables personalised care planning while improving communication between healthcare providers, patients, and caregivers, thereby enhancing quality of life for individuals with life-limiting illnesses.

Overall, agentic AI demonstrates the potential to strengthen healthcare delivery across all levels of care. However, successful implementation requires robust digital infrastructure, ethical governance, workforce preparedness, effective healthcare management, and equitable access to technology to ensure that AI-driven innovations reduce rather than widen existing health disparities.

2. Challenges to the Implementation of Agentic AI

Despite the growing potential of agentic AI to improve healthcare delivery, its implementation remains constrained by several technological, organisational, financial, and regulatory barriers. These challenges are particularly evident in low- and middle-income countries (LMICs), where limited digital infrastructure, resource constraints, and fragmented health systems often impede the effective integration of AI-enabled solutions (**Pinto et al., 2023; Solano-Kamaiko et al., 2024**).

Digital infrastructure remains a fundamental prerequisite for successful AI adoption. Many healthcare systems continue to face inadequate internet connectivity, limited computational capacity, poor interoperability among health information systems, and insufficient electronic health records. These limitations reduce the reliability, scalability, and sustainability of AI applications, particularly in rural and underserved settings (**Pinto et al., 2023; Kaushik et al., 2024**).

The availability and quality of health data represent another major challenge. Agentic AI systems rely on accurate, comprehensive, and representative datasets to generate reliable outputs. However, incomplete clinical records, inconsistent documentation practices, fragmented databases, and underrepresentation of vulnerable populations can compromise algorithm performance and contribute to biased decision-making. Such biases may inadvertently widen existing health disparities rather than reduce them (**Pinto et al., 2023; Hosseini & Seilani, 2025**).

Financial sustainability also influences AI implementation. The acquisition, deployment, maintenance, and continuous optimisation of AI technologies require substantial investments in hardware, software, cybersecurity, and workforce development. Many healthcare organisations in resource-constrained settings face competing priorities that limit investments in digital transformation, thereby slowing the adoption of advanced AI solutions (**Solano-Kamaiko et al., 2024**).

Another significant challenge is workforce preparedness. The successful implementation of agentic AI requires healthcare professionals to possess adequate digital literacy and the ability to critically interpret AI-generated recommendations. Resistance to technological change, insufficient training opportunities, and uncertainty regarding human–AI collaboration may reduce user acceptance and limit effective implementation within routine clinical practice (**Pinto et al., 2023; Public Health Nursing, 2025**).

Regulatory and governance gaps further complicate AI adoption. Many countries continue to develop policies addressing the validation, regulation, accountability, and oversight of AI-based healthcare technologies. The absence of comprehensive regulatory frameworks may delay implementation, reduce stakeholder confidence, and create uncertainty regarding legal responsibility for AI-assisted clinical decisions (**Pinto et al., 2023; Kaushik et al., 2024**).

Addressing these barriers requires coordinated action involving healthcare organisations, policymakers, technology developers, researchers, and regulatory authorities. Strengthening digital infrastructure, improving data quality, investing in workforce capacity building, establishing transparent governance frameworks, and promoting interdisciplinary collaboration are essential for ensuring that agentic AI contributes to equitable, safe, and sustainable healthcare delivery across diverse healthcare settings (Pinto et al., 2023; Solano-Kamaiko et al., 2024).

3. Ethical, Governance, and Healthcare Management Considerations

The successful integration of agentic AI into healthcare extends beyond technological innovation and requires robust ethical, governance, and healthcare management frameworks. As AI systems become increasingly autonomous in supporting clinical and administrative decision-making, ensuring their responsible, transparent, and equitable use has become a fundamental priority (Pinto et al., 2023; Kaushik et al., 2024).

Data privacy and security remain central ethical considerations. Agentic AI systems process large volumes of sensitive patient information, making strong cybersecurity measures, secure data-sharing protocols, and compliance with data protection regulations essential for safeguarding patient confidentiality and maintaining public trust (Solano-Kamaiko et al., 2024).

Algorithmic fairness and transparency are equally important. AI models trained on incomplete or unrepresentative datasets may generate biased recommendations that disproportionately affect vulnerable populations. Transparent model development, continuous performance monitoring, regular algorithm validation, and explainable AI approaches are therefore necessary to ensure fairness, accountability, and equitable healthcare delivery (Pinto et al., 2023; Hosseini & Seilani, 2025).

Effective governance provides the institutional foundation for responsible AI implementation. Healthcare organisations should establish clear policies regarding data governance, ethical review, risk management, accountability, and regulatory compliance. Collaboration among policymakers, healthcare professionals, researchers, technology developers, and regulatory authorities is essential to develop standards that promote safe and responsible AI adoption while protecting patient rights and public interests.

Healthcare management plays a pivotal role in translating ethical principles into routine practice. Organisational leadership should promote workforce training, interdisciplinary collaboration, digital health literacy, continuous quality improvement, and change management to facilitate the successful integration of AI within healthcare systems. Investment in digital infrastructure, workforce capacity building, and evidence-based implementation strategies can enhance organisational readiness while ensuring that AI technologies complement rather than replace clinical expertise (Public Health Nursing, 2025; Kaushik et al., 2024).

Furthermore, equitable implementation should remain a guiding principle throughout the AI lifecycle. Continuous evaluation of health outcomes, monitoring of unintended consequences, stakeholder engagement, and periodic policy review are necessary to ensure that agentic AI contributes to reducing rather than exacerbating existing health inequities. Adopting a patient-centred, ethically governed, and healthcare management-driven approach will maximise the long-term value of agentic AI while promoting resilient, inclusive, and sustainable healthcare systems.

DISCUSSION

Interpretation of the Findings

The findings of this review indicate that agentic AI has considerable potential to improve healthcare accessibility, efficiency, and quality across multiple levels of healthcare delivery. Its applications extend beyond clinical decision support to disease surveillance, predictive analytics, telemedicine, personalised care, and health system management. Collectively, these applications demonstrate that agentic AI can strengthen healthcare delivery while supporting progress towards health equity, particularly in resource-constrained settings. However, the findings also suggest that technological innovation alone is insufficient to reduce global health inequities. The

effectiveness of agentic AI depends on the readiness of healthcare systems, the quality of digital infrastructure, workforce capacity, governance mechanisms, and equitable access to healthcare technologies (Pinto et al., 2023; Kaushik et al., 2024).

The review further demonstrates that successful implementation requires a balanced integration of technological innovation with organisational leadership and evidence-informed healthcare management. AI should complement rather than replace clinical expertise, enabling healthcare professionals to make timely, accurate, and patient-centred decisions while maintaining appropriate human oversight. This reinforces the growing consensus that responsible AI adoption requires multidisciplinary collaboration among clinicians, healthcare managers, policymakers, technology developers, and public health practitioners (Public Health Nursing, 2025; Frontiers in Cardiovascular Medicine, 2025).

Comparison with Existing Literature

The findings are consistent with previous studies reporting that AI has the capacity to improve diagnostic accuracy, optimise healthcare resource utilisation, and expand access to healthcare services through digital health technologies. Recent evidence also highlights the importance of integrating AI within broader health system strengthening strategies rather than considering it solely as a technological intervention (Pinto et al., 2023).

Similarly, contemporary literature emphasises that ethical governance, explainability, data quality, and stakeholder engagement remain fundamental prerequisites for equitable AI implementation. These observations support the findings of the present review, which identified governance, workforce preparedness, regulatory frameworks, and digital infrastructure as essential determinants of successful implementation (Solano-Kamaiko et al., 2024). The healthcare management perspective adopted in this review further extends existing literature by highlighting the organisational and leadership dimensions necessary for sustainable AI integration within healthcare systems.

Healthcare Management and Policy Implications

From a healthcare management perspective, the findings emphasise that AI implementation should be supported by strategic planning, organisational readiness, workforce development, continuous quality improvement, and effective change management. Healthcare organisations should invest in interoperable digital infrastructure, establish comprehensive data governance policies, and promote interdisciplinary collaboration to facilitate responsible AI adoption.

At the policy level, governments and regulatory agencies should develop evidence-based frameworks that promote transparency, accountability, patient safety, and equitable access to AI-enabled healthcare services. Special attention should be given to LMICs, where investments in digital infrastructure, workforce capacity building, and health information systems can significantly enhance the equitable implementation of agentic AI. These measures will enable healthcare systems to maximise the benefits of AI while minimising potential risks associated with bias, inequitable access, and fragmented implementation (Kaushik et al., 2024; Pinto et al., 2023).

Limitations and Future Research

This study is subject to certain limitations. As a narrative literature review, the findings are based on published secondary literature and do not include quantitative synthesis or empirical validation. Only English-language publications were considered, which may have excluded relevant evidence reported in other languages. Furthermore, the rapidly evolving nature of agentic AI means that new evidence may emerge after completion of this review.

Future research should focus on rigorous evaluation of agentic AI implementation across diverse healthcare settings using standardised outcome measures. Greater emphasis should be placed on implementation research, health equity evaluation, governance frameworks, and longitudinal assessment of AI-enabled healthcare interventions. Comparative studies across different healthcare systems and resource settings would further strengthen the evidence base and support the development of context-specific implementation strategies.

CONCLUSION

Agentic AI has emerged as a transformative force in healthcare, with the potential to significantly improve accessibility, efficiency, and quality of care, particularly in low-resource settings. The findings of this study indicate that AI can address critical gaps in healthcare delivery by enabling early diagnosis, supporting clinical decision-making, and expanding access through digital health solutions.

Use of Artificial Intelligence has emerged as a transformative force in healthcare, and has potential to improve accessibility in the significant manner, its efficiency, quality of care, in low-resource settings. It was found that Ai can reduce the critical gaps in healthcare delivery with the help of early diagnosis. The support in clinical decision making & expanding access through digital health solutions

The effectiveness of AI depends on the availability of high-quality data, infrastructure, and supportive governance systems. In many low- and middle-income countries (LMICs), limited or non availability in digital infrastructure, data systems, and workforce capacity continue to restrict the expansion, sustainability of AI solutions. Moreover, concerns related to data privacy, and lack of regulatory frameworks highlight the need for responsible and ethical implementation.

To ensure that AI contributes to fair healthcare outcomes, a multi-dimensional approach is required. Strengthening of digital infrastructure should be on priority in order to support reliable data collection. Efforts must also focus on improving data quality and establishing standardised data-sharing frameworks to enhance the performance and fairness of AI models.

In addition, the development of clear ethical and regulatory framework in order address issues of transparency, accountability, and bias. Capacity building through training and skill development of healthcare professionals will further support the effective adoption and utilisation of AI technologies. Importantly, AI solutions should be designed and implemented in a context sensitive manner, taking into account financial constraints, resource constraints, and socioeconomic conditions.

The Collaborative efforts between governments & healthcare organizations play an important role. The technology developers ensure sustainable implementation. The monitoring and evaluation should also be undertaken to maintain accuracy, fairness, and its long-term effectiveness.

In conclusion the use of Artificial Intelligence should be viewed not as a standalone solution but as a tool which is there to strengthening health care. A balanced approach which integrates technological innovation with ethical considerations and contextual adaptability, which becomes essential to achieve sustainable and equitable healthcare delivery

REFERENCES

1. Adedinsewo DA, Onietan D, Morales-Lara AC, Moideen Sheriff S, Afolabi BB, Kushimo OA, Mbakwem AC, Ibiyemi KF, Ogunmodede JA, Raji HO, Ringim SH, Habib AA, Hamza SM, Ogah OS, Obajimi G, Saanu OO, Aborisade S, Jagun OE, Inofomoh FO, Adeolu T, Karaye KM, Gaya SA, Sa'ad Y, Alfa I, Yohanna C, Noseworthy PA and Carter RE (2025) Contextual challenges in implementing artificial intelligence for healthcare in low-resource environments: insights from the SPEC-AI Nigeria trial. *Front. Cardiovasc. Med.* 12:1516088. doi: 10.3389/fcvm.2025.1516088
2. Global strategy and plan of action on public health, innovation and intellectual property: implementation 2021–2023. Geneva: World Health Organization; 2024. <https://doi.org/10.2471/B09072>.
3. Batani, J., Nkomo, W., & Mokhosi, R. (2026). Towards incorporating data-driven artificial intelligence-based tools in tuberculosis diagnosis in resource-constrained countries: A scoping review. *Informatics and Health*, 3(1), 81–91. <https://doi.org/10.1016/j.infoh.2026.02.001>
4. Berdahl, C. T., Baker, L., Mann, S., Osoba, O., & Girosi, F. (2023). Strategies to Improve the Impact of Artificial Intelligence on Health Equity: Scoping Review. *Jmir Ai*, 2, e42936. <https://doi.org/10.2196/42936>

5. Dankwa-Mullan I. Health Equity and Ethical Considerations in Using Artificial Intelligence in Public Health and Medicine. *Prev Chronic Dis*. 2024 Aug 22;21:E64. doi: 10.5888/pcd21.240245. PMID: 39173183; PMCID: PMC11364282.
6. Dangi, R. R., Sharma, A., & Vageriya, V. (2024). Transforming Healthcare in Low-Resource Settings With Artificial Intelligence: Recent Developments and Outcomes. *Public Health Nursing*, 42(2), 1017–1030. Portico. <https://doi.org/10.1111/phn.13500>
7. Karunanayake, N. (2025). Next-generation agentic AI for transforming healthcare. *Informatics and Health*, 2(2), 73–83. <https://doi.org/10.1016/j.infoh.2025.03.001>
8. Kaushik, A., Barcellona, C., Mandyam, N. K., Tan, S. Y., & Tromp, J. (2025). Challenges and Opportunities for Data Sharing Related to Artificial Intelligence Tools in Health Care in Low- and Middle-Income Countries: Systematic Review and Case Study From Thailand. *Journal of Medical Internet Research*, 27, e58338. <https://doi.org/10.2196/58338>
9. Perez, K., Wisniewski, D., Ari, A., Lee, K., Lieneck, C., & Ramamonjiarivelo, Z. (2025). Investigation into Application of AI and Telemedicine in Rural Communities: A Systematic Literature Review. *Healthcare*, 13(3), 324. <https://doi.org/10.3390/healthcare13030324>
10. Thomasian, N. M., Eickhoff, C., & Adashi, E. Y. (2021). Advancing health equity with artificial intelligence. *Journal of Public Health Policy*, 42(4), 602–611. <https://doi.org/10.1057/s41271-021-00319-5>
11. Zou, J., & Topol, E. J. (2025). The rise of agentic AI teammates in medicine. *The Lancet*, 405(10477), 457. [https://doi.org/10.1016/s0140-6736\(25\)00202-8](https://doi.org/10.1016/s0140-6736(25)00202-8)
12. Ma'aruf, S. Y., Imbwaga, J. L., Adeniyi, M. O., Araromi, S. O., & Oyeniji, R. (2025). AI-Powered Diagnostic Tools for Infectious Diseases in Low-Resource Settings: A Comprehensive Review (Preprint). <https://doi.org/10.2196/preprints.84758>
13. Barra, F. L., Rodella, G., Costa, A., Scalogna, A., Carenzo, L., Monzani, A., & Corte, F. D. (2025). From prompt to platform: an agentic AI workflow for healthcare simulation scenario design. *Advances in Simulation*, 10(1). <https://doi.org/10.1186/s41077-025-00357-z>
14. Cho, H. N., Wang, J., Hu, D., & Zheng, K. (2026). Large Language Model–Based Chatbots and Agentic AI for Mental Health Counseling: Systematic Review of Methodologies, Evaluation Frameworks, and Ethical Safeguards. *Jmir Ai*, 5, e80348. <https://doi.org/10.2196/80348>
15. Hosseini, S., & Seilani, H. (2025). The role of agentic AI in shaping a smart future: A systematic review. *Array*, 26, 100399. <https://doi.org/10.1016/j.array.2025.100399>
16. Poornima, G., & Nasurudeen Ahamed, N. (2025). Reimagining Autonomy: Agentic AI in the Age of Human-Centric Innovation. *The Power of Agentic AI: Redefining Human Life and Decision-Making*, 291–307. https://doi.org/10.1007/978-3-031-89424-4_19
17. Rashid, S., Shahriar, M. F., Karim Katha, S., Jubaer, E., Rahman Mazumder, A. M., Islam, A., Ashraf, M., Mahmud, A., & Amin, M. A. (2025). AI Agents in Healthcare: A Survey of Applications, Resources, and Challenges. 2025 IEEE 23rd Student Conference on Research and Development (SCOREd), 1–6. <https://doi.org/10.1109/scored68498.2025.11398875>
18. Sitinjak, R. H. N., Purba, S. M. A., Majidah, S., & Azis, N. A. (2025). Menuju Kecerdasan Buatan yang Non-Diskriminatif dalam Layanan Kesehatan: Memastikan Akses dan Pemanfaatan yang Setara bagi Wilayah Perdesaan dan Tertinggal. *Jurnal HAM*, 16(3), 177–196. <https://doi.org/10.30641/ham.2025.16.177-196>
19. Solano-Kamaiko, I. R., Mishra, D., Dell, N., & Vashistha, A. (2024). Explorable Explainable AI: Improving AI Understanding for Community Health Workers in India. *Proceedings of the CHI Conference on Human Factors in Computing Systems*, 1–21. <https://doi.org/10.1145/3613904.3642733>
20. Sudhi, M., Shetty, D. K., Balakrishnan, J. M., & Veigas, N. (2026). Agentic systems in emergency medicine: a comprehensive review. *Connecting Intelligence*, 730–736. <https://doi.org/10.1201/9781003773504-124>