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(Review Article)

Harnessing Artificial Intelligence and mobile health applications to improve maternal and neonatal outcomes in resource-limited settings: An evidence-based analysis from Sub-Saharan Africa

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Abstract

Maternal and neonatal deaths rate in sub-Saharan Africa continue to be among the highest in the world owing to myriad reasons-factors that include lack of access to healthcare, understaffed health systems, and infrastructural problems. The recently arrived digital innovations, namely, Artificial Intelligence and mobile health, offer an almost revolutionary opportunity to tackle such problems. This article synthesizes evidence to analyze deployments of AI and mHealth technology to improve maternal and neonatal health in sub-Saharan African resource-challenged settings. Using evidence from recent empirical studies and systematic reviews, it explores avenues through which AI has been integrated into diagnostics, decision support systems, predictive analytics, and remote monitoring, while the mHealth applications assist in health education, prenatal care, referral management, and postnatal follow-up. From the studied literature, these technologies are observed to facilitate early complication detection and increase compliance with clinical guidelines, therefore aiding quality healthcare in marginalized communities. While there is promise in these areas, infrastructural issues, digital literacy, data privacy, and policy integration continue to be a concern. This paper also considers the choice of methodologies for assessing the efficacy of digital interventions and suggests frameworks for the sustainable scale-up of these innovations. Ultimately, it is intended to highlight the important role that AI and mHealth technologies could play in enhancing the speed of achievement to Sustainable Development Goal 3: ensuring healthy lives and promoting well-being at all ages. Targeted policy support; multi-sector collaborations; and grants for digital infrastructure development will be key for unlocking the full potential of these technologies in saving maternal and neonatal lives across sub-Saharan Africa.

Keywords: Artificial Intelligence; Maternal Health; Neonatal Outcomes; Digital Health; Sub-Saharan Africa; Low-Resource Settings

1. Introduction

Maternal and neonatal health outcomes in Sub-Saharan Africa remain a daunting concern. The global spread of health-care delivery and technologies has been showing some progress, yet the region is one of those that still have the highest maternal and neonatal mortality figures. According to the World Health Organization, sub-Saharan Africa accounted for nearly two-thirds of maternal deaths and a large percentage of neonatal deaths worldwide in 2020 (Dangor et al., 2025). The main causes of this load range from poor health facilities, inadequate numbers of skilled health professionals, nonavailability of basic medical services, and hesitancy in seeking amongst several others that are sociocultural, geographic, and economic (Ibraheem, n.d.; Gamberini et al., 2022).

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Health systems in the subcontinents become stronger by integrating Artificial Intelligence and mHealth technologies in solving health challenges; thus, countries of the sub-Saharan region are focusing on such digital innovative technologies increasingly. Globally, AI is fast becoming an agent of change, imparting predictive analytics and diagnostic support and intelligent triage in support of clinical decision-making (Mbunge and Batani, 2023). Relevant in such limited-resource contexts as most of sub-Saharan Africa are those interventions that can mitigate human resource shortages, thereby assisting in the application of timely and accurate interventions. Milic (n.d.) further notes that if AI technologies are made relevant to the local context, they could dramatically contribute to the improvement of healthcare delivery and system resilience in this region.

Likewise, mobile health or mHealth-the usage of mobile devices to support medicine and public health-works well in the improvement of maternal and child health outcomes. In sub-Saharan Africa, mobile penetration in most remote communities tops the ranking above traditional healthcare infrastructure, thus allowing mHealth applications to fill the gap by providing remote consulting, appointment reminders, health education, and real-time data sharing (Aboye et al., 2023). These technologies are sent out by SMS, mobile apps, or interactive voice response, thus very accessible even to people-low literacy (Tonny, 2024; Isaacs et al., 2024).

Recent empirical studies and reviews show a considerable expansion of AI and mHealth tools in regional maternal health programs. Owoche et al. (2025) describe AI-supported diagnostic models and decision support systems' current trials to detect complications such as hypertensive disorders, hemorrhage risk, and neonatal infections. AI is being used in ultrasound imaging and fetal monitoring to identify complications early in Ghana and Nigeria, especially in facilities with limited access to obstetricians (Ephraim et al., 2024; Sackey et al., 2024). Benitez (2020) stresses the importance of adapting machine learning models to local epidemiological and infrastructural circumstances in resource-constrained settings to improve prediction accuracy and clinical outcomes.

Alongside AI, the uptake of mHealth interventions has expanded in numerous countries, with government and nongovernmental support. For instance, MomConnect in South Africa and the Safe Delivery App in Nigeria give maternal health content tailored to the locale and encourage skilled birth attendance and postnatal care follow-up (Azalekor, 2024; Chiawah, n.d.). That kind of intervention is highly suitable for areas where traditional healthcare is inconsistent or unavailable, especially in rural or peri-urban communities. As discussed by Ssegujja et al. (2025), mHealth interventions improve communication not only between patients and health providers but also enhance tracking health outcomes through electronic frameworks.

Nevertheless, the emergence of AI- and mHealth-incorporated aspects of maternal and neonatal care still faces several challenges. Infrastructure challenges remain paramount, undermining the development and operation of these digital health systems: electricity is unreliable, internet connectivity is limited, and digital tools are in short supply (Agbeyangi and Suleman, 2024). The situation is compounded by the lack of training of healthcare workers in digital health systems thus restraining them from fully engaging with AI solutions or mobile health applications (Ahmed et al., 2025; Guadie, 2024). Another emerging issue resists the deployment of digital health interventions: data privacy, consent, and algorithmic bias concerns-everybody, wherever they may be. Yet many countries lack a strong governance framework on health information (Sylla et al., 2025; Pereira et al., 2021).

Furthermore, cultural barriers confound issues regarding uptake of digital platforms for maternal care. Gender norms and general mistrust in technology, together with the limited ownership of mobile devices amongst women, constrain the extent to which these platforms can be deployed and their overall effectiveness (KOMI et al., 2021; Komi et al., 2022). It is therefore imperative that interventions become contextually sensitive and equitable through community involvement and an inclusive approach to technology design.

Responding to this intermediate context, several frameworks for the effective deployment of AI and mHealth in sub-Saharan Africa have been proposed. Aidoo (2025) proposes precision health, combining digital technologies with health education, within a maternal population for chronic disease prevention. Land et al. (2019) promote REASSURED criteria (Real-time connectivity, Ease of specimen collection, Affordable, Sensitive, Specific, User-friendly, Rapid and robust, Equipment-free, and delivered to end-users) for use in the design of diagnostic interventions in resource-poor settings, while Popovici et al. (2024) advocate for transdisciplinary collaboration, to transform scientific knowledge into actionable, scalable, digital health interventions.

In view of the above, the present study aims to provide an evidence-based analysis of the use of AI and mHealth applications in improving maternal and neonatal health outcomes in sub-Saharan Africa. The study synthesizes the relevant literature, investigates the opportunities and challenges, and yields actionable recommendations towards the integration of digital health tools into maternal care systems. In this way, we identify leveraging pathways for AI and mHealth in some of the world's weakest healthcare systems to work toward SDG 3-goal: ensuring healthy lives and promoting the well-being of all at all ages.

2. Literature review

Integration of AI and mHealth applications into maternal and neonatal healthcare in sub-Saharan Africa is on the rising path. This chapter provides a thematic synthesis of the literature under five thematic areas: diagnostics, risk prediction, health education, remote monitoring, and referral management. The analysis draws on empirical works, systematic reviews, and programmatic evaluations in disparate contexts of sub-Saharan Africa.

2.1. Overview of Maternal and Neonatal Health Challenges

Maternal mortality in sub-Saharan Africa is mostly due to obstetric complications, for example, postpartum hemorrhage, hypertensive disorders, sepsis, unsafe abortions (Anyanwu et al., 2024; Ibraheem, n.d.). Prematurity, birth asphyxia, infections, and congenital abnormalities generally take away neonatal lives (Dangor et al., 2025). There are more bad outcomes due to low availability of emergency obstetric and neonatal care, low skilled birth attendant coverage, and poor referral systems (Gamberini et al., 2022).

2.2. AI and Health in Diagnostics and Clinical Decision-Making

AI technologies have considerable potential to enhance diagnostic accuracy, especially in a remote and low-resource context. For example, AI-based ultrasound imaging tools have the potential to assist non-specialist health workers to identify fetal anomalies and placenta previa so referrals could be made in time (Ephraim et al., 2024). Likewise, AI algorithms have been used to detect maternal risk factors such as anemia, gestational hypertension, and obstructed labor based on local epidemiological data (Owoche et al., 2025).

Complementing AI tools are mHealth applications that provide a digital platform for point-of-care diagnosis and follow-up. The Safe Delivery App is one such tool offering evidence-based recommendations and checklists to birth attendants in labor and delivery contexts to reduce clinical errors (Azalekor, 2024).

2.3. Risk Prediction and Early Warning Systems

Predictive analytics remains one of the most exciting prospects for AI in maternal and child health. Machine learning models process patient histories, biometric data, and sociodemographic indicators to discover women likely facing complications such as eclampsia, sepsis, or low birth weight (Benitez, 2020; Milic, n.d.). This way, respondents act early in interventions and direct resources more efficiently.

Meanwhile, mHealth platforms are becoming more and more reliable in the issuance of real-time alerts based on inputs from the field of symptoms reporting, tracking vital signs, or tracking missed appointments. Based on geo-spatial mapping, such frameworks also provide means for a more targeted outreach to the most vulnerable populations (Komi et al., 2021).

2.4. Health Education and Behavioral Change

Health education is important for maternal and neonatal health. mHealth platforms have been used extensively to deliver culturally appropriate health messages through SMS and voice messaging in local languages (Tonny, 2024; Isaacs et al., 2024). The messages cover antenatal care schedules, danger signs in pregnancy, breastfeeding, immunization reminders, and postnatal care.

While the direct contribution by AI to behavior change communication is minimal, it does contribute to the personalization of educational content in accordance with user and engagement pattern data (Aidoo, 2025). This increases the relevance of the messages and ensures a higher behavioral impact, especially among adolescent and first-time mothers.

2.5. Remote Monitoring and Follow-Up

AI-enabled wearable devices and sensors can monitor vital signs, fetal heart rates, and uterine contractions in real time. The data are then analyzed by AI systems that identify abnormalities and alert clinicians to emerging risks (Mbunge and Batani, 2023).

The use of mHealth applications for continuous communication between health providers and patients permits triage, virtual consultations, and digital follow-up after delivery (Aboye et al., 2023). This is very important to remote communities where distance to health facilities is a key impediment.

2.6. Strengthening Referral and Emergency Transport Systems

Timeous referral and emergency transport are key in handling complications. AI has been used for optimizing ambulance dispatch based on predictive algorithms and GPS tracking (Ranasinghe, 2025). mHealth systems also assist in referral communication as well as status tracking between different levels of care, facilitating the provision of efficient care along the continuum (Chiawah, n.d.; Komi et al., 2021).

Table 1 Summary of AI and mHealth Applications in Maternal and Neonatal Health

Function	AI Applications	mHealth Applications	Key Sources
Diagnostics	Ultrasound analysis, image recognition	Mobile apps with diagnostic protocols	Ephraim et al. (2024), Azalekor (2024)
Risk Prediction	Predictive models for maternal complications	Symptom reporting and alerts	Benitez (2020), Owoche et al. (2025)
Health Education	Personalized content delivery	SMS/voice messages in local languages	Aidoo (2025), Isaacs et al. (2024), Tonny (2024)
Remote Monitoring	Wearable sensors with AI algorithms	Remote check-ins, mobile triage apps	Mbunge and Batani (2023), Aboye et al. (2023)
Referral Management	Route optimization, triage prioritization	Referral coordination tools	Ranasinghe (2025), Komi et al. (2021)

This table presents a thematic overview of the contributions of AI and mHealth technologies to different stages of maternal and neonatal care, along with key references supporting each domain.

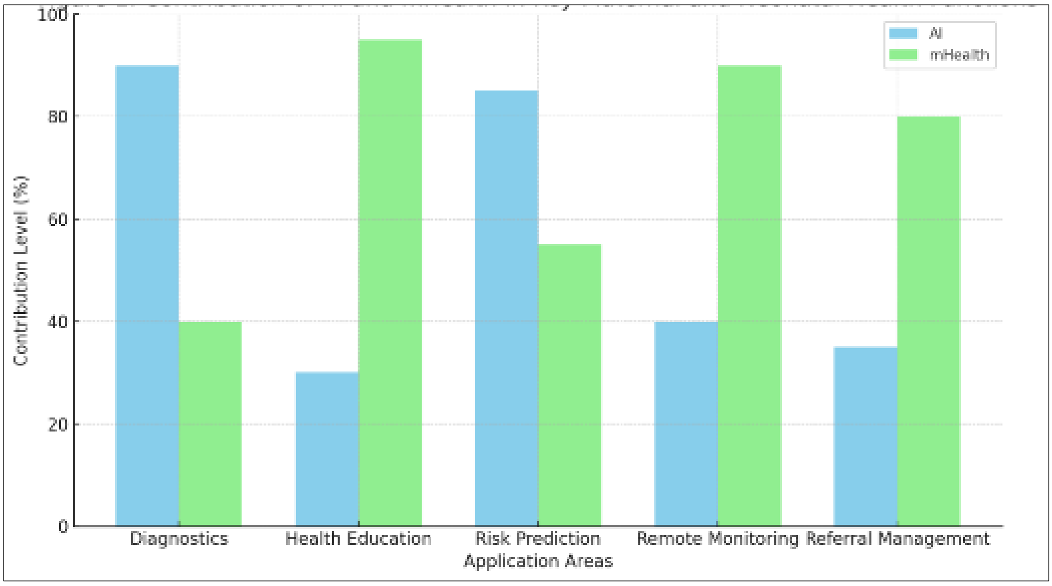

Figure 1 Contribution of AI and mHealth in Key Maternal and Neonatal Health Functions

This bar chart illustrates the comparative contribution levels of AI and mHealth across five key domains in maternal and neonatal health. AI demonstrates higher influence in diagnostics and risk prediction, while mHealth excels in health education and remote monitoring.

3. Methodology

Article carries out a qualitative synthesis of evidence, underpinned by a structured review of gathered academic and grey literature on the deployment of AI and mHealth in maternal and neonatal health in sub-Saharan Africa. This approach intends to bring evidence from disparate contexts together, identify emergent patterns, and examine the quality, range, and caveats of the available evidence so far.

3.1. Research Design and Objectives

The methodological framework of this study is governed by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The synthesis was designed with four major aims:

- To identify and categorize peer-reviewed and grey literature on the deployment of AI and mHealth tools for maternal and neonatal health in low-resource settings.
- To analyze methodological trends, implementation strategies, and intervention outcomes.
- To assess the strength, scalability, and contextual appropriateness of digital interventions.
- To derive thematic lessons and promising practices for future research and programmatic implementation.

3.2. Data Sources and Search Strategy

The search for literature was carefully crafted, covering various databases, notably PubMed, Scopus, ScienceDirect, and Google Scholar. Grey literature was gathered from presidencies repositories at WHO, UNICEF, and university dissertation sites. Some of the keywords and Boolean operators were as follows:

- "Artificial Intelligence" AND "maternal health" AND "sub-Saharan Africa"
- "mHealth" OR "mobile health" AND "neonatal outcomes" AND "low-resource settings"
- "Digital health" AND "pregnancy" AND "Africa"

In total, 68 records were first retrieved. After the initial screening of titles and abstracts, 42 met the inclusion criteria for full-text examination.

3.3. Inclusion and Exclusion Criteria

Criteria applied to select studies pertinent to the review were:

3.3.1. Inclusion Criteria

- Studies published between 2010 and 2025.
- Focused on the use of AI or mHealth technologies in maternal or neonatal health in sub-Saharan Africa.
- Peer-reviewed journal articles, doctoral dissertations, or technical reports.
- Available in English.
- Reported implementation strategies, user experiences, or health outcomes.

3.3.2. Exclusion Criteria

- Studies focusing only on high-income countries or unrelated digital technologies.
- Opinion pieces, news articles, or inaccessible full texts.
- Research without clear methodology or evaluation metrics.

3.4. Study Classification and Data Extraction

The extraction was done through a form with standards such as study objectives, geographical location, study population, technology type, research methodology, outcomes measured, and study limitations. Subsequently, studies were categorized as follows

- Technology focus (AI versus mHealth)
- Research design (qualitative, quantitative, or mixed methods)
- Specific health outcomes targeted (e.g., antenatal care uptake, reduction of maternal mortality, diagnosis of neonatal infection)
- The classification allowed one to spot trends in terms of focus of research, types of intervention, and research design/to rigor.

Table 2 Categorization of Reviewed Studies by Focus Area and Methodological Approach

Study Focus	Qualitative	Quantitative	Mixed Methods	Total
AI in Maternal Health	4	2	3	9
AI in Neonatal Health	4	4	2	10
mHealth in Maternal Health	3	6	2	11
mHealth in Neonatal Health	4	3	2	9
Total	15	15	9	39

This table shows the distribution of reviewed studies by thematic focus (AI vs. mHealth) and methodological approach. The balanced spread across qualitative and quantitative methods indicates growing maturity in digital health research in sub-Saharan Africa.

3.5. Analytical framework and modifications in thematic synthesis

Thematic synthesis was carried out in an iterative coding process involving deductive and inductive levels of reasoning. The deductive categories came first from the objectives of the study and evolved as new themes were recognized in the data. Such a process permitted a structured yet flexible synthesis of key findings from studies undertaken in vastly different fields. The major themes that emerged were:

- Technological feasibility and accessibility
- User engagement and behavior change
- Clinical decision support and diagnostics
- Referral systems and follow-up care
- Ethical and infrastructural challenges

The capacity of thematic synthesis to marry qualitative depth with quantitative evidence gives it an edge in providing insight in areas shunned by traditional meta-analyses (Ssegujja et al., 2025; Sylla et al., 2025).

3.6. Barriers to Methodological Rigor

The evidence reviewed presented many insights; however, several methodological limitations were observed:

- Small sample sizes in most pilot-type studies.
- No randomized controlled trials (RCT) to rigorously measure impact.
- Variability in outcome indicators from study to study.
- Inadequate stakeholder involvement on study design.

Digital health research in sub-Saharan Africa is fragmented and times, conducted in isolation from national health information systems or without any form of long-term evaluation framework (Blaya et al., 2010; Agbeyangi and Suleman, 2024).

3.7. Ethical Considerations

The study exclusively relied on materials that are freely accessible and published prior to this study. The materials involved no human participants, and ethical approval thus was unnecessary. However, ethical issues raised include:

- Data privacy and ownership
- Informed consent in digital environments
- Algorithmic bias and decision transparency

Addressing these ethical issues is imperative for ensuring AI and mHealth tools strengthen equity and trust instead of undermining them in our healthcare systems (Pereira et al., 2021; Fokunang et al., 2024).

3.8. Limitations of Methodology

Though the qualitative evidence synthesis approach allows room for the study to comprehensively cover the literature, its limitations include

- A bias toward having successfully published interventions.
- Less coverage on non-English and unpublished studies.
- Difficulties of assessing scalability of interventions based on published reports alone.

Nonetheless, the methodology still provides one valuable foundation upon which to understand how digital technologies are playing role in maternal and neonatal outcomes in sub-Saharan Africa.

4. Discussion

Integrating AI and mHealth into maternal and neonatal health systems across sub-Saharan Africa marks a decisive shift in the approach to the age-old challenges of access, quality, and continuity of care. The findings from this study highlight the confluence in technological, infrastructural, and sociocultural dynamics immersed in the implementation and impact of digital health interventions in low-resource settings. Our reviewed literature informs us that AI and mHealth hold great promise, but the utility of these tools is heavily dependent on systemic integration, contextualization, and policy enforcement.

The key insight to emerge from this synthesis is the enablement that AI and mHealth provide in building the capacity of frontline health workers. In situations where skilled birth attendants outnumber pregnant women by an unacceptably low margin, AI-powered tools have extended clinical judgment through decision support systems, image-based diagnostics, and predictive analytics. These applications are not mere technological add-ons but are, indeed, interventions that transform the way healthcare providers engage with clinical problems to better respond rapidly and accurately, with greater contextual relevance. The applications provided by mHealth are likewise the last mile of communication from healthcare facilities to underserved populations that close the geographical and informational gaps which have long remained barriers to seeking care and timely referrals.

In contrast, while the AI system provides the computational power and analytics, mHealth is the conduit through which data is collected, disseminated, and interpreted at the user end. This synergy proves especially important in maternal and neonatal health, where detection of risk factors, following antenatal care schedules, and setting up emergency referral pathways for early-stage risk factors make the difference between life and death. When deployed collaboratively, the synergy between AI/mHealth is shown in maternal health studies by Benitez (2020) and Ephraim et al. (2024), where the beneficial consequences of these technologies are primary intensified in clinical and operational, as well as behavioral terms.

Yet, the implementation of AI and digital health must be viewed within the larger ecosystem in which digital health innovation occurs. Infrastructure is a fundamental barrier. Intermittent power outages, poor internet connectivity, and exorbitant mobile data costs curtail real-time operations for many AI and mHealth platforms. In some regions, healthcare workers, even when tools are available, are hesitant to use them, expressing a degree of Un comfortability based on inadequate training and support. This means that capacity-building should not be a once-off strategy but rather a continuously evolving one that develops alongside technology upgrades and policy reforms. Ahmed et al. (2025) further elaborated that training within simulation-based digital environments substantially increases end-user confidence and clinical competence, particularly regarding maternal care protocols.

Further complexities arise from sociocultural dynamics impacting how digital health tools are integrated and utilized. For example, disparities along gender lines in phone ownership and digital literacy continue to hold back many communities. Even though mHealth interventions have succeeded in delivering maternal health messages through SMS or voice recording, in many instances, their impact may be diminished when women have little control of mobile devices and take no active role in medical decisions. KOMI et al. (2021) and Tonny (2024) contend that the involvement of community gatekeepers such as religious leaders, local health volunteers, and family elders renders digital health interventions culturally relevant and acceptable.

Governance structure and policy infrastructure are just as important. Digital-health-related tools cannot achieve an optimal functioning outcome in a fragmented health system where regulatory frameworks do not exist, or data protection occurs at an infant stage. The absence of interoperability among health-information systems, AI applications, and mHealth platforms usually results in duplication and inefficiency with information loss. Seylla et al. (2025) and

Agbeyangi and Suleman (2024) have emphasized that digital health innovation must be aligned with national eHealth strategies, enforcing interoperability standards and promoting open-source development as a guarantee of sustainability.

An additional, much more subtle issue is that of data ethics and algorithmic governance. As maternal and neonatal diagnostics continue to evolve through AI systems, the urgency increases regarding issues of algorithmic bias, data ownership, and consent. Pereira et al. (2021) further stressed the need for African-based data stewardship models that protect patient autonomy while unlocking the potential of local data for clinical insights. This is not solely about setting the standards for ethical AI development but rather realizing and enforcing principles of transparency, inclusiveness, and contextual appropriateness from the inception through to the actual implementation of these processes.

Undeniably, another challenge is keeping an intervention result sustained beyond its pilot phase. Consequently, most of the studies reviewed showed promising short-term improvements yet lacked follow-up or scalability assessments. Therefore, without this extended monitoring and tracking, it is challenging to make a solid argument regarding the long-term impact of AI and mHealth applications on maternal death rates or neonatal health metrics. In line with that, Ssegujja et al. (2025) as well as Popovici et al. (2024) argue that longitudinal studies, randomized control trials, and an amalgamated monitoring framework would be necessary to prove and substantiate the preliminary results.

Interdependence of all this makes it obvious that the digital transformation of maternal and neonatal healthcare in sub-Saharan Africa does not follow linearity. It, instead, presents itself as a much more complex net of actors, technologies, infrastructures, and policies, all requiring nurture and alignment. This level of complexity is exposed in Figure 3 depicting the interaction of the main facets of the digital health ecosystem.

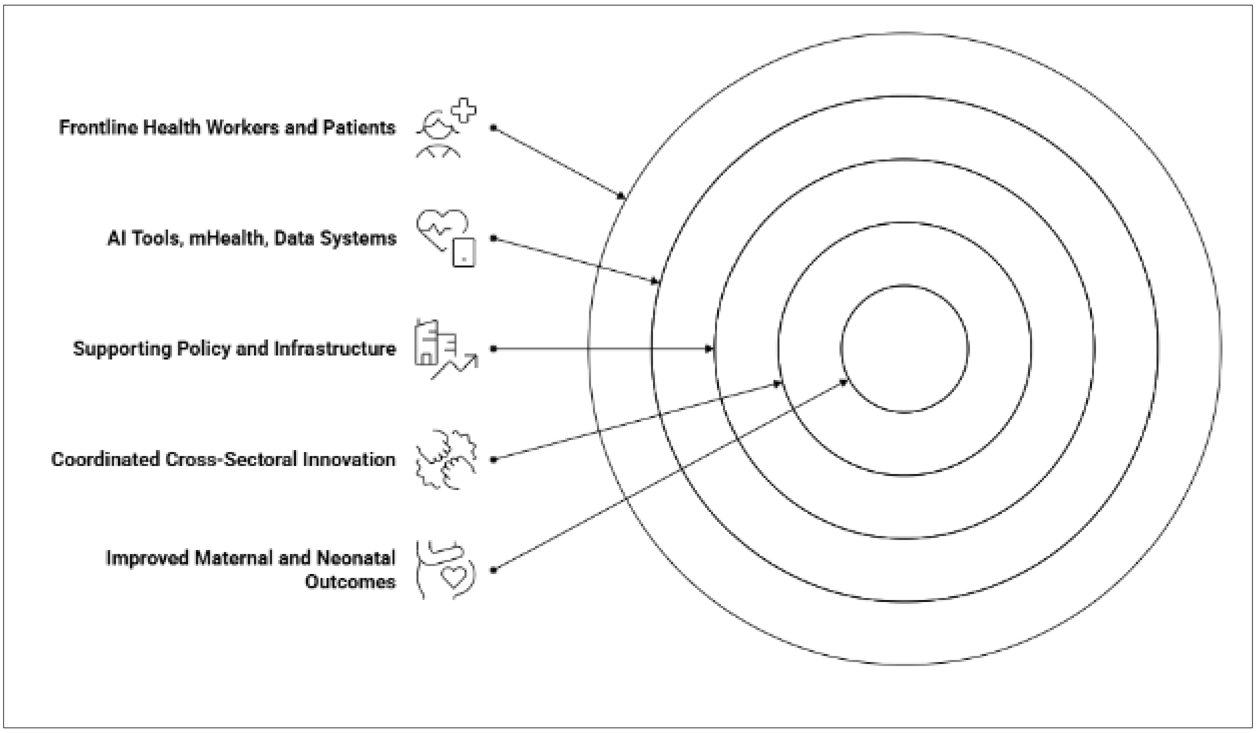

Figure 2 Interconnected Components in the Digital Health Ecosystem for Maternal and Neonatal Care

This figure illustrates the networked relationship between AI tools, mHealth applications, data systems, frontline health workers, patients, and supporting policy and infrastructure. The bidirectional arrows emphasize the feedback loops necessary for real-time data flow, clinical decision-making, patient engagement, and health system responsiveness. This ecosystem approach underscores that improvements in maternal and neonatal outcomes are not the product of technology alone but of coordinated, cross-sectoral innovation.

5. Conclusion

The amalgamation of AI and mHealth solutions in maternal and neonatal care is the first landmark in bridging historical inequities in the distribution of health services across sub-Saharan Africa. This evidence-based analysis illustrates how digital health technologies, if well adapted and contextually implemented, could conceivably fill those persisting systemic gaps posed by either a shortage of healthcare personnel, infrastructure, and facilities or the lack of availability and accessibility of timely diagnostic, therapeutic, and referral services.

Artificial Intelligence, being able to sift through large datasets and offer real-time diagnostic support, could prove beneficial to the already overstretched clinical system. mHealth applications also allow democratization of medical information for patients and caregivers in far-off areas, thus enabling them to participate actively in their health journeys. The advent of Artificial Intelligence and mHealth has introduced a paradigm shift-how maternal and neonatal health care is delivered-from a spur of the moment, reactive approach to a more predictive, preventative, and personalized orientation. The studies highlighted in this paper (such as Benitez, 2020; Sylla et al., 2025; Ephraim et al., 2024) all advocate for the importance of these technologies in improving antenatal care compliance, diagnostic accuracy, and ease of referrals, which, in aggregate, are direct factors affecting maternal and neonatal outcomes.

However, the application of AI and mHealth technologies throughout sub-Saharan Africa remains rudimentary and fraught with difficulties. The structural challenges of irregular electricity supply, poor network coverage, and patchy digital infrastructure continue to lower the limits of scaling of these technologies. The social-cultural are equally pertinent, where issues of gender-based digital divides, language variation, and disparity in digital literacy come into play. In the rural and semi-urban areas, it is quite common that women may not own mobile phones; when they do, their independence in controlling health applications is restricted due to some socio-economic or educational constraints.

The debate highlights the importance of health system governance, institutional compromise, and policy coherence. In a fractured digital health environment, wherein AI and mHealth platforms act as islands of excellence, integrated care delivery and longitudinal data tracking will remain a far cry. The highlighted studies point to an urgent need to harmonize regulatory framework enabling interoperability, protecting patient data, and ensuring long-term sustainability through public-private partnerships and donor alignment. Consequently, the incorporation of these technologies into the national agenda for eHealth must be rigorously mapped, with technology feasibility and social inclusiveness on equal footing.

Ethics ought to be considered, especially concerning issues of bias in algorithms, the sovereignty status of the data, and informed consent. While AI systems have the potential to improve decision-making processes, these AI systems must be trained with large quantities of diverse and truly representative data to ensure the systems do not perpetuate or indeed exacerbate current health inequities. On the flip side, mHealth solutions should augment patient empowerment; however, they ought to be designed from a user-centered perspective that internally considers common languages, cultural norms, and the health literacy standards of those intended to use them.

From a systems-thinking perspective, the fruition of an AI and mHealth intervention depends very much upon the environment in which these interventions are introduced. The political intent must be there, as well as a community level of engagement; all capacity-building exercises must maintain an ability to iterate on real-time feedback. Strengthening capacity for health workers is paramount especially in that the aim is to strengthen them to gain confidence in using digital tools, but equally important is building the culture and ownership of new working processes.

There is still a deficit of data concerning long-term benefits, notwithstanding the promising short- and medium-term effects shown by this research. Future research should thus focus on longitudinal studies that will evaluate the impact of AI and mHealth interventions on reducing maternal mortality ratio (MMR), neonatal mortality rate (NMR), and institutional delivery rates. This data would then provide the necessary evidence base for influencing national policy and motivating long-term investments.

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