

A Conceptual Framework for Strengthening Maternal and Child Health Services in Low-Resource Settings

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ARTICLE INFO

Article History:

Accepted: 11 June 2023

Published: 25 June 2023

Publication Issue

Volume 9, Issue 3

May-June-2023

Page Number

755-784

ABSTRACT

Improving maternal and child health (MCH) outcomes in low-resource settings remains a critical global health priority. Despite various initiatives, many regions continue to face high maternal and infant mortality rates due to systemic weaknesses, poor healthcare infrastructure, limited workforce capacity, and socioeconomic disparities. This paper proposes a conceptual framework aimed at strengthening maternal and child health services through a multi-dimensional approach tailored to the unique challenges of low-resource environments. The framework integrates key pillars such as community-based care, digital health innovations, human resource development, policy integration, and data-driven monitoring systems. Emphasis is placed on the role of community health workers (CHWs) in delivering culturally appropriate and accessible services, especially in remote areas. The use of mobile health (mHealth) technologies is also central to the framework, enabling real-time health surveillance, appointment tracking, remote consultations, and health education. Furthermore, the framework underscores the need for cross-sectoral policy alignment and investment in training programs that equip healthcare workers with essential maternal and pediatric care skills. Additionally, a robust health information system is incorporated to facilitate timely decision-making, resource allocation, and program evaluation. The conceptual model is designed to be adaptable, scalable, and inclusive, aligning with international best practices and the Sustainable Development Goals (SDGs), particularly SDG 3 which aims to ensure healthy lives and promote well-being for all ages. The proposed framework provides actionable insights for policymakers, healthcare providers, and development partners, offering a strategic pathway to improve MCH services despite resource

constraints. By addressing both demand and supply-side factors, it contributes to building resilient health systems and ensuring equitable access to essential services for mothers and children. This conceptualization serves as a foundational guide for implementing evidence-based interventions and fostering sustainable health improvements in underserved communities.

Keywords: Maternal and Child Health, Low-Resource Settings, Community Health Workers, mHealth, Health Systems Strengthening, Public Health, Healthcare Access, Sustainable Development Goals, Digital Health, Health Equity.

1.0. Introduction

Maternal and child health (MCH) remains a cornerstone of global health development, yet it continues to face persistent challenges, particularly in low-resource settings. Despite global efforts and progress made through initiatives such as the Millennium Development Goals (MDGs) and the ongoing Sustainable Development Goals (SDGs), maternal and child mortality rates remain unacceptably high in many regions. Factors such as poverty, inadequate healthcare infrastructure, limited access to skilled birth attendants, and sociocultural barriers continue to impede progress. Globally, over 800 women die daily from preventable causes related to pregnancy and childbirth, and millions of children under five die each year, often from preventable or treatable conditions (Adedokun, et al., 2022, Esan, Uzozie & Onaghinor, 2022, Komi, 2022).

In low-resource settings, these challenges are further compounded by systemic weaknesses such as poor governance, underfunded health systems, workforce shortages, and insufficient access to essential medicines and technologies. Rural and marginalized communities, in particular, face stark disparities in service coverage, quality of care, and health outcomes. The fragmentation of services, lack of coordination between healthcare providers, and minimal community engagement further exacerbate these inequities, leading to avoidable morbidity and mortality among mothers and children (Adegoke, et al., 2022, Etukudoh, et al., 2022, Komi, et al., 2022).

Given the complexity and multidimensional nature of these issues, there is a pressing need for a well-structured, adaptable, and context-specific conceptual framework that can guide the strengthening of maternal and child health services in resource-constrained environments. Such a framework must address both the demand and supply sides of healthcare, integrate community-based strategies, and leverage innovative technologies to overcome infrastructural limitations. It should also align with global health priorities and be flexible enough to adapt to diverse cultural and socio-political contexts (Opia, Matthew & Matthew, 2022, Orieno, et al., 2022).

This paper aims to present a comprehensive conceptual framework for enhancing MCH services in low-resource settings. It seeks to identify critical components and strategic approaches that can inform policy, improve service delivery, and promote equity in maternal and child health outcomes. By synthesizing current evidence and best practices, the framework provides a practical roadmap for stakeholders including governments, development partners, and healthcare providers to collaboratively address the persistent challenges facing mothers and children in underserved communities (Orieno, et al., 2022, Ubamadu, et al., 2022).

2.1. Background and Literature Review

Maternal and child health (MCH) is a fundamental indicator of the health and development status of any nation. Globally, significant progress has been made in reducing maternal and child mortality over the past two decades. According to the World Health Organization (WHO), the global maternal mortality ratio declined by approximately 38% between 2000 and 2017. Similarly, under-five child mortality has seen a notable reduction, from 76 deaths per 1,000 live births in 2000 to 37 in 2020. However, despite this progress, disparities remain stark, particularly in low-resource settings (Orieno, et al., 2022, Sobowale, et al., 2022). Sub-Saharan Africa and South Asia account for the highest burden of maternal and child mortality, with women and children in these regions often lacking access to basic health services, skilled birth attendants, and emergency obstetric care (Adeleke, et al., 2022, Fiemotongha, et al., 2022, Odeschina, et al., 2022).

The trends in maternal and child health indicators reveal a widening gap between high-income and low-income countries. For example, in 2020, the maternal mortality ratio in low-income countries was 462 per 100,000 live births, compared to 11 in high-income countries. Neonatal mortality is similarly skewed, with rates in sub-Saharan Africa reaching up to 27 deaths per 1,000 live births. These disparities highlight deep-rooted inequalities in access to quality healthcare, underpinned by broader social determinants such as poverty, education, gender inequality, and geographic marginalization (Adeleke, et al., 2023, Esan, Uzozie & Onaghinor, 2023, Kokogho, et al., 2023). The stagnation or reversal of progress in some low-resource settings also reflects vulnerabilities exacerbated by conflict, climate change, pandemics such as COVID-19, and economic instability.

Barriers to effective MCH service delivery in low-resource settings are multifaceted. First, there is a chronic shortage of skilled healthcare personnel, particularly in rural and hard-to-reach areas. This shortage is often the result of inadequate training opportunities, poor working conditions, and the outmigration of health workers. Second, health infrastructure is frequently inadequate, with many facilities lacking electricity, clean water, essential equipment, and medicines. Third, socio-cultural factors such as traditional birth practices, gender norms, low levels of female education, and mistrust of formal healthcare systems further hinder the utilization of services (Adeniji, et al., 2022, Etukudoh, et al., 2022, Komi, et al., 2022). Fourth, systemic issues such as fragmented governance, limited health financing, and weak supply chains reduce the efficiency and responsiveness of MCH programs. The absence of functional referral systems and transport networks further delays care during obstetric or pediatric emergencies, often resulting in preventable deaths.

Over the years, various frameworks have been developed to improve MCH outcomes, particularly in low- and middle-income countries. These include the WHO's Integrated Management of Childhood Illness (IMCI), the Partnership for Maternal, Newborn & Child Health (PMNCH), and the Every Woman Every Child (EWEC) Global Strategy. These frameworks have emphasized the importance of delivering a continuum of care that spans pregnancy, childbirth, and the postnatal period, as well as integrating nutrition, immunization, and disease prevention services. They have also promoted strategies such as task-shifting, community-based interventions, and the use of technology to enhance service delivery (Ogunnowo, et al., 2022, Ogunwole, et al., 2022, Ojika, et al., 2022). However, despite these efforts, significant gaps remain. Many of these frameworks have struggled with implementation challenges, particularly in settings with weak governance, insufficient funding, and poor data systems. Additionally, while they offer broad guidelines, they often lack the adaptability and specificity required to meet the unique challenges of different local contexts. Another critical gap lies in the underutilization of local knowledge, community participation, and culturally sensitive approaches in program design and delivery.

Furthermore, several existing models tend to operate in silos, focusing either on maternal or child health, rather than adopting an integrated approach. The lack of coordination among stakeholders governments, donors, NGOs, and community actors leads to duplication of efforts and resource wastage. Some frameworks also fail to adequately

address the role of social determinants of health or provide clear mechanisms for scalability and sustainability. Monitoring and evaluation components are often weak or fragmented, limiting the ability to assess impact and inform course correction (Ogunwole, et al., 2023, Ojika, et al., 2023, Okolo, et al., 2023). The absence of robust health information systems further constrains evidence-based decision-making and resource allocation. Thus, while the existing frameworks provide valuable building blocks, there is a need for a more comprehensive, flexible, and actionable conceptual model that consolidates lessons learned and addresses persistent gaps. Figure 1 shows Conceptual framework for maternal and child health community-based interventions presented by Hounton, Byass& Brahim, 2009.

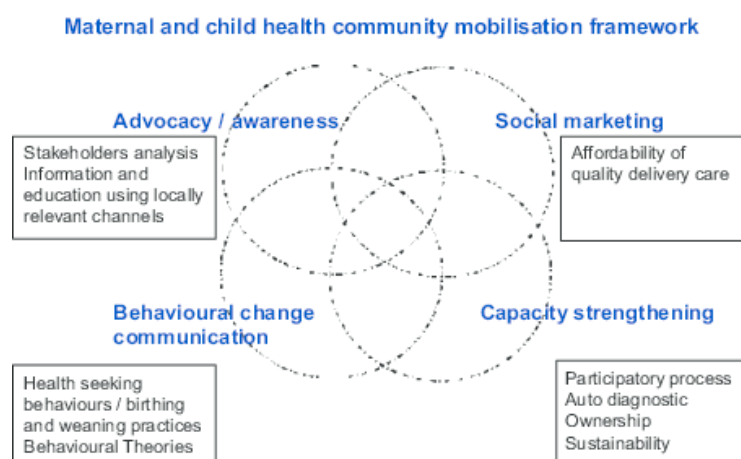


Figure 1: Conceptual framework for maternal and child health community-based interventions (Hounton, Byass& Brahim, 2009).

The Sustainable Development Goals (SDGs), adopted in 2015, represent a renewed global commitment to improving maternal and child health. SDG 3 specifically aims to ensure healthy lives and promote well-being for all at all ages. Targets under this goal include reducing the global maternal mortality ratio to less than 70 per 100,000 live births and ending preventable deaths of newborns and children under five by 2030. The SDGs emphasize universal health coverage, access to quality essential healthcare services, and the availability of safe, effective, and affordable medicines and vaccines (Ogunwole, et al., 2023, Okolo, 2023, Okolo, et al., 2023). They also highlight the importance of addressing the broader determinants of health, such as nutrition, education, water and sanitation, and gender equality. Related global initiatives such as the Global Financing Facility (GFF), the UN Secretary-General's Global Strategy for Women's, Children's and Adolescents' Health, and the WHO's Global Action Plan for Healthy Lives and Well-being reinforce these commitments and provide platforms for coordinated action and resource mobilization.

The SDG framework provides an enabling environment for aligning national MCH strategies with global goals. However, translating these ambitions into tangible outcomes requires context-specific interventions that account for local realities and constraints. For low-resource settings, the emphasis must be on scalable, cost-effective, and community-driven solutions. Strategic partnerships, innovative financing mechanisms, and investments in digital health tools can support these efforts. Moreover, data and accountability mechanisms are critical for tracking progress and ensuring transparency (Adesemoye, et al., 2021, Ejibenam, et al., 2021, Komi, et al., 2021). A robust conceptual framework grounded in the SDG ethos can serve as a catalyst for mobilizing action, fostering collaboration, and guiding investment in MCH services.

In conclusion, while there has been notable progress in maternal and child health globally, low-resource settings continue to experience significant challenges that hinder the realization of health equity. The complexity of barriers ranging from infrastructural deficits to socio-cultural and systemic issues necessitates a comprehensive and

adaptable approach. Existing frameworks provide valuable insights but often lack the specificity, coordination, and contextual relevance required for sustainable impact. Aligning future efforts with the SDG vision and related global initiatives offers a unique opportunity to accelerate progress (Orieno, et al., 2022, Ozobu, et al., 2022, Uzozie, et al., 2022). This underscores the need for a conceptual framework that is integrative, responsive to local needs, and equipped to strengthen maternal and child health services in the most vulnerable settings.

2.2. Methodology

Here is the methodology written without subheadings for the study titled *"A Conceptual Framework for Strengthening Maternal and Child Health Services in Low-Resource Settings"*:

The methodology adopted for this study integrates a conceptual framework approach with an interpretive synthesis of multidisciplinary literature. The study employed a qualitative design rooted in existing models and frameworks identified in selected peer-reviewed publications and case-based experiences relevant to maternal and child health, especially in low-resource settings. Drawing insights from healthcare diagnostics, telemedicine integration, data visualization, and AI-enhanced solutions, this research synthesizes thematic patterns that inform system-level innovations and policy directions.

To construct the conceptual framework, peer-reviewed studies that explore technological integration in healthcare, health system resilience, community engagement models, and training-based interventions were analyzed. The data sources included recent conceptual models, review papers, and technical reports indexed in reputable journals. Methodological rigor was achieved by triangulating best practices from frameworks such as risk-based intervention models, AI-based monitoring tools, and health policy harmonization frameworks. Emphasis was placed on technology-enabled strategies like mobile health applications, predictive analytics, and decentralized service delivery models.

The framework development process followed a systems-thinking approach to link determinants such as infrastructure gaps, workforce shortages, access to diagnostics, and weak policy implementation to strategic components like stakeholder input, scalable digital tools, and continuous monitoring. Drawing from DFMEA integration methods, community feedback loops, and insights from data-driven maternal health studies, the framework proposes interconnected modules of policy reform, capacity-building, and digital augmentation.

The proposed model is validated through a logic-based evaluation comparing implementation feasibility with existing public health intervention programs across similar resource-constrained environments. The integrated findings provide a structured basis for strengthening maternal and child health outcomes using evidence-informed, locally adaptable, and digitally enabled strategies.

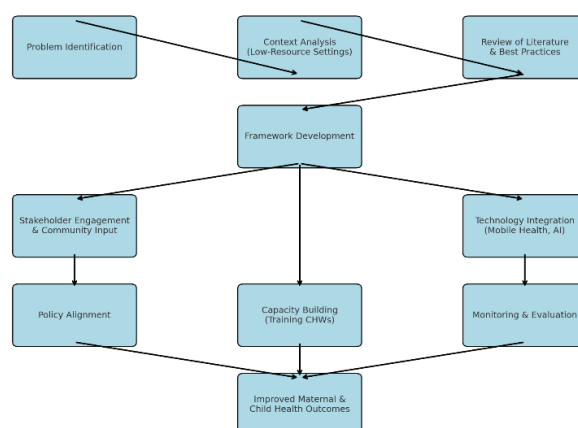


Figure 2: Flowchart of the study methodology

2.3. Theoretical Foundations

The theoretical foundations of a conceptual framework for strengthening maternal and child health (MCH) services in low-resource settings are rooted in well-established public health paradigms, health systems models, and human rights approaches. These foundations offer the structural, operational, and philosophical underpinnings necessary for understanding and addressing the complex determinants of maternal and child health. At the core of any sustainable MCH improvement initiative is the principle of health systems strengthening. According to the World Health Organization (WHO), a strong health system comprises six building blocks: service delivery, health workforce, information systems, medical products and technologies, financing, and leadership/governance (Adesemoye, et al., 2021, Halliday, 2021, Komi, et al., 2021). Each of these components must be adequately developed and interlinked to create a responsive, equitable, and resilient system. In low-resource settings, health systems are often fragile, with underinvestment in infrastructure, chronic workforce shortages, weak supply chains, and limited access to data. Strengthening these systems involves not only scaling resources but also improving efficiency, governance, accountability, and service integration.

The health systems strengthening approach underscores the need to move away from vertical, disease-specific programs toward more comprehensive and integrated service delivery platforms. For maternal and child health, this means ensuring a continuum of care that includes antenatal, intrapartum, postpartum, and pediatric services, all delivered within a coordinated and client-centered system (Odeskina, et al., 2021, Odio, et al., 2021, Ogbuefi, et al., 2021). Equally important is the alignment of health services with national policies and the mobilization of community and institutional partnerships to maximize reach and effectiveness. In this context, leadership and stewardship play critical roles, as governments must guide health priorities, regulate service provision, and ensure that resources are allocated efficiently and equitably. Conceptual framework of maternal satisfaction presented by Srivastava, et al., 2015 is shown in figure 3.

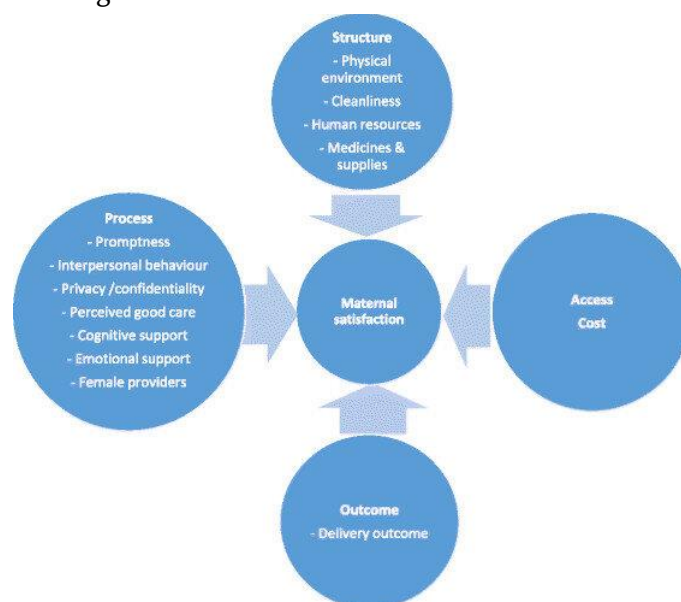


Figure 3: Conceptual framework of maternal satisfaction (Srivastava, et al., 2015).

Complementing this systems perspective is the primary healthcare (PHC) and community-based approach, which advocates for health services that are universally accessible, socially acceptable, and culturally relevant. PHC, as defined in the Alma-Ata and reaffirmed in the Astana Declaration, emphasizes equity, community participation, and intersectoral collaboration. In low-resource settings, this model provides a practical avenue for reaching underserved populations who are often excluded from conventional healthcare pathways due to financial, geographic, or sociocultural barriers (Odeskina, et al., 2023, Ogbuefi, et al., 2023, Ogunnowo, et al., 2023). By leveraging the presence of community health workers (CHWs), local volunteers, and grassroots organizations,

MCH services can be extended to the last mile, offering preventive, promotive, and basic curative services directly within communities. These frontline providers play a vital role in health education, early detection of complications, birth preparedness, immunization campaigns, nutrition support, and referral linkage to higher levels of care.

The PHC approach is particularly effective in environments where health facilities are sparse and transportation is a challenge. It builds trust through culturally sensitive care, respects local norms and practices, and empowers communities to take ownership of their health outcomes. Moreover, community-based models encourage participatory health planning and accountability, strengthening the voice of women and marginalized groups in decision-making processes. Such an inclusive approach aligns with the fundamental principles of health equity and social justice (Komi, et al., 2023, Mgbecheta, et al., 2023, Nnagha, et al., 2023).

Building upon the PHC model is the socioecological perspective, which views health outcomes as the result of dynamic interactions between individuals, communities, systems, and policies. The socioecological model considers multiple levels of influence individual, interpersonal, organizational, community, and societal and emphasizes the importance of addressing social determinants of health. For maternal and child health, this includes factors such as maternal education, household income, food security, gender equality, access to clean water and sanitation, and exposure to violence or discrimination. In low-resource settings, these determinants often intersect and compound, creating a cycle of poor health outcomes that is difficult to break without holistic interventions (Adesemoye, et al., 2022, Fiemotongha, et al., 2022, Mustapha, et al., 2022).

The socioecological model encourages cross-sectoral collaboration and interventions that are multi-layered and mutually reinforcing. For example, improving girls' education not only delays early marriage and reduces fertility rates but also enhances maternal health-seeking behaviors and child survival. Addressing harmful gender norms and empowering women to make informed reproductive choices further improves MCH outcomes. Policies that support social protection, nutrition, and rural development also contribute to building environments that enable health rather than undermine it (Adesemoye, et al., 2023, Etukudoh, et al., 2023, Komi, et al., 2023). Importantly, this model recognizes that while health services are necessary, they are not sufficient; broader societal changes are also essential for sustained improvements in maternal and child health.

Closely linked to the socioecological perspective is the rights-based approach to healthcare. This perspective posits that access to maternal and child health services is not a privilege but a fundamental human right. International frameworks such as the Universal Declaration of Human Rights, the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), and the Convention on the Rights of the Child (CRC) establish the obligation of governments and the international community to respect, protect, and fulfill the rights of women and children to the highest attainable standard of health. This entails ensuring non-discriminatory access to services, promoting informed consent and bodily autonomy, and providing legal and institutional redress for violations (Adesemoye, et al., 2023a, Esan, et al., 2023, Kokogho, et al., 2023). In practice, this requires eliminating discriminatory laws and practices, promoting gender-sensitive programming, and enabling meaningful participation of women and communities in health governance. A rights-based approach also demands that states allocate sufficient resources to MCH and prioritize the needs of marginalized groups. Onwujekwe, et al., 2019 presented Framework for Assessment of a free maternal and child health program shown in figure 4.

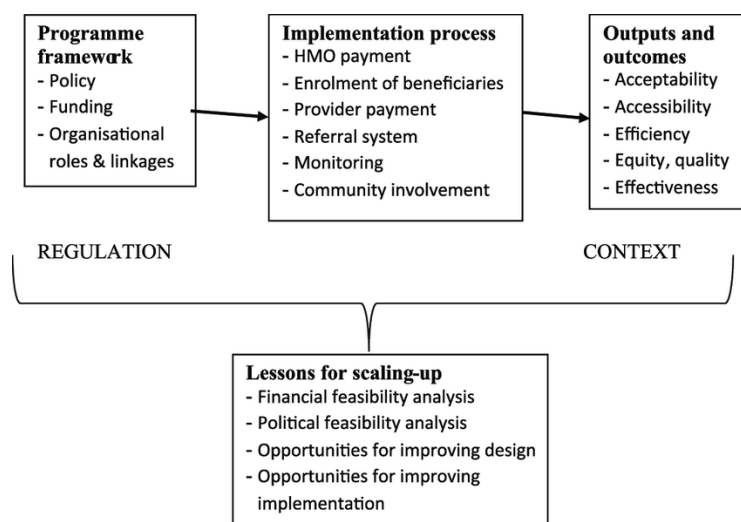


Figure 4: Framework for Assessment of a free maternal and child health program (Onwujekwe, et al., 2019).

Finally, the integration of technology into healthcare delivery represents a transformative force in the effort to strengthen maternal and child health services in low-resource settings. Digital health tools such as mobile health (mHealth) applications, electronic medical records, telemedicine platforms, and geographic information systems (GIS) offer unprecedented opportunities to enhance access, quality, and efficiency (Adesemoye, et al., 2023b, Etukudoh, et al., 2022, Noah, 2022). mHealth solutions, in particular, have shown promise in supporting antenatal and postnatal care reminders, disseminating health education, tracking immunization coverage, enabling remote diagnosis and consultation, and facilitating real-time data collection. These technologies can bridge the information and communication gaps that often hinder timely and coordinated care in remote or underserved areas.

Moreover, digital tools support health system transparency, performance monitoring, and data-driven decision-making. For example, electronic registries can help monitor maternal risk factors, follow up on missed visits, and ensure continuity of care across different service points. Mobile-based dashboards can provide policymakers with timely analytics to identify service gaps, allocate resources efficiently, and evaluate program outcomes. For community health workers, digital platforms can serve as decision-support tools and training resources, enhancing their effectiveness and motivation (Matthew, et al., 2021, Mustapha, et al., 2021, Nwaozomudoh, et al., 2021). However, the successful integration of technology requires attention to issues of digital literacy, infrastructure, data privacy, and equity. It is essential to ensure that technological interventions are inclusive, user-friendly, and aligned with the needs and capacities of end-users.

In conclusion, the theoretical foundations of a conceptual framework for strengthening maternal and child health services in low-resource settings draw from a confluence of systemic, community-based, rights-oriented, and technological paradigms. Together, these foundations provide a comprehensive lens through which to understand the multifaceted nature of MCH challenges and design responsive, inclusive, and sustainable solutions. Health systems strengthening offers the structural blueprint, while primary healthcare and community participation ground the approach in accessibility and relevance (Oyedokun, 2019, Uzozie, et al., 2023). The socioecological and rights-based perspectives ensure that interventions are equitable and justice-driven, and digital health innovations provide the tools for efficiency, monitoring, and reach. Anchoring the conceptual framework in these interrelated theories ensures that it not only addresses immediate service delivery needs but also contributes to broader health system resilience and societal transformation.

2.4. Key Components of the Conceptual Framework

A robust conceptual framework for strengthening maternal and child health (MCH) services in low-resource settings must integrate several interconnected components that address both systemic gaps and community-level needs. These components work in synergy to improve access, equity, quality, and sustainability of MCH services, while responding to the contextual realities of low-income and underserved environments. Among these, community-based care emerges as a cornerstone strategy for bridging the gap between health systems and the populations they serve. Community Health Workers (CHWs) play a critical role in this regard by acting as the primary link between households and formal healthcare providers (Adewoyin, 2021, Daraojimba, et al., 2021, Komi, et al., 2021). They are often recruited from the same communities they serve, which enhances trust, cultural alignment, and communication. CHWs deliver vital maternal and child health services, including antenatal care referrals, immunization tracking, nutritional guidance, postpartum follow-ups, and health promotion activities. Their culturally appropriate outreach ensures that care is delivered in ways that respect local beliefs, practices, and languages, reducing resistance to care-seeking behaviors and increasing utilization of services.

Moreover, community engagement and education are essential in changing behaviors and building collective ownership of health outcomes. When communities are involved in identifying needs, planning interventions, and monitoring progress, MCH programs become more responsive and effective. Community-based interventions can include mother support groups, peer education, male involvement strategies, and local health committees, all of which contribute to a supportive environment for maternal and child health (Adewoyin, 2022, Esan, Onaghinor & Uzozie, 2022, Odeskina, et al., 2022). These approaches help dismantle barriers such as gender norms, misinformation, and stigma, while fostering health literacy and timely care-seeking.

In parallel, human resource development is a critical pillar of the framework. The availability of competent, motivated, and well-distributed healthcare workers determines the effectiveness of any health system. In low-resource settings, however, there is often a severe shortage of skilled health professionals, particularly in rural and marginalized regions. Addressing this gap requires comprehensive capacity-building initiatives, including pre-service and in-service training programs tailored to the specific needs of MCH care (Adewoyin, et al., 2020, Mustapha, et al., 2018). Training curricula should emphasize evidence-based practices, respectful maternity care, emergency obstetric and newborn care, and community engagement skills.

Task-shifting represents another important strategy, especially where workforce shortages are acute. By delegating certain clinical and non-clinical responsibilities to mid-level providers, nurses, CHWs, and trained volunteers, health systems can expand coverage and improve efficiency without compromising quality. For instance, CHWs can be trained to administer basic interventions such as oral rehydration, iron supplementation, or malaria prophylaxis, while nurses and midwives may take on more advanced responsibilities in maternal care. However, effective task-shifting must be accompanied by clear protocols, supportive supervision, and appropriate remuneration to ensure sustainability and quality control (Forkuo, et al., 2022, Ikhalea, et al., 2022, Komi, et al., 2022).

Workforce retention is another persistent challenge. High attrition rates in rural and underserved areas are driven by poor working conditions, lack of incentives, and limited career advancement opportunities. To address this, the framework promotes strategies such as financial incentives, rural service allowances, housing support, ongoing mentorship, and recognition schemes that reward commitment and performance (Uwumiro, et al., 2023, Uzozie, et al., 2023). Additionally, creating supportive workplace environments that foster professional development, psychological well-being, and teamwork can help retain personnel and maintain high standards of care.

Digital health and mobile health (mHealth) innovations represent a transformative dimension of the conceptual framework. In low-resource settings, mobile phones and other digital technologies are increasingly being used to

overcome traditional barriers to healthcare access. These tools enable remote consultations, automated reminders for antenatal visits, digital birth registration, and real-time alerts for complications (Adewoyin, et al., 2020, Ogunnowo, et al., 2020). For CHWs and healthcare providers, mHealth applications offer decision-support algorithms, electronic training modules, and patient management systems that enhance diagnostic accuracy and service delivery.

Digital platforms also facilitate timely data collection, monitoring, and health education. By enabling real-time tracking of health indicators such as immunization status, maternal risk factors, and service utilization, these technologies empower health managers to make data-driven decisions and allocate resources more effectively. At the community level, mobile applications and SMS platforms can deliver targeted health messages that improve knowledge, attitudes, and practices related to maternal and child health (Attipoe, et al., 2023).

Despite their promise, digital health interventions face several challenges. Limited internet connectivity, lack of digital literacy among providers and users, power supply issues, and concerns about data security and privacy can hinder implementation. Furthermore, technology must be adapted to local languages and cultural contexts to ensure inclusivity. Addressing these challenges requires investments in infrastructure, capacity-building in digital skills, and collaboration with technology developers to create user-friendly, scalable solutions that meet the needs of low-resource environments (Adewoyin, et al., 2021, Egbuhuzor, et al., 2021, Komi, et al., 2021).

Effective policy and governance mechanisms form the backbone of sustainable MCH improvements. Strengthening maternal and child health cannot be achieved in isolation; it requires coordinated, multisectoral collaboration among stakeholders, including health, education, nutrition, finance, and social protection sectors. The integration of MCH into national health policies ensures that it is prioritized in strategic planning, budgeting, and implementation efforts. A comprehensive policy framework must include guidelines for service delivery, standards of care, referral systems, workforce development, and community participation (Adeyemo, Mbata & Balogun, 2023, Esan, et al., 2023, Kolawole, et al., 2023).

Financing mechanisms are also critical. Many low-resource settings depend heavily on donor funding, which can be volatile and project-specific. Sustainable financing strategies must involve increased domestic resource allocation, social health insurance schemes, and innovative financing models such as results-based financing. These strategies ensure continuity of care, reduce out-of-pocket expenditures, and increase service utilization. Transparent accountability mechanisms, including public expenditure tracking and citizen feedback systems, further enhance trust and ensure that resources are used effectively and equitably (Fiemotongha, et al., 2022, Fiemotongha, Olawale & Isibor, 2022).

Another central component of the framework is the development and utilization of robust health information systems. Reliable data is essential for planning, monitoring, and evaluating MCH programs. A well-functioning health information system captures timely, disaggregated data on service delivery, health outcomes, workforce performance, and supply chain management. This data enables policymakers and health managers to identify service gaps, monitor trends, and evaluate the impact of interventions.

Real-time monitoring tools such as dashboards, mobile surveys, and geographic information systems (GIS) enhance responsiveness and allow for rapid adjustments to program implementation. Key indicators for assessing maternal and child health interventions include maternal mortality ratio, skilled birth attendance, antenatal care coverage, immunization rates, exclusive breastfeeding prevalence, and neonatal mortality rates. Regular analysis of these indicators supports evidence-based policymaking and ensures that progress is aligned with national and global targets (Adikwu, et al., 2023, Egbuhuzor, et al., 2023, Mustapha, et al., 2023).

Furthermore, health information systems must be designed with interoperability in mind, allowing data to be shared across different platforms and levels of the health system. Training healthcare providers in data management

and creating a culture of data use are critical steps in transforming raw data into actionable insights. When integrated effectively, health information systems not only support clinical care and program management but also enhance transparency, accountability, and resource optimization.

In summary, the key components of the conceptual framework for strengthening maternal and child health services in low-resource settings reflect a comprehensive and interconnected approach. Community-based care, human resource development, digital health innovations, supportive policies and governance structures, and robust health information systems work collectively to address the unique challenges of delivering quality MCH services in underserved contexts. By embracing both grassroots-level engagement and systemic reforms, this framework provides a pathway to achieving equitable, sustainable, and impactful maternal and child health outcomes.

2.5. Implementation Strategies

The successful implementation of a conceptual framework for strengthening maternal and child health (MCH) services in low-resource settings hinges on the adoption of practical, evidence-based strategies that are adaptable, inclusive, and sustainable. It requires a systematic, stepwise approach that ensures the framework is not only theoretically sound but also effectively translated into tangible improvements in health outcomes. The first phase in the implementation process involves thorough situational analysis and needs assessment. This step identifies existing gaps, resource constraints, community health profiles, and service delivery challenges. Understanding the specific context allows for tailored interventions that address the root causes of poor maternal and child health outcomes rather than applying generic solutions. Data from national health surveys, facility audits, and community consultations should inform the design of the intervention, ensuring that it aligns with local realities and priorities. Following the situational analysis, the next step is the development of an implementation plan that clearly defines objectives, activities, timelines, responsibilities, and measurable indicators. This plan must be co-created with key stakeholders to promote ownership and accountability. Establishing coordination structures at national, regional, and community levels facilitates smooth implementation, resource mobilization, and problem-solving. An essential component of the stepwise approach is the piloting phase (Agbede, et al., 2023, Efobi, et al., 2023, Kolawole, et al., 2023). Before nationwide roll-out, the framework should be tested in selected districts or regions that reflect the diversity of the broader health system. Pilot testing enables the identification of practical challenges, unintended consequences, and contextual nuances that may not have been evident during the planning phase. It also provides an opportunity to evaluate preliminary outcomes, refine tools and processes, and build the capacity of implementers through hands-on experience.

Based on the lessons learned from the pilot, the framework can then be gradually scaled up. The scale-up process should follow a phased model, beginning with regions that demonstrate readiness in terms of infrastructure, human resources, and local leadership. As the intervention expands, continuous monitoring and feedback mechanisms should be maintained to assess performance and ensure fidelity to the model. Implementation should not be rigid but adaptive, allowing for modifications based on feedback, new evidence, or changing contextual conditions. This iterative learning cycle strengthens the intervention and enhances its relevance and sustainability (Ajayi & Akanji, 2021, Bihani, et al., 2021, Komi, et al., 2021).

Contextual adaptation is a central principle of effective implementation in low-resource settings. While the core elements of the conceptual framework such as community-based care, human resource development, digital health integration, policy support, and information systems remain constant, their application must be tailored to reflect local customs, language, geographic realities, and health-seeking behaviors. For example, in pastoralist communities with nomadic lifestyles, mobile outreach teams and portable health kits may be more effective than fixed health facilities. In regions with low digital literacy, voice-based mobile health messages may work better than text-based

interventions (Ajayi & Akanji, 2022, Esan, Uzozie & Onaghinor, 2022, Ogbuefi, et al., 2022). Cultural practices surrounding childbirth, gender roles, and child-rearing must also be respected and incorporated into program design to avoid resistance and ensure community buy-in.

Adaptation also involves aligning the implementation with existing health system structures and avoiding duplication of efforts. Where relevant, the framework should build on and strengthen ongoing initiatives, such as immunization campaigns, nutrition programs, or safe motherhood projects. Flexibility in implementation ensures that the intervention remains practical, acceptable, and responsive to local dynamics, thereby increasing the likelihood of long-term success. Scalability is another critical consideration (Ajayi & Akanji, 2023, Edwards & Smallwood, 2023, Kelvin-Agwu, et al., 2023). For a framework to move beyond isolated success stories and have a national or regional impact, it must be designed with cost-effectiveness, simplicity, and replicability in mind. Innovations that are too resource-intensive, technologically complex, or heavily donor-dependent may struggle to achieve scale in resource-constrained environments. Therefore, the use of low-cost, high-impact solutions such as CHW training, task-shifting, community health education, and mobile health should be prioritized. Standardization of training curricula, service protocols, and data tools also facilitates replication and ensures consistency in quality as the framework expands.

The engagement of stakeholders at all levels is vital to the successful implementation of the conceptual framework. Governments play a leading role in providing political commitment, integrating the framework into national health strategies, allocating public funding, and enacting supportive policies. Ministries of Health should coordinate implementation across departments, build technical capacity, and ensure alignment with other sectoral strategies, such as education, nutrition, and gender (Fiemotongha, et al., 2022, Fiemotongha, Olawale & Isibor, 2022). Local governments are critical for overseeing day-to-day operations, engaging communities, and adapting interventions to district-specific needs. Their involvement ensures that implementation is responsive and that decision-making is decentralized and participatory.

Non-governmental organizations (NGOs) and civil society groups bring valuable expertise, grassroots networks, and implementation capacity. They often serve as intermediaries between the government and communities, supporting training, service delivery, advocacy, and monitoring efforts. Their deep understanding of local contexts and ability to mobilize communities make them essential partners in delivering culturally appropriate and people-centered care (Ogunnowo, et al., 2021, Ojika, et al., 2021, Okolo, et al., 2021). International NGOs and multilateral organizations such as UNICEF, WHO, and UNFPA can provide technical assistance, policy guidance, and financial support for piloting and scaling up the framework.

Communities themselves are not just beneficiaries but key actors in implementation. Engaging community leaders, women's groups, youth representatives, and traditional birth attendants creates a sense of ownership and accountability. Mechanisms for community participation such as health committees, community dialogues, and feedback systems should be institutionalized to ensure that services are tailored to local needs and preferences. Community engagement also enhances the legitimacy of the intervention and fosters a culture of mutual trust and cooperation between healthcare providers and community members (Forkuo, et al., 2022, Foye et al., 2022, Mgbame, et al., 2022).

Donor agencies and development partners are important sources of financial and technical resources, especially in low-resource settings where public funding is limited. Their support is often crucial during the initial phases of implementation, including capacity-building, procurement of equipment, development of digital infrastructure, and evaluation studies. However, to ensure long-term sustainability, it is important to transition from donor-dependent models to systems that are increasingly financed and managed by national stakeholders (Fiemotongha,

et al., 2023, Folorunso, et al., 2023, Komi, et al., 2023). This may involve integrating program costs into national budgets, exploring public-private partnerships, and leveraging domestic revenue sources.

Finally, ongoing capacity-building and mentorship are crucial throughout the implementation process. Training programs should not be one-time events but part of a continuous professional development strategy. Health workers, program managers, data officers, and community volunteers need regular refresher courses, supportive supervision, and peer-learning platforms to stay updated and motivated. Capacity-building efforts should also target institutional structures, such as local health departments, supply chain units, and monitoring teams, to strengthen system-wide implementation capacity (Ajiga, Ayanponle & Okatta, 2022, Fiemotongha, et al., 2022, Ojika, et al., 2022).

In summary, the implementation of a conceptual framework for strengthening maternal and child health services in low-resource settings requires a phased, adaptive, and participatory approach. From initial needs assessment to pilot testing, scaling, and continuous improvement, each step must be grounded in contextual realities and guided by inclusive stakeholder engagement. Flexibility in design, alignment with existing structures, and focus on sustainability are essential for translating the framework into meaningful and lasting health improvements. By leveraging community assets, building local capacity, integrating digital tools, and fostering multi-sectoral collaboration, the framework becomes a dynamic and practical tool for advancing maternal and child health in even the most challenging settings.

2.6. Potential Impact and Benefits

The potential impact and benefits of implementing a well-structured conceptual framework for strengthening maternal and child health (MCH) services in low-resource settings are profound, multifaceted, and far-reaching. At its core, the framework offers a blueprint for improving MCH service delivery, reducing preventable deaths among women and children, and fostering long-term resilience within health systems. These benefits are not isolated to health outcomes alone but ripple across economic, social, and developmental dimensions, making maternal and child health a foundational pillar for sustainable progress in low-income countries.

One of the most immediate and tangible impacts of the framework is the improvement in the quality, accessibility, and continuity of maternal and child health services. In many low-resource settings, health services are often fragmented, inconsistent, and inequitably distributed, with rural and marginalized populations bearing the brunt of systemic deficiencies. The framework addresses these challenges by promoting integrated, community-based, and digitally supported care models that ensure services reach the last mile (Akintobi, Okeke & Ajani, 2022, Daraojimba, et al., 2022, Onaghinor, Uzozie & Esan, 2022). Through strengthened referral systems, increased presence of skilled birth attendants, and regular outreach by community health workers (CHWs), women and children gain consistent access to essential services such as antenatal care, skilled delivery, immunizations, nutrition support, and postpartum follow-up. Standardized protocols, capacity-building for health workers, and digital health tools further enhance service quality, reduce errors, and enable more personalized and timely interventions.

Improved service delivery also translates into higher levels of service utilization. When communities trust and understand the value of health services, they are more likely to seek care early and adhere to recommended health practices. Culturally sensitive approaches embedded in the framework ensure that services are designed and delivered in ways that resonate with the local population's beliefs, languages, and needs, thus minimizing resistance and fostering demand (Akintobi, Okeke & Ajani, 2022, Matthew, Akinwale & Opia, 2022, Orieno, et al., 2021). The inclusion of community engagement mechanisms empowers local populations to participate in health planning and monitoring, increasing accountability and responsiveness. This participatory approach nurtures a sense of ownership that is crucial for the sustainability of MCH programs.

As service delivery improves, one of the most critical outcomes is the reduction in maternal and infant mortality. Each year, hundreds of thousands of women die from complications related to pregnancy and childbirth, and millions of children under the age of five succumb to preventable causes such as pneumonia, diarrhea, and neonatal conditions. In low-resource settings, the majority of these deaths could be avoided through timely and effective interventions (Akintobi, Okeke & Ajani, 2023, Daraojimba, et al., 2023, Ogunwole, et al., 2023). By promoting early and continuous antenatal care, skilled birth attendance, emergency obstetric care, and postnatal services, the framework addresses the leading causes of maternal and newborn deaths. For instance, access to uterotonics, magnesium sulfate, and antibiotics, coupled with timely referral for cesarean sections and neonatal resuscitation, can dramatically improve survival rates.

Furthermore, child health interventions such as exclusive breastfeeding promotion, immunization campaigns, growth monitoring, and micronutrient supplementation play a significant role in reducing child mortality and promoting early childhood development. The framework's emphasis on preventive care, early detection of high-risk cases, and integrated management of childhood illnesses ensures that health issues are addressed before they become life-threatening. Through coordinated outreach efforts and follow-up mechanisms, children at risk of malnutrition, infections, or developmental delays can be identified and supported early, preventing long-term health and cognitive impairments (Akintobi, Okeke & Ajani, 2023, Chukwuma-Eke, et al., 2023, Nwaimo, et al., 2023).

Beyond reducing immediate mortality risks, the implementation of this framework contributes to building long-term health system resilience. Resilient health systems are characterized by their capacity to absorb shocks, adapt to changing contexts, and sustain essential services during crises such as pandemics, conflicts, or natural disasters. In many low-resource settings, health systems collapse under stress due to inadequate infrastructure, limited human resources, and fragile supply chains (Akpe, et al., 2020, Mgbame, et al., 2020, Omisola, et al., 2020). By investing in foundational elements such as health workforce development, digital health infrastructure, policy integration, and health information systems, the framework strengthens the building blocks of the health system, making it more agile, efficient, and robust.

The use of digital tools for monitoring and decision-making, as outlined in the framework, enhances the system's ability to track performance, allocate resources strategically, and respond to emerging needs. Real-time data collection and analysis improve transparency, enable timely course corrections, and foster a culture of learning and accountability. This is particularly vital in resource-constrained environments where inefficiencies and misallocations can have severe consequences (Komi, et al., 2021, Matthew, et al., 2021, Mgbame, et al., 2021). The ability to monitor key indicators such as maternal mortality ratio, facility delivery rates, and child immunization coverage helps ensure that health priorities are aligned with population needs and that progress is tracked consistently.

Additionally, a resilient health system contributes to broader development goals by protecting populations from catastrophic health expenditures and economic shocks. Healthy mothers and children are more likely to participate in education, work, and community activities, thereby contributing to economic productivity and social stability. Reducing the burden of preventable deaths and disabilities also reduces healthcare costs and increases the efficiency of service delivery, enabling governments to allocate resources to other critical development areas (Akpe, et al., 2022, Daraojimba, et al., 2022, Matthew, et al., 2022). Moreover, by fostering gender equity through empowering women to access and control healthcare resources the framework supports wider societal transformations that benefit not only health outcomes but also economic and social development.

Another long-term benefit lies in the institutional strengthening and capacity development fostered by the framework. Through systematic training, mentorship, and support for healthcare workers at all levels, the

framework builds a competent and motivated workforce equipped to deliver quality care. It also promotes the professionalization of CHWs and mid-level providers, who often serve as the backbone of MCH services in low-resource areas (Akpe, et al., 2023, Chianumba, et al., 2023, Kelvin-Agwu, et al., 2023). By offering career development pathways, fair remuneration, and continuous learning opportunities, the framework contributes to workforce retention and motivation, mitigating the chronic human resource shortages that plague many low-income countries.

Institutional strengthening is further achieved through the harmonization of policies, the establishment of governance structures, and the fostering of multisectoral collaboration. When maternal and child health is embedded into broader national development strategies and supported by cross-sectoral partnerships including education, nutrition, sanitation, and social protection health interventions become more comprehensive, efficient, and impactful. These synergies allow for integrated service delivery models that address the full spectrum of determinants affecting maternal and child health, creating a more holistic and sustainable impact (Ogunnowo, et al., 2021, Ojika, et al., 2021, Onaghinor, et al., 2021).

In conclusion, the implementation of a conceptual framework for strengthening maternal and child health services in low-resource settings holds immense potential to transform health outcomes and health systems alike. Through improved service delivery, increased access, and enhanced quality of care, the framework directly contributes to reducing maternal and child mortality. More broadly, it lays the foundation for resilient, efficient, and equitable health systems capable of sustaining progress and responding effectively to future challenges. Its community-based, rights-oriented, and digitally enabled strategies not only save lives but also empower communities, strengthen institutions, and promote social and economic development. As such, the framework serves not only as a health intervention model but also as a catalyst for broader human development and systems transformation in some of the world's most vulnerable settings.

2.7. Challenges and Considerations

Implementing a conceptual framework for strengthening maternal and child health (MCH) services in low-resource settings comes with a host of challenges and considerations that can significantly affect the efficacy, scalability, and sustainability of the proposed interventions. While the framework offers a comprehensive and strategic model for improving MCH outcomes, its success largely depends on addressing context-specific obstacles that stem from structural, financial, socio-cultural, and political realities (Oluoha, et al., 2021, Onaghinor, Uzozie & Esan, 2021). One of the most pressing challenges is the persistent limitation in funding and resources that characterizes many low-income and underserved regions. Health systems in these settings often operate under severe budget constraints, relying heavily on donor funding that is frequently short-term, project-based, and not well-aligned with national health priorities. This unstable financial landscape undermines long-term planning and discourages investment in systemic reforms, such as workforce development, infrastructure upgrades, and digital health technologies.

Limited domestic funding further hinders the operationalization of even well-designed strategies. Governments in low-resource settings may allocate a minimal portion of their national budgets to health, and even less to maternal and child health specifically. Competing national priorities such as security, infrastructure, and debt servicing often divert attention and resources away from health, resulting in underfunded programs, stockouts of essential supplies, inadequate staff remuneration, and poor facility maintenance (Oluoha, et al., 2021, Onaghinor, Uzozie & Esan, 2021). Without sustained investment, interventions become fragmented and unsustainable, failing to deliver the continuous and integrated care that MCH requires. Moreover, the unpredictability of donor funding can disrupt service delivery and compromise the quality and consistency of care, leading to mistrust among beneficiaries.

Infrastructure constraints present another significant barrier to the effective implementation of the framework. Many health facilities in low-resource settings lack basic amenities such as electricity, running water, sanitation, and internet connectivity elements that are fundamental for the delivery of quality MCH services. Poor infrastructure not only compromises the safety and comfort of patients but also limits the capacity of healthcare workers to provide timely and effective interventions. Emergency obstetric care, for instance, cannot be safely performed without reliable power, clean water, and functional medical equipment (Okolo, et al., 2023, Oluoha, et al., 2023, Omisola, et al., 2023, Onibokun, et al., 2023). Furthermore, inadequate transportation infrastructure, such as unpaved roads and limited public transit options, poses a serious obstacle to accessing care, especially in rural or remote areas. Pregnant women in labor, newborns in distress, or children with acute illnesses may experience life-threatening delays in reaching a facility due to geographic isolation and lack of emergency transport systems.

The deployment of digital health innovations, a key component of the conceptual framework, also faces infrastructural limitations. Poor connectivity and limited access to mobile phones, particularly among women, hinder the reach and effectiveness of mobile health interventions. Health workers may lack the technical skills or devices necessary to use electronic health records or telemedicine platforms, rendering these tools ineffective without extensive investment in digital infrastructure and training. In contexts where electricity is unreliable or unavailable, even the most basic digital tools cannot function as intended (Okolo, et al., 2023, Oluoha, et al., 2023, Omisola, et al., 2023, Onukwulu, et al., 2023). These limitations highlight the need for careful assessment of infrastructural readiness and the adaptation of technological solutions to fit the specific capacities of each setting. Beyond structural and financial considerations, cultural and political factors exert a profound influence on the success of MCH interventions. Cultural beliefs, practices, and norms around pregnancy, childbirth, childcare, and health-seeking behaviors can either support or hinder the acceptance and uptake of services. In many low-resource settings, traditional birth attendants (TBAs) play a central role in maternal care, often being preferred over formal healthcare providers due to trust, accessibility, or affordability (Okolo, et al., 2022, Oluoha, et al., 2022, Orieno, et al., 2021). While some TBAs can be integrated into the health system as community liaisons or referral agents, resistance to facility-based deliveries and skepticism toward modern healthcare practices remain common in certain communities. Additionally, gender norms that restrict women's autonomy, decision-making power, and mobility limit their ability to access timely and appropriate care. In some contexts, women may require permission from male family members to seek medical attention or may face stigma for using contraceptive services, further complicating the implementation of reproductive health initiatives.

Language barriers, illiteracy, and mistrust of government institutions also pose challenges to effective communication and community engagement. Health messages delivered in unfamiliar languages or through inappropriate channels may be misunderstood or ignored. Similarly, public health campaigns may be met with suspicion if previous government interventions were seen as coercive or ineffective. Overcoming these barriers requires culturally sensitive communication strategies, engagement with community leaders and influencers, and the inclusion of local perspectives in the design and delivery of interventions (Okolo, et al., 2022, Oluoha, et al., 2022, Onibokun, et al., 2022).

Political instability and weak governance further complicate implementation efforts. In settings where political leadership is inconsistent or health systems are marked by corruption, bureaucratic inefficiencies, or lack of transparency, the execution of health strategies becomes unpredictable. Frequent changes in leadership can lead to shifts in health priorities, discontinuation of programs, and loss of institutional memory. Political interference in resource allocation or staffing decisions can also undermine the merit-based deployment of healthcare workers and affect the equitable distribution of services (Onaghinor, et al., 2021, Orieno, et al., 2021). In conflict-affected areas

or regions experiencing political unrest, healthcare infrastructure may be damaged or destroyed, health workers may be displaced or unwilling to work, and populations may be cut off from care altogether.

Moreover, the decentralization of health systems, while intended to bring decision-making closer to communities, can sometimes result in a lack of coordination between national and subnational levels. Local governments may lack the capacity or resources to implement national policies effectively, leading to inconsistencies in service delivery and quality. Clear lines of accountability, supportive supervision structures, and capacity-building at the district and facility levels are essential to mitigate these risks and ensure that implementation remains aligned with national standards and goals (Onaghinor, et al., 2021).

Another consideration is the challenge of measuring and attributing outcomes in complex health systems. MCH improvements often result from a combination of interventions and external influences, making it difficult to isolate the impact of specific strategies or to attribute changes to the framework itself. Weak health information systems, incomplete data, and lack of capacity for analysis further hinder the ability to monitor progress, evaluate impact, and inform policy adjustments. Additionally, short project timelines imposed by funding cycles may not align with the long-term nature of health systems strengthening, making it difficult to demonstrate immediate results or maintain stakeholder engagement (Onukwulu, et al., 2023, Orieno, et al., 2023, Oyeyipo, et al., 2023).

Finally, sustainability remains a significant concern. Even when pilot projects are successful, scaling up interventions often encounters barriers related to cost, logistics, political will, and institutional capacity. Ensuring that MCH services remain functional, affordable, and accessible beyond the lifespan of specific programs requires careful planning, long-term commitment, and integration into broader health system reforms. This includes fostering local ownership, building health system resilience, and establishing reliable financing mechanisms (Onukwulu, et al., 2023, Orieno, et al., 2023, Ozobu, et al., 2023).

In conclusion, while a conceptual framework for strengthening maternal and child health services in low-resource settings holds considerable promise, its implementation is fraught with complex challenges. Funding shortages, infrastructure limitations, and socio-cultural and political barriers must be thoughtfully addressed to realize the framework's full potential. These challenges underscore the importance of adopting a flexible, context-driven approach that combines technical excellence with cultural sensitivity, strong governance, and sustained investment. Only through such an integrated and responsive strategy can the vision of equitable and effective MCH care for all truly be achieved (Onukwulu, et al., 2023, Onyeke, et al., 2023, Ozobu, et al., 2023).

2.8. Conclusion

A conceptual framework for strengthening maternal and child health services in low-resource settings presents a comprehensive, adaptable, and evidence-informed model that addresses the multifaceted challenges impeding progress in maternal and child health outcomes. Grounded in principles of health systems strengthening, community engagement, digital innovation, human rights, and data-driven decision-making, the framework offers an integrated pathway to improve service delivery, reduce mortality, and build resilient health systems. By focusing on five key components community-based care, human resource development, digital health innovations, supportive policy and governance, and robust health information systems the framework recognizes the interconnectedness of social, structural, and systemic factors that shape health outcomes in underserved contexts. It emphasizes equity, inclusivity, and sustainability, ensuring that even the most marginalized populations have access to timely, quality, and culturally appropriate maternal and child health services.

The urgency of addressing preventable maternal and child deaths cannot be overstated, and the proposed framework provides a practical and scalable solution to this global health priority. However, its successful implementation depends on strong political will, adequate funding, stakeholder collaboration, and context-

sensitive adaptation. This calls for immediate and sustained action from governments, development partners, academic institutions, and civil society. Policymakers are urged to integrate this framework into national health strategies and allocate sufficient resources to operationalize its components across all levels of the health system. Development partners and donors must prioritize long-term, flexible funding that supports systemic change rather than short-term vertical programs. Researchers and public health practitioners are encouraged to conduct rigorous evaluations of the framework in diverse contexts, documenting lessons learned, assessing impact, and refining implementation strategies to maximize effectiveness and scalability.

The adoption of this framework holds significant implications for health policy and practice. It provides a strategic guide for designing, implementing, and evaluating interventions that are contextually relevant and aligned with global health commitments such as the Sustainable Development Goals. It offers a platform for intersectoral collaboration, promotes community participation, and fosters institutional learning and accountability. Ultimately, by investing in a holistic and forward-looking approach to maternal and child health, low-resource settings can make meaningful strides toward health equity, system resilience, and sustainable development.

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