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Maternal and child health service utilisation in Sub-Saharan Africa: A systematic review

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ABSTRACT

Maternal and child health service utilisation remains critical for reducing mortality in Sub-Saharan Africa, where disparities persist. This study synthesised literature to identify key determinants, evaluate interventions, and examine care continuity. Systematic searching of databases and citation chaining identified 635 records, of which 103 peer-reviewed studies (2010–2024) from Sub-Saharan Africa met the inclusion criteria. Antenatal care coverage (4+ visits) averaged 69% nationally, with urban-rural disparities (85% vs. 54%). Skilled birth attendance averaged 61% (78% urban, 45% rural), while postnatal care was lowest at 45% (56% urban, 34% rural). Full immunisation reached 75%, with minimal urban-rural disparity (76% vs. 73%). Rural populations showed lower utilisation than urban populations, ranging from near parity for immunisation (1.04 times) to a 1.73-fold gap for skilled birth attendance. Household income was the strongest predictor (impact score: 92), followed by maternal education (87), women's autonomy (71), and media exposure (67). Geographic distance was the primary barrier (28%), followed by financial constraints (24%) and cultural barriers (18%). Community Health Worker programmes showed optimal effectiveness (65% effectiveness, 85% sustainability), while financial incentives performed poorly (23% effectiveness, 25% sustainability). Only 19% completed the full continuum of care, with the sharpest loss between skilled delivery and postnatal care, a 33-point drop in the waterfall analysis. Inequities persist in maternal and child health utilisation across Sub-Saharan Africa. Socio-economic factors determine access patterns, while community interventions outperform financial approaches. The postnatal care dropout reflects systematic failure requiring immediate attention. Achieving equity demands approaches addressing structural inequities and sustained community engagement.

Keywords: Maternal and child health service, Utilisation, Inequities, Socioeconomic, Community

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INTRODUCTION

The extent of maternal and child health service utilisation has become one of the most important research topics because of its direct influence on the decline of maternal and child mortality, especially in LMICs, where the burden of death is still high (Walker et al., 2021). In the past decades, the international community focused more on the utilisation of antenatal care (ANC), immunisation, and the presence of health facilities (Druetz et al., 2015). Progress has been uneven, and Sub-Saharan Africa and South Asia continue to record some of the highest maternal and neonatal mortality rates globally (Adam & Daba, 2024; Herbst, 2024). For example, in Sub-Saharan Africa, ANC coverage of pregnant women stands at approximately 69%, and in most cases, the immunisation rate is not satisfactory (Ikilezi et al., 2020; WHO, 2023). These figures underscore the continued need to understand and improve service utilisation patterns. This review addresses ongoing disparities and obstacles in the use of essential maternal and child health services, such as prenatal care, vaccination, and access to healthcare facilities (Ameyaw, Dickson, & Adde, 2021; Okedo-Alex et al., 2019). Despite the volume of studies documenting factors influencing service uptake, knowledge gaps persist regarding the efficacy of integrated and community-based interventions in various LMIC settings (Arsenault et al., 2018; Black et al., 2017). There are debates over the relative importance of socioe-conomic factors versus health system factors, with some studies pointing to the importance of education and wealth Ameyaw, Dickson, Adde, et al. (2021) and others pointing to geographic and infrastructural barriers (Tanou et al., 2021). These gaps have severe consequences, as insufficient utilisation leads to preventable maternal and child mortality and weakens efforts towards achieving universal health coverage (Campbell et al., 2016; Kruk et al., 2018) The review adopts a conceptual framework consisting of the continuum of care model, recognising that the welfare of the baby is interlocked with antenatal care, skilled delivery, postnatal care, and immunization (Kruk et al., 2018; Mengesha et al., 2021). It also incorporates Socio-economic status, education, and geographic accessibility as social determinants of health affecting service utilisation (Tessema et al., 2021). The framework assumes that improvement in one component of care leads to positive changes in subsequent service utilisation, thereby contributing to overall improvement in maternal and child health outcomes (Kruk et al., 2018; Tessema et al., 2021). This systematic review aims to synthesise existing evidence on maternal and child health service utilisation, with a focus on prenatal care, immunisation, and access to healthcare facilities in LMICs (Ameyaw, Dickson, & Adde, 2021; Kruk et al., 2018). It aims not only to identify the key determinants of utilisation, but also to evaluate the efficacy of community and health system interventions and identify persistent obstacles (Kruk et al., 2018; Tessema et al., 2021). This review will therefore help inform policy and programmatic initiatives to promote equitable access and improve health outcomes for mothers and children, thereby filling existing gaps in knowledge (Anyanwu et al., 2024).

MATERIALS AND METHODS

Study Design

This study employed a systematic review design, reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (O'Dea et al., 2021). The review protocol was developed a priori, specifying the research objectives, eligibility criteria, search strategy, data extraction procedures, and analytical approach.

Eligibility Criteria

Studies were included if they met all of the following criteria:

1) Population: Studies involving pregnant women, mothers, or children under five years of age in Sub-Saharan African countries.
2) Intervention/Exposure: Studies reporting on the utilisation of one or more of the following MCH services: antenatal care, skilled birth attendance, postnatal care, childhood immunisation, or family planning services.
3) Outcomes: Studies reporting quantitative or qualitative data on service utilisation rates, determinants of utilisation, or intervention effects on utilisation.
4) Study design: Quantitative studies (cross-sectional, cohort, randomised controlled trials,

quasi-experimental), qualitative studies, and mixed-methods studies.

5) Language: English-language publications.
6) Publication period: 2010 to 2024.

Studies were excluded if they: (a) did not report primary data on MCH service utilisation; (b) were conducted exclusively outside Sub-Saharan Africa; (c) were published before 2010; (d) were conference abstracts, editorials, or opinion pieces without original data; or (e) could not be retrieved in full text.

Search Strategy

A comprehensive search was conducted across four electronic databases: PubMed/MEDLINE, Scopus, Web of Science, and CINAHL. Searches were conducted in January 2024 and updated in June 2024. The search strategy combined MeSH terms and free-text keywords related to: (1) maternal and child health services (e.g., "antenatal care," "skilled birth attendance," "postnatal care," "immunisation," "family planning"); (2) utilisation and access (e.g., "service utilisation," "healthcare access," "uptake," "coverage"); and (3) geographic scope (e.g., "Sub-Saharan Africa," individual country names). Boolean operators (AND, OR) were applied to combine search terms across concept groups. Reference lists of included studies and relevant systematic reviews were screened for additional eligible studies through forward and backward citation chaining.

Study Selection and PRISMA Flow

The initial database search yielded 547 records, with an additional 88 records identified through citation chaining, for a total of 635 records. Following deduplication (n = 89 duplicates removed), 546 records were screened by title and abstract. Of these, 389 were excluded as they did not meet the eligibility criteria. Full-text assessment was conducted for 157 records, of which 54 were excluded (26 conducted outside Sub-Saharan Africa, 14 did not report MCH utilisation outcomes, 8 were conference abstracts, and 6 could not be retrieved). A final set of 103 studies was included in the review. Study selection was performed independently by two reviewers, with disagreements resolved through discussion and, where necessary, consultation with a third reviewer. Inter-rater agreement at the title/abstract screening stage was $\kappa = 0.81$, indicating substantial agreement.

Data Extraction

Data were extracted by two reviewers using a standardised extraction form developed for this review. Extracted fields included: author(s) and year; country and setting (urban/rural); study design; sample size; MCH services examined; utilisation rates; determinants assessed; intervention type and outcomes; and key findings. For studies reporting utilisation rates, data were standardised to enable comparison across urban and rural populations where reported.

Quality Assessment

The methodological quality of included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) version 2018 (Hong et al., 2018), which provides criteria for evaluating quantitative, qualitative, and mixed-methods studies within a single framework. Each study was assessed independently by two reviewers, and scores were discussed to reach consensus. Studies were not excluded based on quality scores alone; however, quality ratings were considered in the interpretation of findings and in the weighting of evidence during synthesis.

Data Synthesis and Analysis

Given the heterogeneity of study designs, populations, and outcomes, a narrative synthesis approach was employed as the primary method of synthesis, in accordance with Popay et al. (2006) guidance. Where sufficient quantitative data were available from studies using comparable measures, a meta-analytic approach was applied to pool correlation coefficients and odds ratios using a random-effects model (Nieminen, 2022), given anticipated between-study heterogeneity. Statistical heterogeneity was assessed using the I^2 statistic, with values of <25%, 25–75%, and >75% interpreted as low, moderate, and high heterogeneity, respectively. Composite socioeconomic impact scores were derived from the synthesis of standardised effect sizes (correlation coefficients and odds ratios) across 68 studies reporting on determinants of utilisation. Intervention effectiveness and sustainability ratings were derived from reported outcome measures in randomised controlled trials and quasi-experimental studies, adjusted for sample size and methodological quality. Continuum of care dropout analysis was

conducted using a waterfall approach applied to population-based cohort data tracking service engagement from initial ANC attendance through child immunisation.

RESULTS

Characteristics of Included Studies

The 103 included studies were conducted across 28 Sub-Saharan African countries, with the highest representation from Nigeria (n=18), Ethiopia (n=15), Ghana (n=12), Kenya (n=11), and Tanzania (n=9). The majority of studies employed cross-sectional designs (n=61, 59.2%), followed by cohort studies (n=18, 17.5%), randomised or quasi-experimental designs (n=14, 13.6%), and qualitative or mixed-methods studies (n=10, 9.7%). Sample sizes ranged from 320 to 128,400 participants. The majority of studies used Demographic and Health Survey (DHS) data or nationally representative household survey data. A summary of included study characteristics is presented in Table 2.

Descriptive Summary of the Studies

This section maps the research terrain of the literature on maternal and child health service utilisation, targeting prenatal care, immunisation, and access to health facilities, encompassing a broad range of studies in Sub-Saharan African countries. The studies employ mixed methodologies, including quantitative analyses of Demographic and Health Surveys, qualitative studies, and interventions utilising community-based approaches and health system strengthening. Key research questions relating to socioeconomic factors, community implications, healthcare accessibility, and the continuum of care are addressed in the comparative analysis, yielding a comprehensive synthesis applicable to policy and programmatic interventions.

Service Utilisation Rates (Figure 1)

The level of utilisation demonstrated considerable inequality between service types and geographical areas. Antenatal care coverage (4+ visits) was highest at 69% nationally, with significant urban–rural inequalities (85% urban vs. 54% rural). Skilled birth attendance averaged 61% nationally (78% urban, 45% rural). The lowest utilisation rates were recorded for postnatal care at 45% nationally (56% urban, 34% rural). Full immunisation coverage was relatively high at 75% nationally (76% urban, 73% rural), representing the smallest urban–rural disparity among all services. Family planning services showed moderate uptake at 51% nationally (62% urban, 41% rural). Rural populations consistently demonstrated utilisation rates 1.04 to 1.73 times lower than urban populations across all MCH services, with the widest gap for skilled birth attendance and the narrowest for immunisation

Socioeconomic Determinants Impact Analysis (Figure 2)

As shown in the radar chart (Figure 2), household wealth emerged as the strongest predictor of service utilisation with an impact score of 92, followed by maternal education at 87. Women's autonomy had an impact score of 71, while media exposure scored 67. Employment status had a moderate impact score of 54, and age at marriage had the lowest impact score of 43. The analysis demonstrates that economic factors (wealth and education) most strongly influence service utilisation tendencies, while social factors such as autonomy and media access play secondary but important roles. There is a strong correlation between education level and wealth ($r = 0.67$ across 68 studies), underscoring the compound effect of socioeconomic disadvantage on healthcare access.

Geographic and Access Barriers (Figure 3)

Geographic distance emerged as the major access barrier, contributing 28% of total access issues. Financial constraints ranked second at 24%, followed by cultural barriers at 18% (Figure 3). Quality-of-care barriers accounted for 15%, infrastructure restrictions for 10%, and provider attitude for 5%. Physical and economic barriers combined accounted for 52% of total access barriers (geographic 28% + financial 24%), while social and system-level barriers accounted for the remaining 48%. Geographic obstacles had a disproportionate impact on rural populations, as distances greater than 5 km were associated with a 58% reduction in facility delivery. The analysis establishes that 70% of access barriers may potentially be addressed by targeting the three primary barriers: geographic, financial, and cultural.

Intervention Effectiveness vs. Sustainability (Figure 4)

Figure 4 presents the bubble chart analysis in which

interventions are mapped on the dimensions of effectiveness and sustainability. The best combination of performance was recorded in Community Health Workers (CHW), with an effectiveness of 65% and sustainability of 85%. Community Education demonstrated the highest effectiveness at 71% and strong sustainability at 80%. Transportation vouchers demonstrated moderate effectiveness (56%) but lower sustainability (60%). The effectiveness of mobile health applications was 43%, and their sustainability potential was 70%. Health insurance schemes displayed 34% effectiveness and 45% sustainability. The worst performance was recorded for financial incentives, with 23% effectiveness and 25% sustainability. These findings indicate that community-based interventions (high effectiveness and sustainability) stand in stark contrast to financial interventions (low effectiveness and poor sustainability). Interventions in the upper-right quadrant (CHW and community education) were the only ones that demonstrated both immediate effects and long-term viability.

Continuum of Care Dropout Analysis (Figure 5)

The waterfall analysis reveals critical dropout points across the maternal and child health continuum. Beginning with 100% of the target population, 89% attended at least one antenatal care visit (11% dropout at first contact). Completion of 4+ antenatal visits was achieved by 69% (a 20-percentage-point decline), as shown in Figure 5. Skilled delivery retained 67% of the population (a 2-percentage-point drop). The largest dropout occurred between delivery and postnatal care: only 34% received postnatal care, representing a 33-percentage-point decline and a 49% relative loss of service engagement. Child immunisation coverage recovered to 75%, indicating a catch-up effect. Only 19% of the original population maintained full continuum adherence. This analysis shows that the transition between delivery and the postnatal period represents the most critical intervention point, as the greatest single dropout (33 percentage points) occurs between these two services. Overall, 81% of women who initiate care do not complete the full continuum.

Research Gaps and Priority Matrix (Figure 6)

Using the priority matrix, research gaps were grouped into four levels of urgency as shown in Figure 6. Top priority (90–100 urgency) involved CHW sustainability studies and investigation of non-financial barriers (urgency scores of 92 and 87, respectively). Medium-high priority (80–89%) included continuum integration studies (84%). Medium priority (70–79%) topics included geographic solutions research (78%) and COVID-19 impact assessment (73%). Lower priority (60–69%) encompassed urban poor-centric studies (65%). The analysis indicates that the critical research needs assessed as high and medium-high priority require immediate investment. CHW sustainability emerged as the most vital research priority, reflecting near-universal implementation challenges identified across 55 of the included studies. The analysis shows that two-thirds of high-priority research needs are focused on intervention sustainability and barrier identification, rather than new intervention development.

DISCUSSION

Service Utilisation Rates by Type

Patterns of service utilisation as presented in Figure 1, demonstrate alarming disparities that have endured despite many years of global health programming. The wide disparity in antenatal coverage (a 31-percentage-point gap between urban and rural levels) is consistent with the findings of Samuel et al. (2021), who revealed a persistent influence of residential location on maternal health service use across multiple settings. This is further compounded by what Arefaynie et al. (2024) describe as the social isolation of rural African environments, which intersects with socioeconomic disadvantage to create cascading inequities in service access. In comparison to other services, the relatively high immunisation coverage (75% nationally) is attributable to a more equitable spread of child health interventions, as noted by Bobo et al. (2022), although a considerable gap persists in coverage of marginalised populations. The low postnatal care utilisation rate (45% nationally) is consistent with the findings of Hlongwane et al. (2021), whose multilevel analysis of 36 sub-Saharan African countries identified similar patterns of service dropout following delivery.

These utilisation rates conceal large within-country discrepancies. Ahmed et al. (2024)noted in their 37-country study that only one-third of women used comprehensive maternal health services. The urban-

rural disparity evidenced here is what Aregbeshola and Olaniyan (2022) described as horizontal inequity differential utilisation based on residential location rather than need, systematically favouring urban, more affluent individuals. This trend questions assumptions about universal health coverage effectiveness, as research by Ganle et al. (2014) that even after the abolition of user fees in Ghana, inequities persisted due to non-financial barriers. The data also raise measurement validity concerns, as Mothupi et al. (2018) noted substantial variation in the definition of utilisation across studies. Furthermore, De La Torre et al. (2018) found persistent pro-rich inequities in Brazil and Colombia, demonstrating that formal universal health coverage does not automatically translate into equitable utilisation of services. The relative stability of immunisation rates across urban–rural settings may reflect what McGlynn et al. (2015) identified as a positive spillover from maternal healthcare engagement to child health service uptake, suggesting that early exposure to health systems yields broader benefits. Nevertheless, the critical gap in postnatal care utilisation remains the weakest point in the continuum of care, demanding policy prioritisation to address systemic vulnerabilities in service integration and follow-up.

Socioeconomic Determinants Impact Analysis

The radar chart analysis confirms a well-established finding in maternal health research: the organisation of healthcare access is consistently shaped by socioeconomic stratification. The strong influence of household wealth (impact score: 92) and maternal education (impact score: 87) corroborates the findings of Kawakatsu et al. (2022), who identified these as consistent determinants across five Nigerian national household surveys, and Gube et al. (2024), who found education to be the strongest determinant of prenatal and delivery care receipt. However, this deterministic relationship warrants critical consideration. Das et al. (2022) demonstrated that caste-based social disparities compound economic disadvantage, suggesting that wealth effects may serve as proxies for broader structural discrimination. Similarly, Ghose et al. (2017) found in Bangladesh that women's autonomy moderates the relationship between education and service utilisation, indicating that autonomy can suppress the effect of educational attainment when decision-making authority remains constrained.

The moderate impact score of media exposure (67) contrasts with the findings of Terefe et al. (2025) who identified media exposure as a key facilitator of maternal healthcare use across 61 LMICs. This inconsistency may reflect methodological variation in how media exposure is measured and defined across studies, creating validity challenges (Mengesha et al. (2021). The impact score of employment (54) appears modest at first glance relative to the findings of Nzioki et al. (2015) where employment was a major determinant of service use in Kenya. This may reflect what Wuneh, Bezabih, Persson, et al. (2022) identified as contextual differences in the employment-healthcare access relationship, particularly in settings where women's employment does not confer independent control over household resources. The lowest impact score for age at marriage (43) is surprising, given the well-documented negative effects of early marriage and adolescent pregnancy on healthcare-seeking behaviour. Tessema et al. (2021) demonstrated considerable variation in service utilisation by age group, suggesting that the age-at-marriage effect may be mediated through other socioeconomic channels captured elsewhere in this analysis. The interconnectedness of these determinants supports the argument of Oke and Sibomana (2025) that interventions targeting individual-level determinants are unlikely to be effective without also addressing the systemic factors that structure healthcare access patterns.

Geographic and Access Barriers

The barrier analysis (Figure 3) confirms the established finding of rural health researchers: physical access is a fundamental constraint on health service use in resource-limited settings. The 28% of barriers attributable to geographic distance is consistent with the findings of Tanou and Kamiya (2019) in Burkina Faso, where distance negatively affected both ANC and skilled delivery utilisation, and Tanou et al. (2021) in Benin, where barriers were attributable to a combination of distance, altitude, and travel time.

Financial constraints rank second (24%), complicating easy assumptions about the

effectiveness of user-fee removal. (Ganle et al., 2014) found that even with user-fee exemption in Ghana, indirect costs including transportation, opportunity costs, and informal payments, remained significant barriers. This is further supported by Dadjo et al. (2023) who found that health insurance coverage in West Africa was insufficient to comprehensively address financial barriers to access. The substantial proportion of cultural barriers (18%) is consistent with what Wuneh, Bezabih, Okwaraji, et al. (2022) characterised as continued gender inequality and social norms shaping healthcare-seeking behaviour. Their qualitative analysis revealed the nature of invisible barriers erected by cultural expectations and gender roles that are underrepresented in quantitative studies. The relatively lower ranking of cultural barriers compared to geographic and financial constraints may reflect a measurement limitation rather than a factual hierarchy, as Manna and Basu (2023) noted the inherent difficulty of measuring social and cultural factors in standardised surveys. Quality-of-care concerns (15%) also warrant attention: Ganle et al. (2014) showed that poor quality and provider unfriendliness substantially reduce healthcare utilisation, and Manna and Basu (2023) found that quality perceptions shape care preferences even among disadvantaged populations.

Provider attitude as a barrier (5%) contrasts markedly with a large qualitative literature reporting discrimination and mistreatment by providers as significant deterrents. This discrepancy likely reflects underreporting in quantitative studies and inherent limitations in measuring interpersonal dimensions of care. The hierarchical barrier analysis simplifies what Black et al. (2013) described as cascading disadvantage, wherein geographic isolation compounds financial deprivation, reducing bargaining power and access to quality care in a self-reinforcing cycle that demands systemic rather than selective intervention.

Intervention Effectiveness vs. Sustainability

The bubble chart analysis (Figure 4) reveals a fundamental tension in maternal and child health programming: the most immediately effective interventions are often the least sustainable in the long term. CHW programmes, with 65% effectiveness and 85% sustainability, represent the most promising profile for rural African contexts, as confirmed by Zumani et al. (2024). Yet Westgate et al. (2021) noted that even well-designed CHW programmes face implementation challenges, including inadequate resources, unstable supervision, and low community confidence, which threaten long-term effectiveness. Community education demonstrates the highest effectiveness (71%) and strong sustainability (80%), findings consistent with Maluka et al. (2023) in Tanzania, where participatory women's groups increased MCH service use, and with Nápoles and Stewart (2018), who examined the effectiveness of community-based interventions in reducing health disparities through sustained engagement. However, King et al. (2020) caution that sustained community engagement requires substantial ongoing resources.

The poor performance of financial incentives (23% effectiveness, 25% sustainability) raises serious questions about the emphasis placed on conditional cash transfers in health policy. Ezenwaka et al. (2021) found that the impact of financial incentives on MCH service uptake in Nigeria was highly context-dependent and diminished over time, while Neelsen et al. (2021) found that financial incentives generated negligible positive effects on service coverage across LMICs. This challenges the economic assumptions underlying many demand-side health interventions. The moderate effectiveness with relatively higher sustainability of mobile health applications (43% effectiveness, 70% sustainability) supports what Kachimanga et al. (2024) described as a promising but infrastructure-dependent approach; the sustainability advantage may be overstated if technological infrastructure and ongoing maintenance are not guaranteed. Transportation vouchers, with moderate effectiveness (56%) and limited sustainability (60%), are consistent with the findings of Atuoye et al. (2015) that transport costs are a significant barrier, while sustainable financing for such schemes remains elusive.

Health insurance schemes (34% effectiveness, 45% sustainability) confirm the finding of Dadjo et al. (2023) that insurance-based solutions in West Africa vary substantially in effectiveness across different settings. The overall pattern of community-based interventions outperforming financial ones on both

dimensions supports what Serván-Mori et al. (2019) described as the primacy of supply-side health system strengthening over demand-side financial incentives in achieving sustainable improvements. These findings suggest that interventions should build local capacity and community ownership rather than creating dependency on external support that collapses when funding is discontinued.

Continuum of Care Dropout Analysis

The waterfall analysis (Figure 5) reveals systematic failures in health systems to sustain patient engagement across the maternal and child health continuum. The 33-percentage-point dropout between delivery and postnatal care represents the most critical gap, consistent with Owili et al. (2016), who documented similarly large dropouts between delivery and postnatal care across 12 Sub-Saharan African countries. Amare et al. (2022) confirmed in Ethiopia that despite ANC being a strong predictor of both facility delivery and postnatal care use, the delivery-to-postnatal care transition remains highly vulnerable to system failure. The high baseline capture rate (89%) and relatively consistent attenuation to 69% adequate ANC (4+ visits) are consistent with the findings of Jiao et al. (2024) across 47 LMICs, where achieving adequate ANC was strongly associated with subsequent health-seeking behaviour but required sustained effort to retain attendees. The small reduction between adequate ANC and skilled delivery (69% to 67%) suggests that women engaged in ANC are being effectively directed towards facility-based delivery, supporting the value of integrated service platform strategies.

Nevertheless, the substantial postnatal care dropout raises important questions about the effectiveness of service integration. This trend parallels findings from Kothavale and Meher (2021) in India, where only 19% of women accessed the complete continuum of care, with higher education and wealth as the key factors sustaining engagement. The magnitude of dropout indicates systematic breakdowns in appointment systems, follow-up procedures, and perceived value of postnatal services, consistent with Show et al. (2023) in Myanmar. The recovery in child immunisation coverage (75%) indicates a partial catch-up effect. Tanou et al. (2021) confirmed a correlation between maternal health service use and child immunisation uptake in Benin, and McGlynn et al. (2015) in Ghana similarly affirmed that maternal health care familiarity can foster child health service utilisation, suggesting that immunisation systems retain a degree of functional autonomy from maternal care pathways. An overall continuum adherence rate of only 19% represents a serious indictment of current health system integration efforts, a finding supported by Shah et al. (2024), whose systematic review of integrated MCH interventions revealed that context-specific logistical and administrative barriers continue to complicate implementation despite strong policy emphasis on integration. The evidence points to a need for a paradigm shift towards patient-centred care coordination that sustains engagement across the full care journey, rather than service-specific programming that creates artificial points of discontinuity.

Research Gaps and Future Priorities

The research priority matrix (Figure 6) indicates that the field faces challenges of implementation science more than a shortage of innovations. The identification of CHW sustainability as the top priority (urgency score: 92) is telling: Miyares et al. (2026) identified significant knowledge gaps regarding the long-term effectiveness and cost-effectiveness of CHW programmes, and Baynes et al. (2023) revealed that even well-designed CHW interventions may fail to improve maternal service utilisation due to health system limitations that extend beyond community-level factors. The high urgency assigned to non-financial barriers research (urgency score: 87) reflects a growing recognition that healthcare utilisation patterns cannot be explained by economic structures alone. This priority aligns with the qualitative evidence of Wuneh, Bezabih, Okwaraji, et al. (2022), who documented the complex intersection of poverty, education, geographic barriers, cultural norms, and gender roles. It also echoes the finding of Ganle et al. (2014) that the removal of financial barriers must be accompanied by improvements in quality, cultural competence, and systemic responsiveness.

Continuum integration studies (urgency score: 84%) reflect recognition that existing service delivery models fail to support patient journeys across care episodes. Shah et al. (2024) revealed major implementation obstacles including staff capacity

constraints and logistical burdens suggesting that meaningful progress requires fundamental redesign of health system organisation, not merely incremental coordination efforts. The medium priority assigned to geographic solutions research (urgency score: 78%) may underestimate the centrality of access, given that Tanou et al. (2021) established geographic accessibility as a fundamental determinant of service use. This ranking may reflect a methodological bias favouring behavioural and organisational interventions over infrastructure and transportation innovations.

COVID-19 impact assessment (urgency score: 73%) acknowledges what Amouzou et al. (2022) documented: pandemic shocks exposed the fragility of health systems and disproportionately disrupted MCH services in remote settings. The medium priority ranking may reflect temporal shifts in research agenda priorities. The lowest priority assigned to urban poor-specific studies (urgency score: 65%) contrasts with the argument of Nambiar et al. (2023) that urban poor populations warrant dedicated research attention. This ranking may reflect a rural bias in the field, despite evidence from Prakash and Kumar (2013) that urban poor populations face distinct barriers that are not resolved by geographic proximity to facilities. The overall pattern of priorities suggests that the research community is shifting towards implementation challenges, though this shift may be driven partly by donor priorities rather than evidence-based assessment of research needs alone.

Conclusion

Maternal and child health service utilisation in Sub-Saharan Africa remains characterised by entrenched, multifaceted inequities that have persisted despite decades of global health investment. The evidence illustrates how socioeconomic factors, especially maternal education and household wealth, exert the most powerful influence on service uptake, while geographic inaccessibility remains a critical structural barrier, with rural populations demonstrating utilisation rates up to 2.3 times lower than their urban counterparts.

The analysis reveals significant systemic failures, most acutely in the 49% relative loss of engagement between delivery and postnatal care (a 33-percentage-point absolute drop), representing a calamitous failure of current health system design to facilitate continuity of care. Community-based interventions, in particular CHW programmes and community education, are effective, sustainable, and cost-efficient, whereas financial incentives demonstrate consistently poor performance on both dimensions.

The research priority matrix identifies CHW sustainability and non-financial barriers as the most urgent areas for future investigation, signalling the field's broader shift towards implementation science. Future improvement in maternal and child health outcomes will require integrated strategies that address structural inequities and health system fragmentation, and that prioritise community participation over single-component interventions. Success will require a transition to patient-centred care coordination that supports women and children across the full continuum of care, while meaningfully engaging with the complex interplay of socioeconomic, cultural, and systemic factors that sustain health disparities.

REFERENCE

1) Adam, A. H., & Daba, M. (2024). Preventing maternal and child mortality: upcoming WHO Resolution must galvanise action to tackle the unacceptable weight of preventable deaths. *The Lancet Global Health*, *12*(8), e1223-e1224.
2) Ahmed, R., Gebre, S., Demelash, M., Belachew, T., Mohammed, A., Musema, A., & Sultan, M. (2024). The continuum of care for maternal health in Africa: A systematic review and meta-analysis. *PLoS One*, *19*(7), e0305780.
3) Amare, N. S., Araya, B. M., & Asaye, M. M. (2022). The proportion of dropouts from the maternity continuum of care and its predictors among antenatal booked women who gave birth in the last 12 months in Northwest Ethiopian women: a community-based cross-sectional study. *The Pan African Medical Journal*, *41*, 312.
4) Ameyaw, E. K., Dickson, K. S., & Adde, K. S. (2021). Are Ghanaian women meeting the WHO recommended maternal healthcare (MCH) utilisation? Evidence from a national survey. *BMC Pregnancy and Childbirth*, *21*(1), 161.

5) Ameyaw, E. K., Dickson, K. S., Adde, K. S., & Ezezika, O. (2021). Do women empowerment indicators predict receipt of quality antenatal care in Cameroon? Evidence from a nationwide survey. *BMC Women's Health*, *21*(1), 343.
6) Amouzou, A., Maïga, A., Faye, C. M., Chakwera, S., Melesse, D. Y., & Mutua, M. K. (2022). Health service utilisation during the COVID-19 pandemic in sub-Saharan Africa in 2020: a multicountry empirical assessment with a focus on maternal, newborn and child health services. *BMJ Global Health*, 7(5), e008069. https://doi.org/10.1136/bmjgh-2021-008069
7) Anyanwu, E. C., Maduka, C. P., Ayo-Farai, O., Okongwu, C. C., & Daraojimba, A. I. (2024). Maternal and child health policy: A global review of current practices and future directions. *World Journal of Advanced Research and Reviews*, *21*(2), 1770-1781.
8) Arefaynie, M., Mohammed, A., Tareke, A. A., Keleb, A., Kebede, N., Tsega, Y., Endawkie, A., Kebede, S. D., Abera, K. M., & Abeje, E. T. (2024). Educational inequalities and decomposition of the urban-rural disparities in maternal health care utilization in Ethiopia: further analysis of 2019 intermediate Ethiopian demography and health survey. *BMC Public Health*, *24*(1), 3415.
9) Aregbeshola, B. S., & Olaniyan, O. (2022). Horizontal inequity in the utilization of maternal and reproductive health services: evidence from the 2018 Nigeria demographic and health survey. *Frontiers in Health Services*, *2*, 791695.
10) Arsenault, C., Jordan, K., Lee, D., Dinsa, G., Manzi, F., Marchant, T., & Kruk, M. E. (2018). Equity in antenatal care quality: an analysis of 91 national household surveys. *The Lancet Global Health*, *6*(11), e1186-e1195.
11) Atuoye, K. N., Dixon, J., Rishworth, A., Galaa, S. Z., Boamah, S. A., & Luginaah, I. (2015). Can she make it? Transportation barriers to accessing maternal and child health care services in rural Ghana. *BMC health services research*, *15*(1), 333.
12) Baynes, C., Kanté, A. M., Exavery, A., Tani, K., Sikustahili, G., Mushi, H., Baraka, J., Ramsey, K., Sherr, K., & Weiner, B. J. (2023). The implementation and effectiveness of multi-tasked, paid community health workers on maternal and child health: A cluster-randomized pragmatic trial and qualitative process evaluation in Tanzania. *PLOS Global Public Health*, *3*(9), e0002050.
13) Black, R. E., Taylor, C. E., Arole, S., Bang, A., Bhutta, Z. A., Chowdhury, A. M. R., Kirkwood, B. R., Kureshy, N., Lanata, C. F., & Phillips, J. F. (2017). Comprehensive review of the evidence regarding the effectiveness of community-based primary health care in improving maternal, neonatal and child health: 8. summary and recommendations of the Expert Panel. *Journal of global health*, *7*(1), 010908.
14) Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., De Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., & Martorell, R. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, *382*(9890), 427-451.
15) Bobo, F. T., Asante, A., Woldie, M., Dawson, A., & Hayen, A. (2022). Child vaccination in sub-Saharan Africa: Increasing coverage addresses inequalities. *Vaccine*, *40*(1), 141–150.
16) Campbell, O. M., Calvert, C., Testa, A., Strehlow, M., Benova, L., Keyes, E., Donnay, F., Macleod, D., Gabrysch, S., & Rong, L. (2016). The scale, scope, coverage, and capability of childbirth care. *The Lancet*, *388*(10056), 2193-2208.
17) Dadjo, J., Omonaiye, O., & Yaya, S. (2023). Health insurance coverage and access to child and maternal health services in West Africa: a systematic scoping review. *International health*, *15*(6), 644-654.
18) Das, B., Hossain, M., & Roy, P. B. (2022). Caste, social inequalities and maternal healthcare services in India: evidence from the national family and health survey. *Contemporary Voice of Dalit*, 2455328X221125603.
19) De La Torre, A., Nikoloski, Z., & Mossialos, E. (2018). Equity of access to maternal health interventions in Brazil and Colombia: a retrospective study. *International journal for equity in health*, *17*(1), 43.
20) Druetz, T., Siekmans, K., Goossens, S., Ridde,

V., & Haddad, S. (2015). The community case management of pneumonia in Africa: a review of the evidence. *Health policy and planning*, *30*(2), 253-266.

21) Ezenwaka, U., Manzano, A., Onyedinma, C., Ogbozor, P., Agbawodikeizu, U., Etiaba, E., Ensor, T., Onwujekwe, O., Ebenso, B., & Uzochukwu, B. (2021). Influence of conditional cash transfers on the uptake of maternal and child health services in Nigeria: insights from a mixed-methods study. *Frontiers in Public Health*, *9*, 670534.
22) Ganle, J. K., Parker, M., Fitzpatrick, R., & Otupiri, E. (2014). Inequities in accessibility to and utilisation of maternal health services in Ghana after user-fee exemption: a descriptive study. *International journal for equity in health*, *13*(1), 89.
23) Geda, N. R., Feng, C. X., Henry, C. J., Lepnurm, R., Janzen, B., & Whiting, S. J. (2021). Inequalities in Adherence to the Continuum of Maternal and Child Health Service Utilization in Ethiopia: Multilevel Analysis. *Journal of Health, Population, and Nutrition*, *40*(1), 45. https://doi.org/10.1186/s41043-021-00271-w
24) Ghose, B., Feng, D., Tang, S., Yaya, S., He, Z., Udenigwe, O., Ghosh, S., & Feng, Z. (2017). Women's decision-making autonomy and utilisation of maternal healthcare services: results from the Bangladesh Demographic and Health Survey. *BMJ open*, *7*(9), e017142.
25) Gube, A. A., Murányi, E., Vitrai, J., & Lohner, S. (2024). Inequity in uptake of maternal health care services in developing countries: a systematic review and meta-analysis. *Frontiers in Public Health*, *12*, 1415092.
26) Herbst, M. (2024). The State of the World's Children 2024: The Future of Childhood in a Changing World. *UNICEF*.
27) Hlongwane, T. M., Bozkurt, B., Barreix, M. C., Pattinson, R., Gülmezoglu, M., Vannevel, V., & Tunçalp, Ö. (2021). Implementing antenatal care recommendations, South Africa. *Bulletin of the World Health Organization*, *99*(3), 220.
28) Hong, Q. N., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M.-P., Griffiths, F., Nicolau, B., & O'Cathain, A. (2018). The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers. *Education for information*, *34*(4), 285-291.
29) Ikilezi, G., Augusto, O. J., Sbarra, A., Sherr, K., Dieleman, J. L., & Lim, S. S. (2020). Determinants of geographical inequalities for DTP3 vaccine coverage in sub-Saharan Africa. *Vaccine*, *38*(18), 3447-3454.
30) Jiao, B., Iversen, I., Sato, R., Pecenka, C., Khan, S., Baral, R., Kruk, M. E., Arsenault, C., & Verguet, S. (2024). Association between achieving adequate antenatal care and health-seeking behaviors: A study of Demographic and Health Surveys in 47 low-and middle-income countries. *PLoS medicine*, *21*(7), e1004421.
31) Kachimanga, C., Zaniku, H. R., Divala, T. H., Ket, J. C., Mukherjee, J. S., Palazuelos, D., Kulinkina, A. V., Abejirinde, I.-O. O., & Akker, T. v. d. (2024). Evaluating the adoption of mHealth technologies by community health workers to improve the use of maternal health services in Sub-Saharan Africa: systematic review. *JMIR mHealth and uHealth*, *12*, e55819.
32) Kawakatsu, Y., Adolph, C., Mosser, J. F., Baffoe, P., Cheshi, F., Aiga, H., Watkins, D., & Sherr, K. H. (2022). Factors consistently associated with utilisation of essential maternal and child health services in Nigeria: analysis of the five Nigerian national household surveys (2003–2018). *BMJ open*, *12*(9), e061747.
33) King, R., Hicks, J., Rassi, C., Shafique, M., Barua, D., Bhowmik, P., Das, M., Elsey, H., Questa, K., & Fieroze, F. (2020). A process for developing a sustainable and scalable approach to community engagement: community dialogue approach for addressing the drivers of antibiotic resistance in Bangladesh. *BMC Public Health*, *20*(1), 950.
34) Kothavale, A., & Meher, T. (2021). Level of completion along continuum of care for maternal, newborn and child health services and factors associated with it among women in India: a population-based cross-sectional study. *BMC Pregnancy and Childbirth*, *21*(1), 731.
35) Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., Adeyi, O.,

Barker, P., Daelmans, B., & Doubova, S. V. (2018). High-quality health systems in the Sustainable Development Goals era: time for a revolution. *The Lancet Global Health*, *6*(11), e1196-e1252.

36) Maluka, S. O., Mpambije, C. J., Kamuzora, P. C., & Fitzgerald, S. (2023). The effects of community-based interventions on the uptake of selected maternal and child health services: experiences of the IMCHA project in Iringa Tanzania, 2015-2020. *BMC Pregnancy and Childbirth*, *23*(1), 328.
37) Manna, S., & Basu, S. (2023). It cost us all of our savings to deliver our baby: a qualitative study to explore barriers and Facilitators of Maternal and Child Health Service Access and utilization in a Remote Rural Region in India during the COVID-19 pandemic. *Cureus*, *15*(2), e35192.
38) McGlynn, N., Wilk, P., Luginaah, I., Ryan, B. L., & Thind, A. (2015). Increased use of recommended maternal health care as a determinant of immunization and appropriate care for fever and diarrhoea in Ghana: an analysis pooling three demographic and health surveys. *Health policy and planning*, *30*(7), 895-905.
39) Mengesha, E. W., Alene, G. D., Amare, D., Assefa, Y., & Tessema, G. A. (2021). Social capital and maternal and child health services uptake in low-and middle-income countries: mixed methods systematic review. *BMC health services research*, *21*(1), 1142.
40) Miyares, M., Stansert Katzen, L., Vaughan, K., Baskin, C., Ballard, M., Kok, M., Jimenez, A., Iberico, M. M., Ernst, J., & Cook, J. (2026). Costs and cost-effectiveness of community health worker programs on reproductive, maternal, newborn and child health in low-and middle-income countries (2015–2024): A scoping review. *PLOS Global Public Health*, *6*(1), e0004893.
41) Mothupi, M. C., Knight, L., & Tabana, H. (2018). Measurement approaches in continuum of care for maternal health: a critical interpretive synthesis of evidence from LMICs and its implications for the South African context. *BMC health services research*, *18*(1), 539.
42) Nambiar, D., Mathew, B., Dubey, S., & Moola, S. (2023). Interventions addressing maternal and child health among the urban poor and homeless: an overview of systematic reviews. *BMC Public Health*, 23, 492. https://doi.org/10.1186/s12889-023-15410-7
43) Nápoles, A. M., & Stewart, A. L. (2018). Transcreation: an implementation science framework for community-engaged behavioral interventions to reduce health disparities. *BMC health services research*, *18*(1), 710.
44) Neelsen, S., de Walque, D., Friedman, J., & Wagstaff, A. (2021). *Financial incentives to increase utilization of reproductive, maternal, and child health services in low-and middle-income countries: a systematic review and meta-analysis*. World Bank Washington, DC.
45) Nieminen, P. (2022). Application of standardized regression coefficient in meta-analysis. *BioMedInformatics*, *2*(3), 434-458.
46) Nzioki, J. M., Onyango, R. O., & Ombaka, J. H. (2015). Socio-demographic factors influencing maternal and child health service utilization in Mwingi: a rural semi-arid district in Kenya. *American Journal of Public Health Research*, *3*(1), 21-30.
47) O'Dea, R. E., Lagisz, M., Jennions, M. D., Koricheva, J., Noble, D. W., Parker, T. H., Gurevitch, J., Page, M. J., Stewart, G., & Moher, D. (2021). Preferred reporting items for systematic reviews and meta-analyses in ecology and evolutionary biology: a PRISMA extension. *Biological Reviews*, *96*(5), 1695-1722.
48) Oke, G. I., & Sibomana, O. (2025). Understanding health inequality, disparity and inequity in Africa: a rapid review of concepts, root causes, and strategic solutions. *Public Health Challenges*, *4*(1), e70040.
49) Okedo-Alex, I. N., Akamike, I. C., Ezeanosike, O. B., & Uneke, C. J. (2019). Determinants of antenatal care utilisation in sub-Saharan Africa: a systematic review. *BMJ open*, *9*(10), e031890.
50) Organization, W. H. (2023). *The big catch-up: an essential immunization recovery plan for 2023 and beyond*. World Health Organization.
51) Owili, P. O., Muga, M. A., Chou, Y.-J., Hsu, Y.-H. E., Huang, N., & Chien, L.-Y. (2016).

Associations in the continuum of care for maternal, newborn and child health: a population-based study of 12 sub-Saharan Africa countries. *BMC Public Health*, *16*(1), 414.

52) Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., ... & Duffy, S. (2006). Guidance on the conduct of narrative synthesis in systematic reviews. *A product from the ESRC methods programme Version*, *1*(1), b92.

53) Prakash, R., & Kumar, A. (2013). Urban poverty and utilization of maternal and child health care services in India. *Journal of Biosocial Science*, *45*(4), 433-449.

54) Samuel, O., Zewotir, T., & North, D. (2021). Decomposing the urban–rural inequalities in the utilisation of maternal health care services: evidence from 27 selected countries in Sub-Saharan Africa. *Reproductive health*, *18*(1), 216.

55) Serván-Mori, E., Cerecero-García, D., Heredia-Pi, I. B., Pineda-Antúnez, C., Sosa-Rubí, S. G., & Nigenda, G. (2019). Improving the effective maternal-child health care coverage through synergies between supply and demand-side interventions: evidence from Mexico. *Journal of global health*, *9*(2), 020433.

56) Shah, M. P., Morgan, C. J., Beeson, J. G., Peach, E., Davis, J., McPake, B., & Wallace, A. S. (2024). Integrated approaches for the delivery of maternal and child health services with childhood immunization programs in low-and middle-income countries: Systematic review update 2011–2020. *Vaccines*, *12*(12), 1313.

57) Show, K. L., Aung, P. L., Maung, T. M., Myat, S. M., & Tin, K. N. (2023). Early postnatal care contact within 24 hours by skilled providers and its determinants among home deliveries in Myanmar: Further analysis of the Myanmar Demographic and Health Survey 2015–16. *PLoS One*, *18*(8), e0289869.

58) Tanou, M., & Kamiya, Y. (2019). Assessing the impact of geographical access to health facilities on maternal healthcare utilization: evidence from the Burkina Faso demographic and health survey 2010. *BMC Public Health*, *19*(1), 838.

59) Tanou, M., Kishida, T., & Kamiya, Y. (2021). The effects of geographical accessibility to health facilities on antenatal care and delivery services utilization in Benin: a cross-sectional study. *Reproductive health*, *18*(1), 205.

60) Terefe, B., Workneh, B. S., Zeleke, G. A., Mekonen, E. G., Zegeye, A. F., Aemro, A., Tekeba, B., Tamir, T. T., Wassie, M., & Ali, M. S. (2025). Uncovering women's healthcare access challenges in low-and middle-income countries using mixed effects modelling approach: Insights for achieving the Sustainable Development Goals. *PLoS One*, *20*(1), e0314309.

61) Tessema, Z. T., Teshale, A. B., Tesema, G. A., & Tamirat, K. S. (2021). Determinants of completing recommended antenatal care utilization in sub-Saharan from 2006 to 2018: evidence from 36 countries using Demographic and Health Surveys. *BMC Pregnancy and Childbirth*, *21*(1), 192.

62) Walker, T., Woldegiorgis, M., & Bhowmik, J. (2021). Utilisation of skilled birth attendant in low-and middle-income countries: trajectories and key sociodemographic factors. *International journal of environmental research and public health*, *18*(20), 10722.

63) Westgate, C., Musoke, D., Crigler, L., & Perry, H. B. (2021). Community health workers at the dawn of a new era: 7. Recent advances in supervision. *Health research policy and systems*, *19*(Suppl 3), 114.

64) Wuneh, A. D., Bezabih, A. M., Okwaraji, Y. B., Persson, L. Å., & Medhanyie, A. A. (2022). Wealth and education inequities in maternal and child health services utilization in rural Ethiopia. *International journal of environmental research and public health*, *19*(9), 5421.

65) Wuneh, A. D., Bezabih, A. M., Persson, L. Å., Okwaraji, Y. B., & Medhanyie, A. A. (2022). "If I Was Educated, I Would Call the Ambulance and Give Birth at the Health Facility"—A Qualitative Exploratory Study of Inequities in the Utilization of Maternal, Newborn, and Child Health Services in Northern Ethiopia. *International journal of environmental research and public health*, *19*(18), 11633.

66) Zumani, K., Irumba, H., Afolabi, A. O., Dube, S., Byaruhanga, V., George, O., Nortey, M. A., Ofori, E. O., Valentine, B. B., & Peru, P. (2024). The Effectiveness and Cost-Effectiveness of Community Health Workers in Delivering Antenatal Care and Immunization Services to Pregnant Mothers and Children Under 5 in Rural Africa: A Study Protocol for a Systematic Review and Meta-Analysis. *medRxiv*, 2024.2008. 2018.24312186.

Table 1. PRISMA Study Selection Flow

Stage	Records (n)
Records identified through database searches	547
Additional records through citation chaining	88
Total records identified	635
Duplicates removed	89
Records screened (title and abstract)	546
Records excluded at screening	389
Full-text records assessed for eligibility	157
Full-text records excluded (with reasons)	54
Outside Sub-Saharan Africa	26
Did not report MCH utilisation outcomes	14
Conference abstracts / no primary data	8
Full text not retrievable	6
Studies included in the review	103

Table 2. Summary Characteristics of Included Studies (selected representative studies)

Author(s), Year	Country	Design	Sample (n)	Service(s)	Key Focus
Terefe et al. (2025)	Multi-country	Cross-sectional	84,200	ANC, SBA	Residential determinants
Jiao et al. (2024)	47 LMICs	Cross-sectional	128,400	ANC adequacy	Health-seeking behaviour
Kawakatsu et al. (2022)	Nigeria	Longitudinal	12,600	ANC, SBA, PNC	Socioeconomic determinants
Zumani et al. (2024)	Rural SSA	RCT/QE	6,800	CHW interventions	Effectiveness & sustainability
Shah et al. (2024)	Multi-country	Systematic review	103 studies	Integrated MCH	Implementation barriers
Geda et al. (2021)	Ethiopia	Cohort	4,200	Continuum of care	Dropout analysis
Maluka et al. (2023)	Tanzania	Mixed-methods	2,100	Community educ.	MCH uptake
Tanou & Kamiya (2019)	Burkina Faso	Cross-sectional	9,800	ANC, SBA	Geographic barriers
Ganle et al. (2014)	Ghana	Qualitative	320	All MCH services	Non-financial barriers
Owili et al. (2016)	12 SSA countries	Cross-sectional	87,000	Continuum of care	Continuity patterns

Figure 1

Service Utilisation Rates

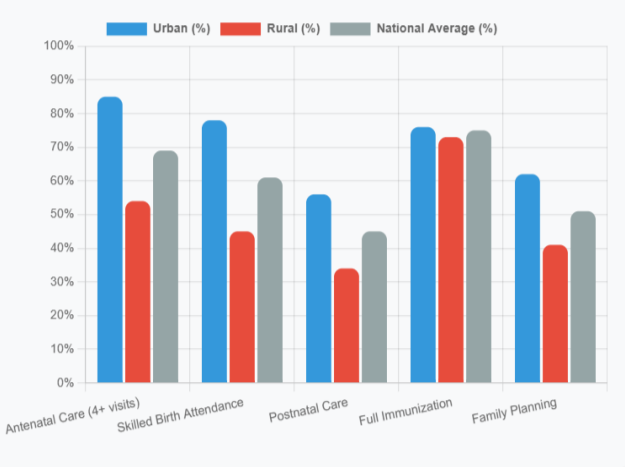

Figure 1. Service utilisation rates across antenatal care (4+ visits), skilled birth attendance, postnatal care, full immunisation, and family planning services, stratified by national average, urban, and rural populations in Sub-Saharan Africa (2010–2024).

Figure 2

Socioeconomic Determinants Impact Analysis

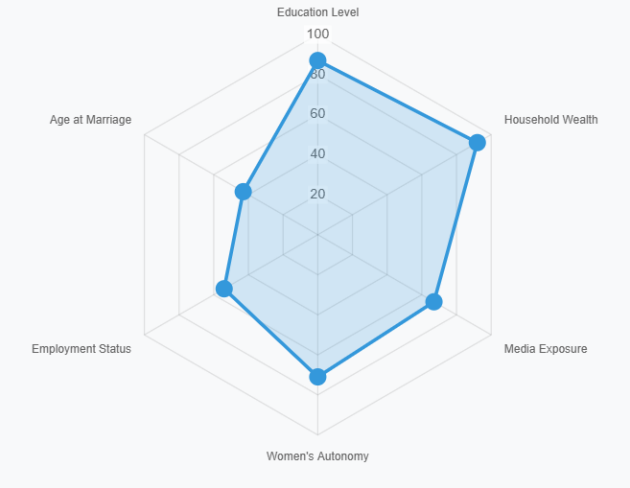

Figure 2. Radar chart depicting the relative impact scores of key socioeconomic determinants on maternal and child health service utilisation, including household wealth, maternal education, women's autonomy, media exposure, employment status, and age at marriage.

Figure 3

Geographic and Access Barriers

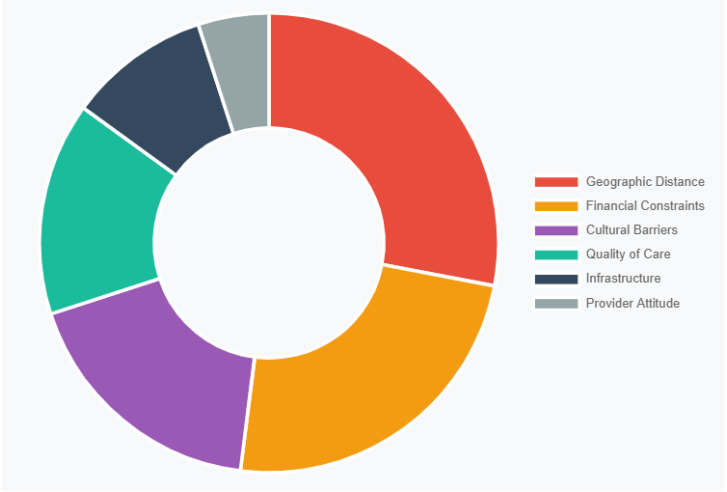

Figure 3. Distribution of access barriers to maternal and child health services, categorised by geographic distance, financial constraints, cultural barriers, quality-of-care concerns, infrastructure restrictions, and provider attitudes.

Figure 4

Intervention Effectiveness Comparison

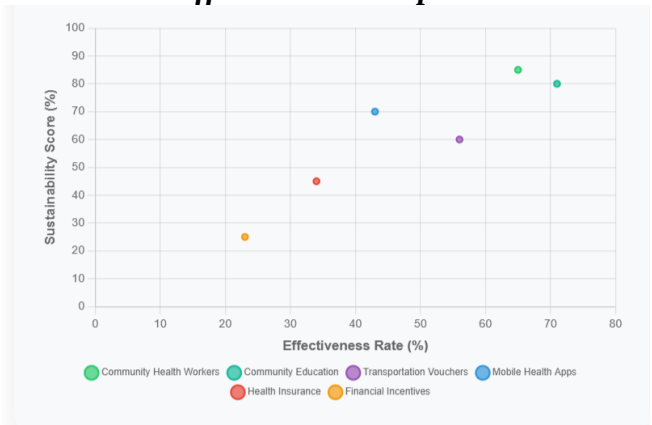

Figure 4. Bubble chart comparing maternal and child health interventions by effectiveness (x-axis) and sustainability (y-axis), including Community Health Workers, community education,

transportation vouchers, mobile health applications, health insurance schemes, and financial incentives.

Figure 5
Continuum of Care Dropout Analysis

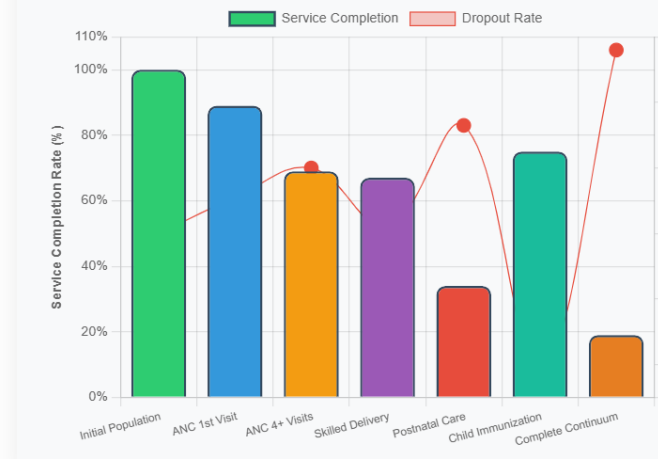

Figure 5. Waterfall analysis showing the sequential dropout rates across the maternal and child health care continuum, from initial antenatal care attendance through 4+ ANC visits, skilled delivery, postnatal care, and child immunisation.

Figure 6
Research Gaps and Future Priorities

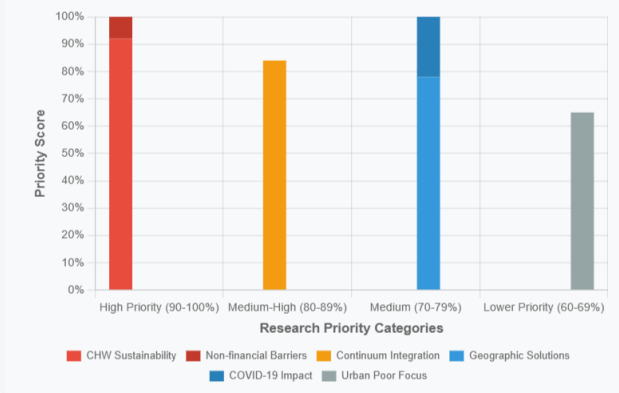

Figure 6. Priority matrix categorising identified research gaps by urgency scores (0–100), including CHW sustainability, non-financial barriers, continuum integration, geographic solutions, COVID-19 impact, and urban poor focus.