

Integrating Indigenous Knowledge to Promote Antenatal Care and Prevent Obstetric Complications in Kinshasa: A Systematic Review

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ABSTRACT

Introduction

Indigenous knowledge significantly shapes healthcare-seeking behaviors among pregnant women across Sub-Saharan Africa. Its interaction with formal antenatal care (ANC) offers a strategic pathway to improving maternal health outcomes. However, synthesized scientific evidence evaluating its specific impact on promoting ANC utilization and preventing obstetric complications remains limited, particularly within the context of Kinshasa, Democratic Republic of the Congo (DRC).

Purpose

To systematically synthesize available evidence on the influence of indigenous knowledge on ANC service utilization and obstetric complication prevention, and to analyze the practical implications of these findings for the health system in Kinshasa, DRC.

Methods

Conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines, a comprehensive literature search was executed between February 1 and April 30, 2026. The search spanned PubMed, Web of Science, CINAHL, African Journals Online (AJOL), Google Scholar, and grey literature sources for studies published between 2011 and 2025. Out of 45 identified records, 42 underwent screening after duplicate removal, and 11 met all eligibility criteria. Methodological quality was evaluated using the Mixed Methods Appraisal Tool (MMAT, 2018). Due to study design and context heterogeneity, a qualitative thematic synthesis was performed.

Results

The included studies demonstrated overall moderate-to-high methodological quality. Three dominant operational themes emerged: (a) the structural role of community health actors, (b) cultural practices and beliefs surrounding pregnancy, and (c) indigenous recognition of obstetric danger signs. Indigenous knowledge exerted complex facilitating, inhibiting, or context-dependent influences on ANC timing and adherence.

Conclusion

Indigenous knowledge functions as a major determinant of maternal healthcare-seeking decisions in Sub-Saharan Africa. Culturally sensitive integration of beneficial community knowledge into national maternal health policies can enhance ANC uptake and strengthen early complication management. Empirical contextual studies within Kinshasa are urgently required to operationalize these collaborative frameworks locally. **Systematic Review Registration:** Open Science Framework (OSF) DOI: [10.17605/OSF.IO/XUJGM](https://doi.org/10.17605/OSF.IO/XUJGM)

INTRODUCTION

Maternal mortality remains one of the most critical global public health challenges. According to the World Health Organization (WHO, 2023), approximately 287,000 women died from pregnancy- or childbirth-related complications globally in 2020. Nearly 70% of these deaths occurred in Sub-Saharan Africa, a region characterized by pervasive structural inequalities in access to quality maternal healthcare. The vast majority of these fatalities are preventable through early and consistent antenatal care (ANC) attendance, skilled birth attendance, and prompt management of obstetric complications (WHO, 2023).

In the Democratic Republic of the Congo (DRC), reducing maternal mortality remains a top national healthcare priority. Despite ongoing policy initiatives by health authorities and international development partners, the national maternal mortality ratio remains among the highest in Africa. In urban Kinshasa, geographical accessibility to healthcare facilities is generally superior to rural provinces; however, significant barriers persist regarding the early initiation (first trimester) and regular retention of pregnant women in formal ANC services. These bottlenecks stem not only from financial constraints and health system frailties but also from complex sociocultural determinants, particularly the reliance on indigenous knowledge system practices.

Indigenous knowledge encompasses cumulative bodies of understanding, beliefs, practices, and cultural values transmitted across generations concerning pregnancy, labor, and maternal well-being. This knowledge is sustained primarily through informal networks of family members, matriarchal elders, traditional birth attendants (TBAs), and spiritual leaders. Consequently, it strongly conditions healthcare-seeking pathways and health decision-making among expectant mothers.

Synthesized literature from Sub-Saharan Africa demonstrates that indigenous knowledge exerts a dual influence on formal healthcare utilization. In supportive environments, community networks offer critical psychosocial support, validate maternal health status, and facilitate timely referral to formal clinical centers (Byrne et al., 2016; Vyagusa et al., 2013). Conversely, entrenched cultural taboos, restrictive dietary rules, and exclusive reliance on unverified traditional preparations can delay initial ANC registration, mask critical danger signs, or impede emergency obstetric referrals (Gora et al., 2021; Kouadio, 2017).

Although various individual studies have explored the sociocultural dynamics of maternal health across Africa, empirical evidence remains fragmented across disparate contexts. To date, few systematic reviews have rigorously synthesized evidence regarding how indigenous knowledge influences both ANC promotion and obstetric complication prevention while explicitly discussing actionable policy implications for the urban healthcare environment of Kinshasa. This evidence gap restricts the design of culturally congruent public health strategies.

This review is grounded in Leininger's Transcultural Nursing Theory, which posits that culturally based care practices, beliefs, and values heavily govern health and well-being behaviors (Leininger, 2002). Within this theoretical framework, the review conceptualizes four interrelated operational domains:

1. Indigenous knowledge systems related to pregnancy;
2. Formal biomedical ANC systems;
3. Interactive pathways between traditional and clinical care models; and
4. Downstream health outcomes, specifically service uptake and complication mitigation.

Research Question

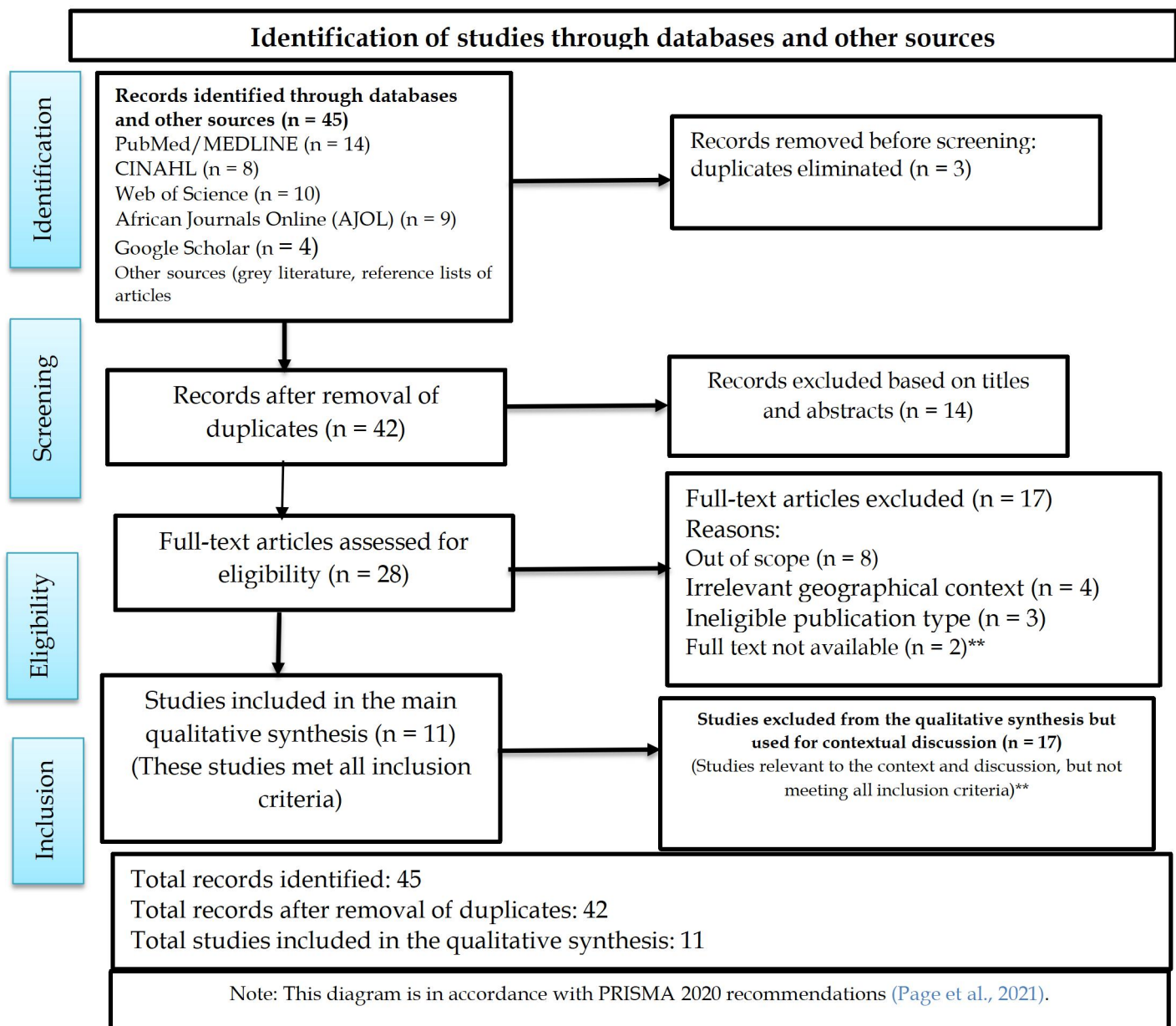
How does indigenous knowledge influence the utilization of antenatal care services and the prevention of obstetric complications in Sub-Saharan Africa, and what actionable strategies can be derived to optimize maternal health policies and clinical practices in Kinshasa, Democratic Republic of the Congo?

METHODS

Study Design and Protocol Registration

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021). The systematic review protocol was prospectively registered on the Open Science Framework (OSF) under DOI: [10.17605/OSF.IO/XUJGM](https://doi.org/10.17605/OSF.IO/XUJGM).

Figure 1:
PRISMA 2020 Flow Diagram of Study Selection Process



Search Strategy and Data Sources

Comprehensive literature searches were executed from February 1 to April 30, 2026. Electronic databases indexed included PubMed/MEDLINE, CINAHL, Web of Science, African Journals Online (AJOL), and Google Scholar. Supplementary grey literature was retrieved from World Health Organization (WHO) and UNICEF repositories, institutional reports, and reference lists of included studies. The search was restricted to peer-reviewed studies published between 2011 and 2025 in English or French.

Search equations were constructed using Medical Subject Headings (MeSH) and Boolean operators:

- I. **PubMed/MEDLINE:** ("Popular Knowledge" OR "Traditional Knowledge" OR "Indigenous Knowledge") AND ("Antenatal Care" OR "Prenatal Care") AND ("Obstetric Complications" OR "Maternal Health") AND ("Africa" OR "Sub-Saharan Africa")

- II. **CINAHL:** (MH "Community Knowledge+" OR "Traditional Knowledge" OR "Indigenous Knowledge") AND (MH "Prenatal Care+" OR "Antenatal Care") AND ("Maternal Health" OR "Obstetric Complications") AND ("Africa South of the Sahara")
- III. **Web of Science:** TS=("Traditional Knowledge" OR "Indigenous Knowledge" OR "Popular Knowledge") AND TS=("Maternal Health" OR "Obstetric Complications") AND TS=("Sub-Saharan Africa")
- IV. **AJOL:** ("Traditional Knowledge" OR "Community Knowledge") AND ("Prenatal Care" OR "Antenatal Care") AND ("Maternal Health")
- V. **Google Scholar:** "Traditional Knowledge" AND "Antenatal Care" AND "Maternal Health" AND "Africa"

Eligibility Criteria

Inclusion Criteria

- a. Published between January 2011 and December 2025.
- b. Empirical or systematic research conducted within Sub-Saharan Africa.
- c. Articles published in English or French.
- d. Focus on indigenous knowledge, traditional practices, or cultural determinants linked to ANC and obstetric outcomes.

- e. Quantitative, qualitative, or mixed-methods study designs.
- f. Full-text access available.

Exclusion Criteria

- a. Editorials, commentaries, conference abstracts, and protocol publications lacking empirical outcomes.
- b. Studies conducted outside Sub-Saharan Africa.
- c. Purely biomedical evaluations lacking sociocultural dimensions.
- d. Studies unrelated to pregnancy or maternal care.

Study Selection and Data Extraction

Retrieved citations were exported to reference management software for de-duplication. Two reviewers independently screened titles and abstracts against eligibility criteria. Full texts of selected records were evaluated independently. Disagreements were resolved through structured consensus with a third senior reviewer. Data were systematically extracted into standardized matrices capturing author/year, geographic location, objectives, methodology, study population, identified indigenous practices, key outcomes, and limitations.

Quality Assessment and Risk of Bias

Methodological quality was appraised using the Mixed Methods Appraisal Tool (MMAT, version 2018; Hong et al., 2018). Each study design was evaluated against its five MMAT criteria:

Table 1:
MMAT (2018) Quality Assessment of Included Studies

Author(s) & Year	Design Category	Criteria Met	Quality Grade
Byrne et al. (2016)	Systematic Review	4/5	High
Damus (2015)	Literature / Narrative Review	3/5	Moderate
Gora et al. (2021)	Analytical Cross-Sectional	4/5	High
Kouadio (2017)	Ethnographic / Qualitative	4/5	High
Markos & Bogale (2014)	Community Quantitative Cross-Sectional	3/5	Moderate
Mujinja & Saronga (2021)	Analytical / Policy Review	3/5	Moderate
Palamuleni (2011)	Secondary Data Analysis	3/5	Moderate
Raymondville et al. (2020)	Qualitative Study	4/5	High
Rotheram-Borus et al. (2011)	Cluster Randomized Controlled Trial	5/5	High
UNICEF / WHO (2022)	Institutional Monitoring Report	4/5	High
Vyagusa et al. (2013)	Qualitative Exploratory	4/5	High

Note: MMAT score thresholds: High quality (4–5 criteria met), Moderate quality (3 criteria met), Low quality (<3 criteria met).

Risk of bias across domain categories (selection, measurement, confounding, attrition, and reporting) was consistently low-to-moderate, as detailed in [Table 2](#).

Ethical Approval

Institutional review board approval was not required for this study, as it relies exclusively on publicly available, published secondary data and contains no identifiable individual patient data.

Table 2:
Risk of Bias Assessment Matrix

Author(s) & Year	Selection Bias	Measurement Bias	Confounding Bias	Attrition Bias	Reporting Bias	Overall Risk
Byrne et al. (2016)	Low	Low	Low	Low	Low	Low
Damus (2015)	Moderate	Low	Moderate	Low	Low	Moderate
Gora et al. (2021)	Low	Low	Low	Low	Low	Low
Kouadio (2017)	Low	Low	Low	Low	Low	Low
Markos & Bogale (2014)	Moderate	Low	Moderate	Low	Low	Moderate
Mujinja & Saronga (2021)	Moderate	Low	Moderate	Low	Low	Moderate
Palamuleni (2011)	Moderate	Low	Low	Low	Low	Moderate
Raymondville et al. (2020)	Low	Low	Low	Low	Low	Low
Rotheram-Borus et al. (2011)	Low	Low	Low	Low	Low	Low
UNICEF / WHO (2022)	Low	Low	Low	Low	Low	Low
Vyagusa et al. (2013)	Low	Low	Low	Low	Low	Low

RESULTS

Study Characteristics

A total of 11 studies published between 2011 and 2025 met all criteria. Geographically, these studies represented multi-country Sub-Saharan African contexts, including specific evaluations in South Africa, Ethiopia, Tanzania, and West Africa, alongside complementary data from

rural Haiti providing comparative transcultural validity for high-density, low-resource settings. Methodologies comprised qualitative designs (n=4), quantitative cross-sectional or secondary analyses (n=3), reviews/institutional reports (n=3), and a cluster randomized controlled trial (n=1). Full characteristics and extraction summaries appear in Table 3.

Table 3:
Characteristics and Extracted Findings of Included Studies

Author(s) & Year	Context/ Setting	Methodology	Target Population	Key Identified Findings	Primary Methodological Limitations
Byrne et al. (2016)	Sub-Saharan Africa	Systematic Review	Traditional Birth Attendants (TBAs)	Trained TBAs significantly improve early referral to formal health facilities.	High heterogeneity across included primary studies.
Damus (2015)	Sub-Saharan Africa	Narrative Review	Pregnant women & traditional healers	Cultural beliefs heavily dictate ANC timing and care choice.	Limited direct quantitative outcome metrics.
Gora et al. (2021)	Sub-Saharan Africa	Analytical Cross-Sectional	Mothers of reproductive age	Traditional practices and delay patterns correlate with obstetric complications.	Uncontrolled residual confounding factors across settings.
Kouadio (2017)	West Africa	Qualitative Ethnographic	Community members & TBA networks	Sociocultural taboos restrict early public disclosure of pregnancy and delay ANC.	Geographic specificity limits broad applicability.
Markos & Bogale (2014)	Ethiopia	Community Cross-Sectional	Women with recent childbirth	High adherence to traditional advice negatively impacts timely ANC booking.	Small localized sample size.
Mujinja & Saronga (2021)	East Africa	Policy & Analytical Review	Health systems & traditional practitioners	Institutional barriers hinder formal collaboration between traditional and biomedical practitioners.	Limited evaluation of empirical policy outcomes.
Palamuleni (2011)	Sub-Saharan Africa	Secondary Data Analysis	Demographic and Health Survey data	Sociocultural factors predict maternal health service utilization as strongly as socioeconomic status.	Reliance on older cross-sectional survey datasets.
Raymondville et al. (2020)	Rural Haiti	Qualitative Descriptive	Postpartum women & traditional healers	Pervasive trust in community healers creates a preference for non-biomedical first-line care.	Contextual findings limited in generalizability.
Rotheram-Borus et al. (2011)	South Africa	Cluster Randomized Controlled Trial	Perinatal women & community peer mentors	Structured home visiting by community mentors significantly enhances maternal health outcomes.	High implementation costs for program scaling.
UNICEF / WHO (2022)	Sub-Saharan Africa	Institutional Monitoring Report	Global & regional populations	Maternal mortality remains elevated where community-level systems lack clinical integration.	Aggregated institutional reporting constraints.
Vyagusa et al. (2013)	Tanzania	Qualitative Exploratory	Skilled midwives & TBAs	Collaborative models between midwives and TBAs improve continuity of maternal care.	Localized geographic scope.

Thematic Synthesis

Inductive thematic analysis yielded five central themes governing the interaction between indigenous knowledge and formal ANC systems (Table 4).

Table 4:
Thematic Synthesis Matrix of Review Findings

Theme Domain	Identified Sub-Themes	Extracted Evidence & Synthesis	Clinical & Policy Implications for ANC
1. Typology of Indigenous Knowledge	Dietary restrictions, herbal usage, spiritual rituals, reliance on matriarchal counsel.	Indigenous knowledge operates as an authoritative reference system within families, guiding first-line care decisions (Damus, 2015; Kouadio, 2017).	Antenatal counseling must account for local beliefs to design respectful, effective care plans.
2. ANC Utilization Determinants	Secretory practices in early pregnancy, reliance on TBA screening, delayed initiation.	Beliefs regarding spiritual vulnerability delay public pregnancy disclosure, postponing formal ANC past the first trimester (Markos & Bogale, 2014; Palamuleni, 2011).	Community messaging should emphasize early clinical monitoring while respecting privacy protocols.
3. Obstetric Complication Prevention	Misidentification of danger signs, reliance on herbal oxytocics, delay in emergency transport.	Traditional remedies used to manage complications can mask severity or exacerbate labor dystocia (Gora et al., 2021).	Public health outreach must harmonize traditional symptom recognition with clinical referral triggers.
4. Traditional-Biomedical Interaction	Dual health-seeking pathways, communication gaps, mistrust of formal staff.	Women frequently navigate both traditional and biomedical systems simultaneously, keeping dual use undisclosed due to fear of clinical reprimand (Raymondville et al., 2020).	Providers must practice non-judgmental history-taking to identify herbal use and foster open communication.
5. Policy Integration Strategies	Formal TBA task-sharing, community peer mentorship, institutional referral linkages.	Structured collaboration between community networks and professional midwives significantly improves referral speed and maternal survival (Byrne et al., 2016; Rotheram-Borus et al., 2011; Vyagusa et al., 2013).	Health systems must institutionalize community-clinician partnerships within formal maternal health guidelines.

DISCUSSION

The findings of this systematic review confirm that indigenous knowledge serves as a major determinant of healthcare-seeking behaviors among pregnant women in Sub-Saharan Africa. The decision to access formal ANC is rarely a simple, individual choice. Instead, it is heavily negotiated within community networks, matriarchal family structures, and local belief systems. In agreement with Leininger's Transcultural Nursing Theory (Leininger, 2002), health behaviors are embedded within cultural logic. Addressing maternal health disparities requires understanding these cultural dynamics rather than dismissing them.

Healthcare-Seeking Dynamics and Traditional Provider Reliance

Across many Sub-Saharan African contexts, traditional birth attendants and community elders represent the first line of care for pregnant women (Damus, 2015; Kouadio, 2017; Raymondville et al., 2020). This preference is driven by strong cultural proximity, geographic accessibility, shared belief systems, and continuous emotional support. As Markos and Bogale (2014) noted, women frequently seek validation of pregnancy status through traditional means before considering formal clinical visits.

However, dual health-seeking patterns also expose critical vulnerabilities. Unregulated use of traditional herbal mixtures—often ingested to accelerate labor or manage swelling—can induce uterine hyperstimulation or obscure deteriorating maternal conditions (Gora et al., 2021).

Furthermore, fear of harsh reprimands or dismissal by formal healthcare staff frequently deters women from disclosing traditional care usage, creating dangerous communication barriers (Raymondville et al., 2020).

Synergies of Task-Sharing and Collaborative Models

The review demonstrates that indigenous knowledge networks can be effectively mobilized to improve clinical outcomes. When TBAs and community health workers are integrated into formal maternal health systems through task-sharing, non-clinical outreach, and structured referral roles, early ANC initiation improves significantly (Byrne et al., 2016; Vyagusa et al., 2013). Trained community actors serve as cultural bridges, identifying early obstetric danger signs and facilitating timely transportation to formal facilities (Rotheram-Borus et al., 2011).

Operational Implications for the Context of Kinshasa

These findings offer clear, actionable lessons for the urban healthcare context of Kinshasa, Democratic Republic of the Congo:

- i. **Urban Sociocultural Realities:** Kinshasa's high-density urban environment features rapid population movement, economic constraints, and strong reliance on informal care networks, including traditional healers and faith-based maternity centers. Public health strategies must engage these community actors directly.
- ii. **Respectful Maternity Care and Cultural Competency:** Training programs for nurses and

midwives in Kinshasa must emphasize culturally competent care. Establishing open, non-judgmental communication reduces non-disclosure of traditional herbal use and encourages timely clinical registration.

- iii. **Formal Community-Facility Linkages:** Health zone management teams (*Équipes Cadres de Zone de Santé*) should establish formal collaborative mechanisms with local traditional midwives and community health leaders. Structuring clear referral protocols and non-monetary incentives can transform informal providers into active partners for early ANC referral.

Limitations

Several limitations must be acknowledged. First, the primary literature exhibits high methodological and contextual heterogeneity across Sub-Saharan African countries. Second, there remains a distinct scarcity of empirical, peer-reviewed primary studies originating directly from Kinshasa's urban health zones, necessitating cautious contextual translation of broader regional findings.

CONCLUSION

Indigenous knowledge remains a vital influence on maternal health-seeking behaviors across Sub-Saharan Africa. Rather than viewing traditional knowledge systems solely as obstacles to modern clinical practices, maternal health policies should adopt an integrative approach. Structurally linking community health actors and traditional providers with formal clinical centers enhances early ANC registration, improves the recognition of obstetric danger signs, and strengthens emergency referral networks.

For the healthcare system of Kinshasa, translating these insights requires implementing culturally sensitive nursing practices and building formal collaborative partnerships between primary health centers (*Centres de Santé*) and community networks. Further empirical, context-specific research within Kinshasa is essential to evaluate the operational effectiveness and safety of integrated maternal health intervention models.

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Authors' Contributions:

- i. **Tshiamia Claudine Ruth:** Writing – original draft, Writing – review & editing, Validation
- ii. **Diwoto Dowo Jean-Paul:** Software, Formal analysis, Data curation, Investigation
- iii. **Kabambi Tshimbila Franck:** Formal analysis, Validation, Visualization
- iv. **Kulembidila Nsopa Emilienne:** Conceptualization, Methodology, Writing – original draft
- v. **Mujinga Tshimungu Deborah:** Writing – review & editing, Validation
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- vii. **Amuli Jiwe Jean-Pierre:** Methodology, Writing – review & editing, Validation
- viii. **Lofandjola Jacques:** Validation, Writing – review & editing
- ix. **Mukandu Basua Babintu Leyka Félicien:** Supervision, Project administration, Validation, Writing – review & editing
- x. All authors read and approved the final version of the manuscript.

Data Availability Statement: Data supporting this meta-analysis were extracted from publicly available primary clinical studies cited within the text. Extracted datasets are available from the corresponding author upon reasonable request.

Ethical Approval: Not applicable. This study is a systematic review of previously published literature and did not involve human participants or primary data collection.

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