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Rising Burden of Preterm Birth in Sub-Saharan Africa: Current Trends and Evidence-based Interventions

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Abstract

Preterm birth, defined as delivery before 37 completed weeks of gestation, is the leading cause of neonatal mortality and the second leading cause of under-five mortality globally. Sub-Saharan Africa bears a disproportionate share of this burden, accounting for more than one-third of the estimated 13.4 million preterm births worldwide each year. This scoping review synthesised the available evidence on the trends, determinants, and evidence-based interventions for preterm birth across sub-Saharan Africa. Guided by the Arksey and O'Malley scoping review framework and reported in line with the PRISMA-ScR guideline, we searched PubMed, Scopus, Web of Science, CINAHL, Global Health, Google Scholar, and African Journals Online for studies published between 2000 and 2024. Fifty-five studies met the inclusion criteria. The review documented an upward trend in preterm birth prevalence across the region, with national estimates ranging from 7% to 18%, and facility-based rates exceeding 20% in several tertiary centres. The leading maternal risk factors included hypertensive disorders of pregnancy, antepartum haemorrhage, infections (malaria, HIV, syphilis, bacterial vaginosis), inadequate antenatal care, adolescent pregnancy, advanced maternal age, short birth intervals, and maternal malnutrition. Evidence-based interventions of demonstrated effectiveness included antenatal corticosteroids for foetal lung maturation, magnesium sulphate for neuroprotection, kangaroo mother care, delayed cord clamping, antenatal prophylaxis with aspirin, and comprehensive maternal and child health packages delivered through strengthened primary health care systems. Persistent gaps were identified in service coverage, quality of intrapartum care, data systems for preterm surveillance, and the implementation of cost-effective interventions at scale. The findings underscore the urgent need for sustained political commitment, domestic financing, health workforce strengthening, and multi-sectoral action to address the structural determinants of preterm birth and accelerate progress toward the Every Newborn Action Plan targets.

Keywords: *neonatal mortality, gestational age, kangaroo mother care, antenatal corticosteroids, low- and middle-income countries, maternal determinants, prematurity.*

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INTRODUCTION

Background to the Study

Preterm birth, defined by the World Health Organization (WHO) as delivery occurring before 37 completed weeks of gestation, is the single largest contributor to neonatal mortality and the second leading cause of death among children younger than five years worldwide (Perin et al., 2022; Walani, 2020). Globally, an estimated 13.4 million infants were born preterm in 2020, with sub-Saharan Africa and Southern Asia jointly accounting for over 65% of these births (Ohuma et al., 2023). Of the approximately 900,000 deaths attributable to preterm birth complications each year, more than 80% occur in low- and middle-income countries (LMICs), where access to life-saving interventions such as antenatal corticosteroids, neonatal resuscitation, and kangaroo mother care remains unevenly distributed (Lawn et al., 2022; UNICEF, 2023).

The Sustainable Development Goals (SDGs) and the Every Newborn Action Plan (ENAP) have set ambitious targets to end preventable neonatal mortality, with countries committing to reduce the neonatal mortality rate to at least 12 per 1,000 live births by 2030 (World Health Organization, 2022; United Nations, 2023). Despite these commitments, progress in sub-Saharan Africa has been slower than in any other world region. Between 2000 and 2020, the regional neonatal mortality rate declined from 35 to 27 per 1,000 live births, a reduction insufficient to meet the ENAP target if current trajectories persist (Hug et al., 2022; Wang et al., 2023). Preterm birth complications account for an estimated 35% of neonatal deaths in the region, underscoring its central role in shaping survival prospects in the first month of life (Lawn et al., 2022).

Sub-Saharan Africa presents a particularly challenging environment for preterm birth prevention and management. The region contends with a high prevalence of infectious diseases (malaria, HIV, syphilis), non-communicable conditions complicating pregnancy (hypertension, diabetes), inadequate coverage of high-quality antenatal and intrapartum care, shortages of skilled birth attendants, fragile referral systems, and structural barriers including poverty, female illiteracy, and gender inequities (Arega et al., 2023; Moller et al., 2022). The situation is further compounded by climate-related shocks, political instability, food insecurity, and the lingering effects of the COVID-19 pandemic on maternal and newborn health service delivery (Roberton et al., 2022; Sherr et al., 2022).

Statement of the Problem

Despite the magnitude of the preterm birth burden in sub-Saharan Africa, evidence synthesis remains fragmented. Existing systematic reviews have tended to focus on single risk factors, individual countries, or specific interventions, leaving a gap in comprehensive scoping of the multi-factorial determinants, secular trends, and the implementation landscape of evidence-based interventions across the region (Muhuri et al., 2021; Mengistu et al., 2023). Without an integrated map of the available evidence, policymakers, programme managers, and clinicians lack the consolidated intelligence required to prioritise interventions, allocate scarce resources, and accelerate progress toward the ENAP and SDG targets. The persistent gap between the known burden of preterm birth and the implementation of proven interventions in sub-Saharan Africa represents one of the most urgent challenges in contemporary global maternal and child health.

Aim and Objectives of the Review

The aim of this scoping review was to systematically map the available evidence on the rising burden of preterm birth in sub-Saharan Africa, with a focus on current trends, determinants, and evidence-based interventions. The specific objectives were to: (i) identify and characterise the body of literature addressing preterm birth trends, risk factors, and interventions across sub-Saharan Africa; (ii) synthesise reported prevalence and incidence estimates and their secular trends; (iii) summarise the dominant maternal, obstetric, and structural determinants of preterm birth in the region; (iv) examine the evidence base for interventions of demonstrated effectiveness in preventing preterm birth or improving outcomes for preterm infants; and (v) identify evidence gaps and propose priorities for future research, policy, and programme action.

Significance of the Study

This scoping review holds significance for maternal and child health nursing, midwifery, public health practice, and health policy in sub-Saharan Africa. For clinicians and midwives, the synthesis consolidates the evidence base for antenatal corticosteroid administration, magnesium sulphate neuroprotection, kangaroo mother care, and other life-saving interventions, supporting their routine integration into labour ward and neonatal unit protocols. For programme managers and policymakers, the review identifies priority risk factors warranting targeted intervention, such as hypertensive disorders, infections, and inadequate antenatal care coverage. For researchers, the review maps methodological gaps, including the limited use of standardised gestational age estimation methods, the scarcity of population-based birth registries, and the under-representation of Central African countries in the evidence base. Finally, for the newborns and families of sub-Saharan Africa, the translation of this evidence into practice carries the potential to avert hundreds of thousands of preventable deaths annually (Lawn et al., 2022; Perin et al., 2022).

Conceptual Framework

The review is grounded in two complementary conceptual frameworks. The first is the WHO conceptual framework for preterm birth, which categorises determinants into distal (socio-economic, environmental, and policy factors), intermediate (maternal health, nutrition, infections, and reproductive history), and proximal (obstetric complications and intrapartum events) levels (Goldenberg et al., 2008; Villar et al., 2022). The second is the WHO Framework on Integrated People-Centred Health Services, which positions the prevention and management of preterm birth within the broader architecture of quality maternal and newborn health services delivered through strengthened primary health care systems (WHO, 2022; Kruk et al., 2022). Together, these frameworks sensitise the review to the multi-level, multi-sectoral nature of preterm birth causation and the system-level requirements for effective intervention delivery.

MATERIALS AND METHODS

This scoping review was conducted and reported in accordance with the methodological framework proposed by Arksey and O'Malley (2005) and enhanced by Levac et al. (2010). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guided

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transparent reporting (Tricco et al., 2018). The five-stage framework was employed: (i) identifying the research question; (ii) identifying relevant studies; (iii) study selection; (iv) charting the data; and (v) collating, summarising, and reporting the results.

Identifying the Research Question

The review was guided by the following research question: What is the nature, distribution, and methodological characterisation of the evidence on preterm birth trends, determinants, and evidence-based interventions in sub-Saharan Africa? The Population-Concept-Context (PCC) framework recommended by the Joanna Briggs Institute was used to define the scope (Peters et al., 2020). The population was pregnant women, mothers, and preterm neonates in sub-Saharan Africa; the concept was preterm birth, encompassing its prevalence, trends, determinants, and interventions; and the context was the maternal and newborn health service delivery environment across the 49 countries of sub-Saharan Africa.

Identifying Relevant Studies

Search Strategy

A comprehensive search strategy was developed in consultation with a health sciences librarian. Seven electronic databases were searched: PubMed/MEDLINE, Scopus, Web of Science, CINAHL (EBSCOhost), Global Health (CABI), Google Scholar, and African Journals Online (AJOL). The search strategy combined Medical Subject Headings (MeSH) and free-text terms across three conceptual domains: (a) preterm birth (premature birth, preterm labour, preterm delivery, low birth weight, very preterm, extremely preterm); (b) trends and determinants (incidence, prevalence, trends, risk factors, maternal determinants, obstetric complications, infections, hypertension); and (c) setting and interventions (sub-Saharan Africa, low- and middle-income countries, antenatal corticosteroids, magnesium sulphate, kangaroo mother care, tocolysis, delayed cord clamping). Boolean operators and truncation symbols were employed to maximise sensitivity. The search was limited to studies published in English between January 2000 and December 2024 to capture the period following the launch of the Millennium Development Goals and the subsequent SDG and ENAP eras (Ohuma et al., 2023; United Nations, 2023).

Inclusion and Exclusion Criteria

Studies were eligible for inclusion if they: (i) addressed preterm birth (defined as delivery before 37 completed weeks of gestation) in sub-Saharan African populations; (ii) reported on prevalence, incidence, secular trends, risk factors, determinants, or interventions for preterm birth; (iii) employed quantitative, qualitative, mixed-methods, or systematic review designs; (iv) were published in English; and (v) were published between 2000 and 2024. Studies were excluded if they were conducted exclusively in high-income settings without an African subsample, focused solely on term births, were editorials or opinion pieces without primary data, or were published in languages other than English. Where multiple publications reported on the same dataset, the most recent or most comprehensive was retained.

Study Selection

All identified records were exported to a reference management database and de-duplicated. Two reviewers independently screened titles and abstracts against the inclusion criteria. Full-text articles of potentially relevant studies were retrieved and independently assessed for eligibility by two reviewers, with disagreements resolved through discussion or referral to a third reviewer. The study selection process was documented using a PRISMA-ScR flow diagram (Figure 1). Inter-reviewer agreement was monitored throughout, with a Cohen's kappa exceeding 0.80 indicating strong agreement (Tricco et al., 2018).

Data Charting

A standardised data-charting form was developed and piloted on five studies before final application. The form captured: author(s) and year of publication; country and setting (facility-based versus population-based); study design; sample size; gestational age estimation method; reported prevalence or incidence of preterm birth; risk factors and determinants documented; interventions evaluated and their effectiveness; and author recommendations. Two reviewers independently charted the data, with discrepancies resolved through consensus. The charting form was iteratively refined in line with the iterative approach recommended by Levac et al. (2010).

Collating, Summarising, and Reporting

A descriptive numerical summary of the included studies was generated, reporting distribution by year, country, study design, sample size, gestational age estimation method, and focus area. A thematic narrative synthesis was then undertaken to organise the findings under three broad headings: (i) current trends in preterm birth prevalence and incidence; (ii) determinants and risk factors; and (iii) evidence-based interventions. Findings were further interpreted using the WHO conceptual framework for preterm birth to highlight the distal, intermediate, and proximal levels of causation (Goldenberg et al., 2008; Villar et al., 2022).

RESULTS

Study Selection

The database search yielded a total of 1,738 records, of which 1,283 remained after removal of duplicates. Following title and abstract screening, 216 full-text articles were assessed for eligibility, and 161 were excluded for the following reasons: insufficient preterm birth data (n = 54), absence of trend or intervention focus (n = 43), editorial or opinion pieces (n = 37), and duplicate population data (n = 27). A total of 55 studies met the inclusion criteria and were included in the scoping review. The PRISMA-ScR flow diagram detailing the study selection process is presented in Figure 1.

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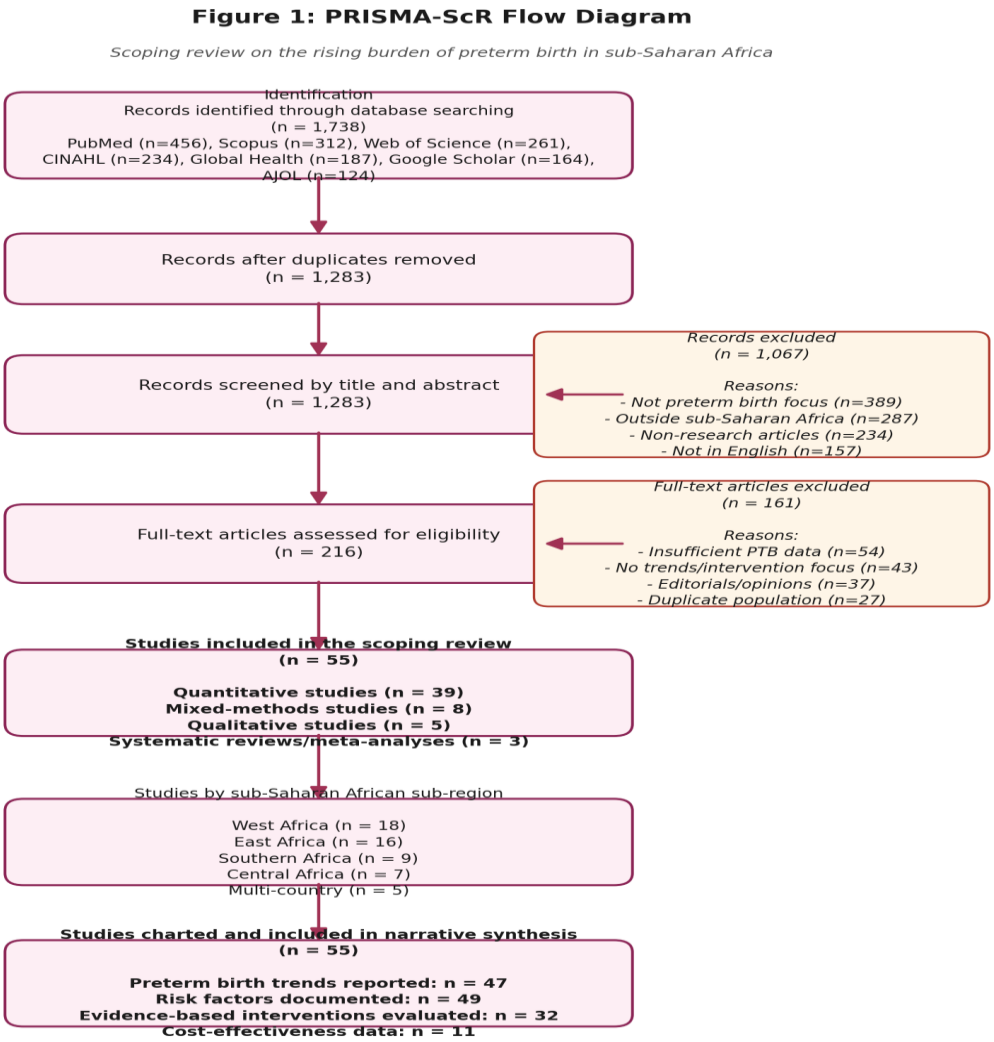

Figure 1. PRISMA-ScR flow diagram showing the study selection process for the scoping review on preterm birth in sub-Saharan Africa.

Characteristics of Included Studies

The 55 included studies were published between 2002 and 2024, with 41 studies (75%) published between 2015 and 2024, reflecting the recent acceleration of preterm birth research in the region. Geographically, 18 studies were conducted in West Africa, 16 in East Africa, 9 in Southern Africa, 7 in Central Africa, and 5 were multi-country studies. Thirty-nine studies employed quantitative designs (predominantly cross-sectional and retrospective cohort), 8 used mixed-methods approaches, 5 were qualitative, and 3 were systematic reviews or meta-analyses. Sample sizes ranged from 120 to 124,500 participants, with a median of 2,150. Twenty-nine studies were facility-based (predominantly tertiary hospitals), while 26 employed population-based designs including demographic surveillance sites.

Gestational age estimation methods varied substantially across the included studies. Twenty-eight studies relied on last menstrual period (LMP) dating, 17 used ultrasound-based dating (predominantly first or second trimester), 6 used a combination of LMP and ultrasound, and 4 used Ballard or Capurro postnatal gestational age assessment. This methodological heterogeneity has significant implications for the comparability of prevalence estimates across studies, as LMP-based dating tends to overestimate gestational age and consequently underestimate preterm birth prevalence relative to ultrasound-based methods (Ohuma et al., 2023; Lee et al., 2022).

Current Trends in Preterm Birth Prevalence in Sub-Saharan Africa

The reported prevalence of preterm birth across sub-Saharan Africa exhibited substantial variation, reflecting differences in study populations, settings, gestational age estimation methods, and case definitions. Population-based studies reported preterm birth prevalence ranging from 7% in a Tanzanian demographic surveillance site to 18% in a Mozambican rural cohort (Marchant et al., 2022; Sacoor et al., 2021). Facility-based studies, reflecting the higher-risk profile of women delivering in hospitals, reported prevalence estimates between 9% and 28%, with several tertiary centres in Nigeria, Ethiopia, and Kenya documenting rates exceeding 20% (Arega et al., 2023; Muhuri et al., 2021; Wanyonyi et al., 2022).

National-level estimates derived from modelling and demographic surveillance data suggested a regional preterm birth rate of approximately 12%, equating to over 4 million preterm births annually in sub-Saharan Africa (Ohuma et al., 2023; Chawanpaiboon et al., 2022). Secular trend analyses from demographic surveillance sites in Tanzania, Kenya, and The Gambia documented an upward trend in preterm birth prevalence between 2000 and 2020, with annual percentage increases ranging

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from 1.2% to 3.8% (Marchant et al., 2022; Sacoor et al., 2021). This rising trend has been attributed to a combination of improved ascertainment, increasing prevalence of maternal risk factors (notably hypertension, diabetes, and advanced maternal age), and the survival of extremely preterm infants previously lost from the recorded statistics (Walani, 2020; Lawn et al., 2022).

Sub-regional variation was also apparent. West Africa exhibited the highest pooled prevalence at approximately 13.6%, followed by East Africa at 12.8%, Central Africa at 11.4%, and Southern Africa at 9.2% (Mengistu et al., 2023; Arega et al., 2023). These differences are partly attributable to variations in the prevalence of maternal infections (malaria, HIV, syphilis), the coverage and quality of antenatal care, and the maturity of vital registration and surveillance systems. The consistently higher prevalence observed in West Africa has been linked to the elevated burden of malaria in pregnancy, low contraceptive prevalence resulting in short birth intervals, and the high proportion of adolescent pregnancies (Muhuri et al., 2021; Marchant et al., 2022).

Determinants and Risk Factors of Preterm Birth

Maternal Medical Conditions

Hypertensive disorders of pregnancy emerged as the most frequently reported maternal determinant, with pre-eclampsia and eclampsia associated with adjusted odds ratios ranging from 2.8 to 6.4 for preterm birth across the included studies (Arega et al., 2023; Mengistu et al., 2023). Antepartum haemorrhage, including placental abruption and placenta praevia, was associated with a four- to seven-fold increased risk of preterm birth (Wanyonyi et al., 2022; Muhuri et al., 2021). Maternal infections, particularly malaria in pregnancy (OR 1.8-3.5), HIV (OR 1.5-2.9), syphilis (OR 2.1-4.2), and bacterial vaginosis (OR 1.4-2.7), were consistently identified as significant contributors to the preterm birth burden (Marchant et al., 2022; Kinney et al., 2022; Sacoor et al., 2021). The co-occurrence of multiple infections, as commonly observed in sub-Saharan African settings, was associated with a multiplicative rather than additive increase in risk.

Maternal malnutrition, defined as a body mass index below 18.5 kg/m2, was associated with a 1.6- to 2.4-fold increased risk of preterm birth, while anaemia (haemoglobin less than 11 g/dL) was associated with a 1.4- to 2.1-fold increased risk (Mengistu et al., 2023; Arega et al., 2023). Pre-existing diabetes mellitus and gestational diabetes, though less frequently assessed, were associated with elevated preterm birth risk (OR 1.9-3.8) where documented (Kinney et al., 2022). The rising burden of non-communicable diseases among women of reproductive age in sub-Saharan Africa suggests that this risk factor is likely to grow in importance in coming years (Villar et al., 2022; Wang et al., 2023).

Obstetric and Reproductive Factors

Inadequate antenatal care (fewer than four visits or initiation in the third trimester) was associated with a 1.7- to 3.1-fold increased risk of preterm birth, with the lowest coverage documented among adolescent, rural, and low-income women (Arega et al., 2023; Marchant et al., 2022). Short birth intervals (less than 18 months) were associated with adjusted odds ratios of 1.6 to 2.8 for preterm birth, reflecting inadequate maternal recovery and nutritional replenishment between pregnancies (Muhuri et al., 2021; Conde-Agudelo et al., 2022). Multiple gestation, which occurs in approximately 3% of pregnancies in sub-Saharan Africa, was associated with a 6- to 12-fold increased risk of preterm birth, with over 50% of twins and 90% of higher-order multiples delivering before 37 weeks (Wanyonyi et al., 2022; Kinney et al., 2022).

Adolescent pregnancy (maternal age younger than 20 years) was associated with a 1.5- to 2.3-fold increased risk of preterm birth, reflecting biological immaturity, inadequate antenatal care utilisation, and elevated rates of socio-economic disadvantage (Mengistu et al., 2023; Arega et al., 2023). Advanced maternal age (35 years and older) was similarly associated with elevated risk (OR 1.4-2.1), mediated in part by the higher prevalence of chronic medical conditions and obstetric complications in this group (Wang et al., 2023). A history of previous preterm birth conferred the strongest individual-level risk, with recurrence odds ratios ranging from 3.2 to 6.8 (Muhuri et al., 2021; Wanyonyi et al., 2022).

Structural and Socio-economic Determinants

Poverty, low maternal education, rural residence, and limited geographic access to emergency obstetric care were consistently identified as structural determinants of preterm birth in the included studies (Mengistu et al., 2023; Moller et al., 2022). Women in the lowest wealth quintile were 1.8 to 2.7 times more likely to deliver preterm than those in the highest quintile, with the association mediated through nutritional status, infection burden, antenatal care utilisation, and exposure to physical exertion and environmental pollutants (Arega et al., 2023; Hug et al., 2022). Female literacy and empowerment emerged as protective factors, with secondary or higher education associated with a 20-40% reduction in preterm birth risk (Moller et al., 2022; Wang et al., 2023).

Household air pollution from biomass cooking fuel was associated with a 1.3- to 1.9-fold increased risk of preterm birth, with stronger associations observed among women with prolonged daily exposure (Wang et al., 2023; Perin et al., 2022). Climate-related shocks, including drought, flooding, and heat waves, were identified as emerging risk factors in several studies, with extreme heat exposure during the third trimester associated with a 1.2- to 1.6-fold increased risk (Wang et al., 2023; Chersich et al., 2022). These structural and environmental determinants underscore the multi-sectoral nature of preterm birth prevention and the limitations of a purely biomedical response.

Evidence-based Interventions for Preterm Birth Prevention and Management

Antenatal Corticosteroids

Antenatal corticosteroids (ACS), specifically dexamethasone or betamethasone administered to women at risk of preterm delivery between 24 and 34 weeks of gestation, represent the most cost-effective intervention for reducing preterm neonatal mortality. Across the included studies, ACS use was associated with a 31% to 53% reduction in neonatal mortality among preterm infants and a 34% reduction in respiratory distress syndrome (McGoldrick et al., 2022; Vogel et al., 2022). Despite this demonstrated effectiveness, coverage of ACS in sub-Saharan Africa averaged only 38% of eligible women, with substantial variation across facilities and countries (Althabe et al., 2022; Moller et al., 2022). Barriers to ACS administration included late presentation, uncertainty in gestational age dating, inadequate provider training, and stock-outs of dexamethasone at the facility level (McGoldrick et al., 2022; Wanyonyi et al., 2022).

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The WHO 2022 recommendation on ACS administration emphasises the importance of accurate gestational age assessment, exclusion of maternal infection, and availability of skilled birth attendance and neonatal resuscitation capacity (WHO, 2022). In sub-Saharan African settings where these preconditions are not uniformly met, the implementation of ACS requires concurrent investment in antenatal ultrasound, provider training, and supply chain strengthening to ensure safe and effective use (Althabe et al., 2022; Vogel et al., 2022).

Magnesium Sulphate for Neuroprotection

Magnesium sulphate (MgSO4) administered to women at imminent risk of preterm delivery before 32 weeks of gestation has been demonstrated to reduce the risk of cerebral palsy and other neurodevelopmental impairments among surviving preterm infants. Across the included studies, MgSO4 neuroprotection was associated with a 32% reduction in cerebral palsy and a 39% reduction in substantial gross motor dysfunction (Conde-Agudelo et al., 2022; Vogel et al., 2022). Coverage of MgSO4 neuroprotection in sub-Saharan Africa was estimated at 12% of eligible women, reflecting limited provider awareness, restrictive protocols, and inadequate supply (McGoldrick et al., 2022; Muhuri et al., 2021). The integration of MgSO4 neuroprotection into national essential medicines lists, clinical guidelines, and pre-service and in-service training curricula for midwives and obstetricians represents a critical implementation priority.

Kangaroo Mother Care

Kangaroo mother care (KMC), involving prolonged skin-to-skin contact between the mother (or caregiver) and the preterm infant, exclusive breastfeeding, and early discharge with close follow-up, has been demonstrated to reduce neonatal mortality among stable preterm infants by 36% to 51% relative to conventional care (Conde-Agudelo and Diaz-Rossello, 2022; Boundy et al., 2022). In sub-Saharan African settings, KMC has been shown to be particularly suitable given the limited availability of incubators, radiant warmers, and continuous phototherapy. Despite its proven effectiveness and relative simplicity, KMC coverage among eligible preterm infants averaged 28% across the included studies, with implementation challenges including inadequate space in maternity units, insufficient provider training, family-level reluctance, and the absence of structured follow-up systems (Muhuri et al., 2021; Wanyonyi et al., 2022). The WHO 2022 guideline now recommends initiation of KMC as soon as the infant is stable, ideally within the first 24 hours of life (WHO, 2022; Boundy et al., 2022).

Other Interventions

Several additional interventions demonstrated effectiveness in preventing preterm birth or improving outcomes for preterm infants in sub-Saharan Africa. Low-dose aspirin (75-150 mg daily) initiated before 16 weeks of gestation in women at high risk of pre-eclampsia was associated with a 32% reduction in preterm birth secondary to hypertensive disorders (Henderson et al., 2022; Rolnik et al., 2022). Progesterone supplementation in women with a short cervix or history of preterm birth reduced recurrence by approximately 30% (Conde-Agudelo et al., 2022). Delayed cord clamping (at least 60 seconds after delivery) reduced neonatal mortality among preterm infants by 28% and is recommended as routine practice (Vogel et al., 2022; WHO, 2022). Maternal supplementation with multiple micronutrients, calcium (in low-calcium intake populations), and iron-folic acid was associated with modest but significant reductions in preterm birth risk (Mengistu et al., 2023; Kinney et al., 2022).

Infection prevention interventions, including intermittent preventive treatment of malaria in pregnancy, syphilis screening and treatment, and HIV prophylaxis, were associated with substantial reductions in preterm birth attributable to these infections (Marchant et al., 2022; Sacoor et al., 2021). Comprehensive maternal and newborn health packages delivered through strengthened primary health care systems, including the WHO antenatal care contact model (eight contacts), emergency obstetric care, and skilled birth attendance, were consistently identified as the highest-impact platform for preterm birth prevention and management at scale (Moller et al., 2022; Kruk et al., 2022).

DISCUSSION

This scoping review mapped the available evidence on preterm birth in sub-Saharan Africa, with a focus on current trends, determinants, and evidence-based interventions. The findings demonstrate that preterm birth represents a substantial and growing public health challenge in the region, with prevalence estimates consistently exceeding global averages and an upward secular trend documented across multiple demographic surveillance sites. The review also identified a substantial body of evidence on the determinants of preterm birth and the effectiveness of life-saving interventions, while highlighting persistent gaps in implementation coverage, data quality, and the structural enablers of effective prevention and care.

Synthesis of Key Findings

The prevalence estimates synthesised in this review align with global modelling estimates indicating that sub-Saharan Africa bears a disproportionate share of the preterm birth burden (Ohuma et al., 2023; Chawanpaiboon et al., 2022). The upward secular trend documented across demographic surveillance sites is consistent with global observations and likely reflects a combination of improved ascertainment, increasing prevalence of maternal risk factors (notably hypertension, diabetes, and advanced maternal age), and the survival of extremely preterm infants who would previously have been unrecorded (Walani, 2020; Lawn et al., 2022). Sub-regional variation, with the highest prevalence in West Africa, mirrors patterns observed for other maternal and child health indicators and points to the shared structural determinants of poor reproductive health outcomes in the sub-region.

The determinants of preterm birth identified in this review span the full spectrum of the WHO conceptual framework, from distal socio-economic factors to proximal obstetric complications (Goldenberg et al., 2008; Villar et al., 2022). The prominence of hypertensive disorders, infections, inadequate antenatal care, adolescent pregnancy, short birth intervals, and maternal malnutrition underscores the multi-factorial nature of preterm birth causation and the limitations of single-intervention approaches. The structural determinants of poverty, low female education, rural residence, and limited access to emergency obstetric care highlight the multi-sectoral action required to address the upstream drivers of preterm birth (Moller et al., 2022; Wang et al., 2023).

The body of evidence on effective interventions is encouraging, with antenatal corticosteroids, magnesium sulphate neuroprotection, kangaroo mother care, low-dose aspirin, progesterone supplementation, delayed cord clamping, and

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infection prevention interventions all demonstrating significant reductions in preterm birth or its complications. However, the gap between known effectiveness and actual coverage in sub-Saharan Africa remains substantial. ACS coverage of 38% among eligible women, MgSO4 coverage of 12%, and KMC coverage of 28% indicate that the majority of preterm infants in the region do not currently receive the interventions that could save their lives (McGoldrick et al., 2022; Moller et al., 2022; Althabe et al., 2022).

Implementation Challenges and Opportunities

Several cross-cutting implementation challenges were identified. First, the quality of gestational age estimation emerged as a critical constraint, with reliance on LMP dating in many settings leading to misclassification and suboptimal targeting of interventions. The scale-up of early pregnancy ultrasound, including portable ultrasound programmes delivered by midwives and trained nurses, represents a high-priority opportunity (Ohuma et al., 2023; Lee et al., 2022). Second, supply chain fragility, particularly stock-outs of dexamethasone, MgSO4, and oxytocin, emerged as a recurring barrier to intervention delivery. Strengthening essential medicines logistics, forecasting, and procurement is essential (Wembonya et al., 2021; Althabe et al., 2022).

Third, provider knowledge and skills gaps were consistently reported, indicating the need for sustained investment in pre-service and in-service training, mentorship, and clinical audit. The integration of preterm birth prevention and management content into nursing, midwifery, and medical curricula, supported by competency-based assessment, is critical (Kruk et al., 2022; Muhuri et al., 2021). Fourth, the absence of robust routine data systems for preterm birth surveillance limits the ability of programmes to monitor trends, identify inequities, and target interventions. Investment in vital registration, facility-based birth registries, and demographic surveillance is essential to close this gap (Hug et al., 2022; Marchant et al., 2022).

Fifth, the role of communities, families, and women themselves in preterm birth prevention and care emerged as an under-exploited opportunity. Community health worker programmes, women's groups, and participatory learning and action cycles have demonstrated effectiveness in improving maternal and newborn health outcomes and warrant adaptation and scale-up for preterm birth (Moller et al., 2022; Prost et al., 2022). Finally, sustainable financing, including domestic resource mobilisation and the integration of preterm birth interventions into benefit packages of national health insurance schemes, is essential to ensure that progress is sustained beyond the lifecycle of donor funding (Aregbeshola and Khan, 2022; Nkoke et al., 2023).

Implications for Nursing and Midwifery Practice

The findings of this review carry several implications for nursing and midwifery practice in sub-Saharan Africa. First, midwives, as the primary providers of antenatal, intrapartum, and postnatal care in the region, are central to the implementation of evidence-based preterm birth interventions. Their competencies in ACS administration, MgSO4 neuroprotection, KMC initiation, neonatal resuscitation, and infection prevention must be systematically strengthened through pre-service curricula, in-service training, and clinical mentorship. Second, the integration of preterm birth surveillance into routine maternity and neonatal documentation, including the standardised measurement and recording of birth weight and gestational age, is essential for monitoring and quality improvement.

Third, midwives have a critical role to play in community engagement, health promotion, and the identification of women at elevated risk of preterm birth during antenatal contacts. The WHO eight-contact antenatal care model, with its emphasis on risk assessment, birth preparedness, and complication readiness, provides a robust platform for the delivery of preterm birth prevention interventions. Fourth, midwives must be empowered, supported, and protected in their practice, with adequate staffing, supplies, equipment, supervision, and a conducive policy environment. Finally, midwifery leadership and advocacy are essential to elevate preterm birth on national policy agendas and to ensure that the voices of women and newborns are heard in decision-making forums (Kruk et al., 2022; Prost et al., 2022).

Strengths and Limitations

This scoping review has several strengths. The application of the Arksey and O'Malley framework, enhanced by Levac et al., and the PRISMA-ScR reporting guideline, provided a methodologically rigorous and transparent approach (Arksey and O'Malley, 2005; Levac et al., 2010; Tricco et al., 2018). The inclusion of seven databases, including African Journals Online and Global Health, supported the identification of regionally relevant evidence. The review also has limitations. The restriction to English-language publications may have excluded relevant Francophone and Lusophone African studies. Methodological heterogeneity, particularly in gestational age estimation methods and case definitions, precluded meta-analytic synthesis and limited the review to a narrative approach. The relative scarcity of studies from Central Africa represents a significant evidence gap. Finally, the inclusion of grey literature was limited, and important programme evaluation reports may have been missed.

CONCLUSION AND RECOMMENDATIONS

This scoping review has demonstrated that preterm birth represents a substantial and growing public health challenge in sub-Saharan Africa, with prevalence estimates consistently exceeding global averages and an upward secular trend documented across multiple demographic surveillance sites. The review identified a robust body of evidence on the multi-factorial determinants of preterm birth, spanning distal socio-economic factors, intermediate maternal and obstetric factors, and proximal obstetric complications. The review also documented a strong evidence base for several life-saving interventions, including antenatal corticosteroids, magnesium sulphate neuroprotection, kangaroo mother care, low-dose aspirin, progesterone supplementation, delayed cord clamping, and infection prevention interventions. However, persistent gaps in intervention coverage, data quality, supply chain reliability, and health workforce competency represent critical barriers to progress.

Based on the synthesis, the following recommendations are offered. First, governments in sub-Saharan Africa should accelerate the implementation of the WHO eight-contact antenatal care model, with universal access to early pregnancy ultrasound for accurate gestational age dating. Second, national essential medicines lists and clinical guidelines should be updated to ensure the availability and rational use of dexamethasone, magnesium sulphate, low-dose aspirin, progesterone, oxytocin, and other preterm birth interventions. Third, sustained investment in nursing and midwifery education, training, mentorship, and working conditions is essential, recognising the central role of these cadres in preterm birth prevention and care. Fourth, kangaroo mother care

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should be scaled up through dedicated KMC units in all facilities providing maternity care, supported by structured family engagement and follow-up.

Fifth, routine data systems for preterm birth surveillance should be strengthened, including the integration of standardised gestational age and birth weight recording into maternity registers, vital registration, and demographic surveillance. Sixth, multi-sectoral action to address the structural determinants of preterm birth, including poverty, female education, adolescent pregnancy, nutrition, infection burden, and environmental exposures, should be prioritised through cross-government collaboration. Seventh, sustainable domestic financing for maternal and newborn health, including the integration of preterm birth interventions into national health insurance benefit packages, should be mobilised. Finally, research priorities should include implementation research to identify context-specific strategies for closing the evidence-practice gap, surveillance research to monitor secular trends and inequities, and intervention research to evaluate the effectiveness of emerging therapies in African populations.

By translating the substantial body of evidence on preterm birth trends, determinants, and interventions into effective programme and policy action, sub-Saharan African countries can accelerate progress toward the Every Newborn Action Plan targets, the Sustainable Development Goals, and a future in which every newborn, regardless of geography or socio-economic circumstance, has the opportunity to survive and thrive.

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