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Challenges in Controlling Hypertension among Pregnant Women in Nigeria

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ABSTRACT

Hypertensive disorders of pregnancy (HDP), encompassing gestational hypertension, pre-eclampsia, eclampsia, and chronic hypertension complicating pregnancy, remain a major contributor to maternal and perinatal morbidity and mortality in Nigeria. Despite established clinical guidelines, effective control of HDP is hindered by multifactorial challenges, including low antenatal care (ANC) coverage and delayed presentation, inadequate facility readiness, inconsistent guideline adherence, limited availability and affordability of essential medications, and sociocultural practices such as reliance on traditional remedies. Patient-level factors, including low health literacy and poor adherence to treatment, further exacerbate adverse outcomes. This review synthesizes recent literature on the prevalence, barriers, and health system gaps affecting HDP management in Nigeria and highlights pragmatic interventions with potential to improve outcomes. Evidence suggests that a coordinated approach integrating early ANC access, facility readiness packages, reliable supply chains, community education, and robust monitoring systems can enhance maternal and neonatal health. Policymakers and healthcare providers must implement context-specific strategies to reduce maternal and perinatal mortality associated with HDP.

Keywords: Hypertensive disorders of pregnancy; pre-eclampsia; eclampsia; maternal mortality; antenatal care.

INTRODUCTION

Hypertensive disorders of pregnancy (HDP) remain a major cause of maternal and perinatal morbidity and mortality worldwide. These disorders, which include gestational hypertension, chronic hypertension, pre-eclampsia, eclampsia, and pre-eclampsia superimposed on chronic hypertension, complicate an estimated 5–10% of all pregnancies globally [1]. Despite advances in antenatal care and maternal health services, HDP continues to exert a heavy toll, particularly in low- and middle-income countries (LMICs), where limited healthcare infrastructure, inadequate antenatal monitoring, and delayed referral systems contribute to poor maternal and neonatal outcomes. Globally, hypertensive disorders are responsible for nearly 14% of maternal deaths, ranking second only to hemorrhage as a leading direct cause of maternal mortality [2].

In Nigeria, HDP constitutes a significant public health challenge, consistently ranking among the top three causes of maternal mortality and severe maternal morbidity. The burden of pre-eclampsia and eclampsia is particularly high, contributing disproportionately to adverse maternal and perinatal outcomes such as preterm birth, intrauterine growth restriction, stillbirth, and neonatal death [3]. According to data from the World Health Organization (WHO) [4] and Nigeria's Federal Ministry of Health, hypertensive disorders account for up to 25% of maternal deaths in tertiary healthcare facilities. These figures highlight the urgent need for effective preventive and control measures tailored to the local context.

The management of hypertensive disorders in pregnancy is multifaceted, requiring early detection, regular blood pressure monitoring, appropriate use of antihypertensive medications, and, when indicated, administration of magnesium sulphate for seizure prevention. In addition, a well-functioning referral system and access to emergency obstetric and critical care services are essential components of comprehensive HDP management. Unfortunately, implementation of these evidence-based practices in Nigeria remains uneven [5]. Many healthcare facilities, especially at the primary and secondary levels, lack basic diagnostic tools, trained personnel, and consistent drug supplies. At the community level, poor awareness, socio-cultural beliefs, and financial constraints further hinder timely healthcare-seeking behavior among pregnant women [6].

The global effort to reduce maternal mortality, as enshrined in the Sustainable Development Goals (SDG 3.1), underscores the need to address the major causes of maternal deaths, including hypertensive disorders of pregnancy. In high-income countries, significant progress has been made in reducing mortality from HDP through improved antenatal surveillance, advanced obstetric care, and access to intensive monitoring [7]. However, in sub-Saharan Africa, including Nigeria, the incidence and fatality rates associated with pre-eclampsia and eclampsia remain unacceptably high.

Studies conducted in different regions of Nigeria reveal that the prevalence of hypertensive disorders among pregnant women ranges between 6% and 12%, with higher rates recorded in tertiary hospitals that serve as referral centers for complicated cases. The pathophysiology of HDP, especially pre-eclampsia, involves abnormal placentation, endothelial dysfunction, and systemic inflammation, leading to multisystemic complications that can be life-threatening if not promptly managed [8]. Despite growing research into its pathogenesis and management, translation of this knowledge into improved outcomes in Nigeria is limited by systemic inefficiencies.

Several contextual factors contribute to the persistence of poor outcomes. Health system constraints such as inadequate staffing, insufficient training of healthcare workers in HDP management protocols, poor referral linkages, and lack of essential medicines all impede effective care. Furthermore, socioeconomic barriers, including poverty, limited health insurance coverage, and gender inequalities, restrict access to timely and quality maternal health services. Cultural norms and misconceptions about pregnancy complications also delay recognition of danger signs and prompt presentation to healthcare facilities [9]. These multidimensional challenges underscore the importance of examining the implementation of HDP management strategies within Nigeria's healthcare system, identifying gaps, and developing context-appropriate interventions.

Despite well-established clinical guidelines for the prevention and management of hypertensive disorders in pregnancy, Nigeria continues to record high rates of maternal and perinatal deaths related to these conditions. The persistence of HDP as a leading cause of maternal mortality reflects a disconnect between policy and practice. While national reproductive health policies advocate for routine blood pressure monitoring during antenatal visits, the availability and functionality of BP measuring devices in many healthcare facilities remain inadequate [10]. Additionally, essential drugs such as antihypertensives and magnesium sulphate are frequently out of stock, and referral systems for managing severe cases are poorly coordinated.

At the community level, late initiation of antenatal care, low awareness of HDP symptoms, and reliance on traditional birth attendants further delay detection and treatment. Many women only present to hospitals after complications such as eclampsia or organ failure have set in, when interventions are less effective. Consequently, maternal deaths from HDP not only reflect individual health risks but also serve as indicators of systemic weaknesses in maternal healthcare delivery [11]. Without addressing these underlying gaps, the country's progress toward achieving SDG 3 — reducing maternal mortality to less than 70 per 100,000 live births — will remain slow.

Therefore, there is a compelling need to assess current practices in HDP management, evaluate healthcare system preparedness, and identify barriers and opportunities for strengthening preventive and curative interventions across all levels of care. The specific objectives of this study are centered on understanding and improving the management of hypertensive disorders in pregnancy (HDP) within Nigeria's healthcare system. The study first seeks to determine the prevalence and patterns of HDP among pregnant women in selected healthcare facilities, providing a foundation for understanding the magnitude of the problem. It also aims to assess the knowledge, skills, and adherence of healthcare providers to established HDP management protocols, recognizing that effective care relies heavily on competent and well-trained personnel. Furthermore, the study intends to identify systemic and patient-level barriers that hinder the implementation of preventive and management strategies, including infrastructural, economic, and sociocultural constraints. By evaluating the availability and utilization of essential equipment, drugs, and referral mechanisms, the research will highlight critical gaps in healthcare delivery. Ultimately, the study seeks to propose evidence-based, context-specific recommendations to enhance the management and outcomes of HDP in Nigeria. Guided by these objectives, the research questions will explore the prevalence, healthcare provider competence, barriers to care, adequacy of health resources, and strategies for early detection and intervention. Collectively, the findings will inform policy, strengthen clinical practice, and contribute to reducing the burden of maternal and perinatal mortality associated with hypertensive disorders in pregnancy.

Methods (search approach)

This narrative review employed a comprehensive and systematic search strategy to identify relevant literature addressing hypertension in pregnancy in Nigeria and comparable sub-Saharan African settings published between 2015 and 2025. The search was conducted across multiple electronic databases, including PubMed, BioMed Central, ScienceDirect, and Google Scholar, complemented by gray literature such as national health reports, policy documents, and program evaluation studies [12]. Keywords and Medical Subject Headings (MeSH) terms used in the search included combinations of "hypertensive disorders of pregnancy," "pre-eclampsia," "eclampsia," "maternal mortality," "antenatal care," "Nigeria," and "sub-Saharan Africa." Priority was given to peer-reviewed articles and reports that provided data on prevalence, maternal and perinatal outcomes, barriers to antenatal care (ANC) access,

health system constraints, guideline adherence, and implementation of hypertension and blood pressure monitoring programs. Studies focusing on intervention evaluations, community-based initiatives, and healthcare provider practices were also included to provide a comprehensive understanding of HDP management. Relevant studies were screened for methodological quality, contextual relevance, and data completeness before inclusion in the synthesis. The evidence gathered was analyzed thematically to identify patterns, challenges, and gaps in HDP management, and key findings from selected studies are cited throughout this review to support the discussion and conclusions drawn [13].

Epidemiology and burden in Nigeria

The epidemiology and burden of hypertensive disorders of pregnancy (HDP) in Nigeria reflect a significant public health concern with substantial implications for maternal and perinatal health outcomes. Studies across different regions of the country reveal varying prevalence estimates, largely influenced by study design, healthcare setting, and diagnostic criteria. Hospital-based studies frequently report prevalence rates ranging between 4% and 8%, with higher figures observed in tertiary referral hospitals where severe and complicated cases are more likely to be managed [14]. Among the different types of HDP, pre-eclampsia and eclampsia remain the most common and severe forms, accounting for a considerable proportion of maternal intensive care unit (ICU) admissions and perinatal deaths. These conditions also contribute to long-term maternal complications such as chronic hypertension, renal impairment, and increased risk of cardiovascular disease later in life. The high burden of HDP in Nigeria is compounded by systemic challenges, including inadequate antenatal screening, poor access to quality healthcare services, and delayed referrals. Many women present to healthcare facilities only after severe complications have developed, reducing the effectiveness of available interventions. Consequently, HDP continues to impose a heavy toll on maternal and neonatal health, underscoring the urgent need for strengthened prevention, early detection, and management strategies across all levels of care.

Main challenges to controlling hypertension in pregnancy

Controlling hypertension in pregnancy in Nigeria is fraught with multiple, interrelated challenges spanning health system limitations, patient-level factors, and sociocultural influences. One major barrier is low antenatal care (ANC) coverage and late presentation, with a substantial proportion of pregnant women either delaying initial ANC visits or failing to complete the recommended schedule. Late booking limits opportunities for early blood pressure measurement, risk stratification, and initiation of preventive interventions such as low-dose aspirin, where indicated. Factors driving delayed or inadequate ANC attendance include financial constraints, long distances to health facilities, perceptions of poor-quality care, and household decision-making dynamics [15]. Compounding this, many primary and secondary health facilities exhibit weak capacity for the detection and monitoring of hypertensive disorders. Deficiencies in functional blood pressure devices, proteinuria testing, trained personnel, and protocols for early recognition of HDP contribute to missed or delayed diagnoses and inadequate follow-up, as documented in facility readiness assessments across Nigeria. Even when facilities are equipped, adherence to national and international clinical guidelines remains inconsistent. Audit studies highlight gaps in postpartum follow-up, variable use of antihypertensives, inconsistent administration of magnesium sulphate, and inadequate delivery planning for severe pre-eclampsia, often stemming from limited training, high workloads, and poor access to up-to-date protocols. Access to medications is also uneven; essential antihypertensive drugs like labetalol, nifedipine, and hydralazine may be unavailable, expensive, or subject to frequent stockouts, leading to delayed or interrupted treatment. Referral and transport barriers further compromise care, with poor communication, limited ambulance services, and the high cost of travel often delaying timely transfer to higher-level facilities. Sociocultural practices, including reliance on herbal remedies, traditional birth attendants, and self-medication, frequently postpone care-seeking. Patient factors such as low health literacy, fear of healthcare costs, and poor adherence to prescribed therapy exacerbate these challenges. Finally, gaps in national surveillance and research limit accurate monitoring of HDP trends and outcomes, impeding evidence-based policy formulation and resource allocation. Collectively, these systemic, cultural, and individual barriers create a complex environment in which effective prevention, early detection, and management of hypertensive disorders in pregnancy remain difficult to achieve.

Implementation approaches and promising interventions [16]

Implementation of effective strategies to prevent and manage hypertensive disorders of pregnancy (HDP) requires a multifaceted approach that spans antenatal care (ANC), community engagement, facility readiness, digital innovation, supply chain management, referral systems, guideline adherence, and research investments. Strengthening ANC and community outreach is foundational, as early booking and routine monitoring are critical for the timely detection of HDP. Initiatives such as community health worker home visits, conditional cash transfers, and targeted education campaigns can improve awareness of danger signs and the importance of regular blood pressure checks, while address sociocultural barriers and involving male partners where appropriate. Equally important is enhancing facility readiness and workforce capacity [17]. Primary care clinics must be equipped with validated, calibrated automated blood pressure devices, urine dipsticks, and standardized protocol checklists, while midwives and frontline staff receive in-service training and task-shifting support to detect, stabilise, and refer high-

risk cases effectively. Digital tools, including home blood pressure monitoring programs with structured follow-up, offer promise for earlier detection and improved continuity of care, though challenges such as literacy, device cost, and data management must be addressed through context-specific designs. Securing essential medicines, particularly pregnancy-safe antihypertensives and magnesium sulphate, through streamlined supply chains and financing mechanisms, ensures timely treatment. Strengthening referral networks with clear protocols, mobile communication alerts, and community transport schemes accelerates management of severe cases. Finally, local adaptation of guidelines, regular clinical audits, supportive supervision, and investments in routine HDP surveillance and implementation research can guide scalable, low-cost interventions tailored to Nigeria's context, ensuring sustained improvement in maternal and perinatal outcomes [18].

Policy implications and recommendations

Addressing hypertensive disorders of pregnancy (HDP) in Nigeria requires a multifaceted policy approach that strengthens both health systems and community engagement. First, universal access to early antenatal care (ANC) is essential, and policies should aim to eliminate financial and geographic barriers that prevent timely attendance. Strategies such as fee waivers, transport vouchers, or mobile clinics can encourage women to seek care in the first trimester, facilitating early detection and management of HDP. Second, health facilities, particularly at the primary care level, must be equipped with a standardized HDP readiness package that includes functional blood pressure devices, urine dipsticks, evidence-based management protocols, and adequately trained staff to ensure timely identification and treatment of hypertensive complications [19]. Third, supply chains for essential medicines must be strengthened through ring-fenced procurement mechanisms guaranteeing the continuous availability of pregnancy-safe antihypertensives and magnesium sulphate, critical for preventing maternal and perinatal complications. Fourth, community engagement strategies should promote culturally sensitive education campaigns that address misconceptions about traditional medicine use and enhance maternal health literacy. Finally, robust data systems and regular facility-level audits of HDP cases are vital to monitor service delivery, inform policy adjustments, and ensure accountability in improving maternal health outcomes.

CONCLUSION

Hypertensive disorders of pregnancy remain a leading cause of maternal and perinatal morbidity and mortality in Nigeria, reflecting persistent gaps in early detection, timely management, and health system preparedness. This review highlights the multifactorial challenges undermining effective control, including low antenatal care coverage, weak facility readiness, inconsistent guideline adherence, limited availability of essential medications, and sociocultural factors such as reliance on traditional remedies. Patient-level barriers, including low health literacy and poor adherence, further exacerbate adverse outcomes. Despite these challenges, evidence suggests that multifaceted interventions combining early ANC access, facility readiness packages, robust supply chains, community education, and strengthened data systems can substantially improve the management of hypertensive disorders. Policy measures addressing financial, geographic, and cultural barriers, alongside systematic audits and workforce training, are critical for bridging the implementation gap. Coordinated efforts at the national, facility, and community levels are therefore essential to reduce maternal and perinatal deaths, enhance health equity, and advance progress toward sustainable maternal health goals in Nigeria.

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