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Hypertension Awareness and Risk Reduction among Pregnant Women in West Africa A Review

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ABSTRACT

Hypertensive disorders of pregnancy (HDP), including pre-eclampsia, eclampsia, gestational hypertension, and chronic hypertension complicating pregnancy, are leading causes of maternal and perinatal morbidity and mortality worldwide. In West Africa, HDP contributes substantially to adverse pregnancy outcomes against a backdrop of heterogeneous health systems, variable antenatal care (ANC) coverage, and limited community awareness. This review synthesizes recent evidence on the epidemiology of HDP in West Africa, awareness and knowledge levels among pregnant women, risk factors, current screening and risk-reduction strategies, and barriers to implementation. We highlight interventions with promising results, task-sharing with community health workers, strengthening ANC screening, community education, and health system investments, and identify research and policy gaps. Practical, culturally-tailored programs that combine improved access to ANC, targeted health education on HDP warning signs, and strengthened referral/emergency obstetric care are essential to reduce the burden of HDP in the region.

Keywords: hypertensive disorders of pregnancy, pre-eclampsia, awareness, antenatal care, West Africa.

INTRODUCTION

Hypertensive disorders of pregnancy (HDP) represent a complex spectrum of conditions that either develop or persist during pregnancy, posing significant risks to maternal and perinatal health. These disorders include gestational hypertension, pre-eclampsia, eclampsia, chronic hypertension, and pre-eclampsia superimposed on chronic hypertension. Globally, HDP is recognized as a major contributor to maternal morbidity and mortality, with pre-eclampsia and eclampsia alone accounting for an estimated 14% of maternal deaths worldwide [1]. Beyond mortality, HDP is associated with a wide range of adverse outcomes, including intrauterine growth restriction, preterm birth, placental abruption, and perinatal mortality. In recent decades, the incidence of HDP has shown a rising trend in both developed and developing countries, likely influenced by increasing maternal age, obesity, diabetes, and lifestyle changes, among other factors [2].

The burden of HDP is particularly pronounced in low-resource settings such as West Africa, where health system constraints and socioeconomic challenges exacerbate risks for pregnant women. West Africa is a region characterized by diverse healthcare capacities, cultural practices, and maternal health outcomes. Despite some progress in maternal health over the last two decades, preventable maternal deaths remain disproportionately high [3]. Factors such as delayed care-seeking, limited access to antenatal care (ANC), scarcity of emergency obstetric services, and low community awareness of pregnancy complications amplify the dangers posed by HDP. In rural and semi-urban areas, pregnant women may face multiple barriers to care, including long distances to healthcare facilities, financial constraints, and sociocultural norms that influence health-seeking behaviors [3].

Understanding the epidemiology and risk factors for HDP in West Africa is critical for designing effective interventions. Several studies indicate that awareness of HDP among pregnant women in the region is often limited. Women may not recognize early warning signs such as persistent headaches, visual disturbances, edema, or elevated blood pressure. This lack of awareness contributes to late presentation at health facilities, reducing the effectiveness of preventive and therapeutic interventions [4]. Moreover, the knowledge and practices of healthcare providers

regarding HDP management vary across the region, with gaps in diagnostic capacity, monitoring tools, and treatment protocols. Consequently, despite improvements in ANC attendance in some countries, outcomes for women with HDP remain suboptimal [5]. The study also highlights the broader context of maternal health in West Africa. Globally, maternal mortality has declined over the past two decades due to increased access to skilled birth attendants, improved prenatal care, and public health interventions. However, West Africa lags behind other regions in achieving these gains. According to the World Health Organization (WHO), countries such as Nigeria, Ghana, and Sierra Leone continue to report some of the highest maternal mortality ratios in the world, with hypertensive disorders contributing substantially [6]. The interplay of socioeconomic, cultural, and systemic factors in West Africa necessitates an integrated approach to maternal health interventions. These include community-based education programs, strengthening ANC services, improving referral systems, and ensuring the availability of emergency obstetric care. Understanding how pregnant women perceive HDP, recognize symptoms, and adopt preventive measures is therefore essential for reducing adverse outcomes [7].

Hypertensive disorders of pregnancy continue to impose a high burden on maternal and perinatal health in West Africa due to low awareness among pregnant women, delayed detection, and inadequacies in health system capacity. Despite the availability of evidence-based interventions such as early blood pressure monitoring, timely antihypertensive therapy, and preventive measures like low-dose aspirin in high-risk pregnancies, these strategies are inconsistently implemented [8]. As a result, HDP remains a leading cause of preventable maternal and neonatal complications in the region. The persistent high rates of maternal mortality and morbidity associated with HDP underscore the urgent need for targeted public health strategies, community education, and strengthened clinical practices [9]. This review aims to provide a comprehensive synthesis of hypertensive disorders of pregnancy (HDP) in West Africa, with specific objectives focusing on epidemiological data, awareness, risk factors, interventions, and recommendations for improving maternal health outcomes. First, it will explore the prevalence and incidence of HDP in the region, providing insights into its magnitude and trends. The review will also examine the level of awareness and knowledge among pregnant women, as awareness plays a critical role in early detection and timely care. Additionally, the major demographic, medical, and socioeconomic risk factors contributing to HDP will be identified, shedding light on the complexities of the condition in West African settings. A key objective is to assess the effectiveness of current interventions aimed at preventing and managing HDP, focusing on both clinical and community-based approaches. Finally, the review will propose strategies for improving awareness, early detection, and management in low-resource settings, where healthcare access and infrastructure are often limited. By addressing these objectives, the review will offer evidence-based recommendations that can inform public health policies, enhance healthcare delivery, and ultimately contribute to the reduction of maternal and perinatal morbidity and mortality. This work aligns with Sustainable Development Goal 3, which aims to improve maternal health and reduce mortality in the region.

METHODOLOGY

The literature search for this review was conducted using a focused and strategic approach to gather relevant publications on hypertensive disorders of pregnancy (HDP) in West Africa. Databases such as PubMed/PMC and WHO regional pages were explored, along with recent systematic reviews and regional studies, ensuring the inclusion of literature up to 2025. The search was designed to encompass a variety of terms related to HDP, such as "hypertensive disorders of pregnancy," "pre-eclampsia," "pregnancy hypertension," and "antenatal care." Additionally, we included keywords focused on geographical relevance, like "West Africa," as well as broader topics such as "awareness" and "community interventions." Special emphasis was placed on recent systematic reviews and regional studies to ensure that the most current and relevant evidence was incorporated. Furthermore, WHO reports and implementation research were prioritized to provide insights into ongoing interventions and health policies. This review primarily synthesizes existing evidence from published articles, program reports, and regional findings, with the goal of understanding the landscape of HDP in West Africa and identifying key interventions. Unlike a quantitative meta-analysis, this narrative review highlights the complexities and diversity of the available literature and offers a holistic understanding of the challenges and solutions related to HDP in the region.

Epidemiology of HDP in West Africa

Hypertensive disorders of pregnancy (HDP) represent a significant health challenge in West Africa, with recent regional and continental analyses revealing a notable burden. Pooled prevalence estimates suggest that around 8% of pregnancies in low-resource settings are affected by HDP, although this figure can vary widely across different studies and countries. The incidence of HDP differs depending on the setting and research methodology, with facility-based studies generally reporting higher rates compared to community-based surveys [10]. This discrepancy highlights the importance of healthcare access and the ability to detect and manage HDP cases in different environments. In West Africa, HDP is one of the leading direct causes of maternal mortality, underscoring its critical impact on maternal health. Several key factors contribute to this high burden, including variations in antenatal care (ANC) coverage and the timeliness of care. Limited access to quality healthcare, especially in rural

areas, exacerbates the problem, as does the prevalence of background risk factors such as obesity, chronic hypertension, and advanced maternal age [11]. Additionally, the capacity of peripheral healthcare facilities to detect and manage HDP plays a crucial role in the outcomes of affected pregnancies. These disparities in healthcare infrastructure and risk factor prevalence underscore the need for targeted interventions to reduce the burden of HDP in the region.

Knowledge and awareness among pregnant women

In sub-Saharan Africa, including regions comparable to West Africa, studies have consistently reported low levels of knowledge and awareness among pregnant women regarding hypertensive disorders of pregnancy (HDP). Many women struggle to identify the warning signs and symptoms of conditions like pre-eclampsia, such as persistent severe headaches, visual disturbances, and significant swelling. Recent survey data reveals that only a small fraction of pregnant women can recognize these key symptoms, with some studies indicating awareness rates as low as 25–30% [12]. This lack of awareness often results in delayed care-seeking behaviors, with many women presenting to healthcare facilities only when their condition has worsened, contributing to severe outcomes. Several factors exacerbate this knowledge gap, including prevalent sociocultural beliefs that dismiss symptoms as normal pregnancy experiences or attribute them to non-medical causes. Additionally, insufficient health education during antenatal care (ANC) visits and challenges in language and literacy further hinder the dissemination of vital information [13]. Printed educational materials may not reach or resonate with a significant portion of the population, especially when language barriers are present. These compounded issues underscore the urgent need for targeted interventions to improve awareness and timely care-seeking among pregnant women in the region.

Risk factors for HDP in the West African context

In the West African context, several maternal risk factors have been commonly reported in regional studies as contributing to the development of hypertensive disorders of pregnancy (HDP). Primigravidity, or a woman's first pregnancy, is a well-established risk factor for pre-eclampsia, as the body may struggle to adapt to the physiological demands of pregnancy. Advanced maternal age, particularly in women aged 35 years and older, is another significant risk factor, as older women tend to have a higher likelihood of pre-existing health conditions that complicate pregnancy [14]. Pre-existing chronic hypertension and other comorbidities such as diabetes and kidney disease increase the risk of HDP, highlighting the importance of managing these conditions before and during pregnancy. Furthermore, obesity and excess weight are becoming increasingly prevalent, particularly in urban populations, contributing to a higher incidence of HDP. Multiple pregnancies, such as twins or higher-order multiples, also present an elevated risk due to the added strain on the maternal cardiovascular system. Socioeconomic factors, such as low maternal education, poverty, and limited access to quality antenatal care (ANC), further exacerbate the risk, as they hinder the timely identification and management of HDP. A thorough understanding of these locally distributed risk factors is crucial in formulating effective prevention and screening strategies tailored to the specific needs of the region [15].

Screening, detection, and antenatal care

Screening, detection, and antenatal care (ANC) play a crucial role in reducing maternal and fetal health risks, especially through early detection of conditions such as preeclampsia and proteinuria. Routine ANC visits, where blood pressure measurement and urine protein testing are conducted, are fundamental for early identification of these conditions, enabling timely intervention and prevention of complications. These screening tools are cost-effective and highly valuable when performed consistently and at the appropriate intervals [16]. However, gaps in access to quality ANC services remain a challenge across many regions, particularly in parts of West Africa. The World Health Organization (WHO) reports that a significant number of pregnant women in these areas do not receive the recommended number of ANC visits, which diminishes opportunities for early detection, counseling, and timely care. To address this, it is essential to strengthen routine ANC services by ensuring that functional blood pressure devices, urine testing tools, and well-trained healthcare professionals are available. This strategy is pivotal for primary prevention and the early management of complications. Additionally, where ANC attendance is low, community outreach programs and decentralized screening, such as visits by community health workers, can help expand coverage, ensuring that more women have access to vital prenatal care services [17].

Risk-reduction and intervention strategies

Risk-reduction and intervention strategies for managing hypertensive disorders in pregnancy (HDP) require a comprehensive, multi-level approach. At the health system level, strengthening services is essential, ensuring routine, high-quality antenatal care (ANC) that includes regular blood pressure (BP) and protein screening. Early identification of high-risk women, along with clear referral pathways to specialized facilities for managing severe HDP, is critical. Additionally, the availability of essential medicines like magnesium sulphate and protocols for managing severe pre-eclampsia and eclampsia at referral centers are vital components of care [18]. Training healthcare providers and ensuring ongoing supportive supervision helps maintain clinical skills essential for detecting HDP and providing emergency obstetric care. At the community level, targeted health education for

women, families, and community leaders is crucial. This education should focus on recognizing the warning signs of HDP, the importance of regular ANC attendance, and when to seek urgent care. Culturally-tailored messages can enhance the uptake of these interventions. Community health workers (CHWs) play a pivotal role in delivering education, conducting home-based BP screenings where feasible, and linking women to facility care. Additionally, task-sharing and decentralized screening have proven effective in African settings, particularly CHW-led programs that increase detection and facilitate care for women who may underutilize facility-based ANC. National policies should prioritize maternal health financing, the procurement of essential medicines and equipment, and integration of HDP screening into primary healthcare services [19].

Barriers to effective awareness and risk-reduction

In West Africa, several barriers hinder effective awareness and risk-reduction efforts for hypertension-related complications, particularly among pregnant women. One major challenge is the limited coverage and late presentation at antenatal care (ANC) clinics, with many women either starting ANC late in pregnancy or attending irregularly. According to the World Health Organization (WHO) Regional Office for Africa, this delay in care leads to missed opportunities for early detection and intervention. Additionally, human resource gaps and inadequate training at primary healthcare facilities compromise the accurate measurement and interpretation of blood pressure (BP), preventing early identification of hypertension. The lack of functional BP devices, urine testing materials, and essential medications in peripheral healthcare centers further exacerbates the situation, as supply chain issues disrupt timely care [20]. Sociocultural factors, including low health literacy, also play a significant role in reducing the recognition of danger signs of hypertensive disorders of pregnancy (HDP) and the acceptance of facility-based care. Furthermore, challenges in referral systems and transportation delays make it difficult for women to reach higher-level healthcare centers equipped to manage severe HDP. These barriers collectively hinder the effective management and prevention of hypertensive complications, contributing to adverse maternal and fetal outcomes in the region.

Gaps in evidence, priorities, and recommendations

While there is considerable evidence indicating the significant burden of hypertensive disorders of pregnancy (HDP) in West Africa, there remain substantial gaps in the evidence and areas requiring further research. First, country-level, community-representative prevalence estimates for HDP are inconsistent across the region, with the need for enhanced surveillance systems to provide more reliable data. High-quality data collection is essential for understanding the full scope of the problem. Additionally, there is a shortage of implementation research that explores the most cost-effective models for community-based screening, task-sharing, and referral mechanisms. Effective strategies to address these challenges are crucial to improving outcomes, yet such studies remain limited [21]. Furthermore, research evaluating culturally tailored health education interventions, particularly in terms of their effect on HDP awareness, care-seeking behaviors, and maternal/perinatal outcomes, is sparse. Tailored interventions are essential to addressing the unique needs of different communities. There is also growing interest in integrating maternal HDP screening into existing non-communicable disease (NCD) programs at the community level; however, this approach is still under-researched. These gaps highlight the urgent need for targeted research to improve the understanding of HDP in West Africa and develop interventions that are both effective and culturally appropriate. Enhanced surveillance, education, and integrated care models are essential to reducing the impact of HDP on maternal and fetal health.

CONCLUSION

In conclusion, hypertensive disorders of pregnancy (HDP) continue to pose significant challenges to maternal and perinatal health in West Africa, contributing to preventable morbidity and mortality. Despite some progress in antenatal care (ANC) coverage, the region still faces considerable gaps in awareness, timely diagnosis, and effective management of HDP. Many pregnant women lack knowledge of the warning signs, leading to delayed care-seeking, which exacerbates the risks of severe outcomes. The implementation of strategies such as task-sharing with community health workers, enhanced community education, and improved referral systems has shown promise in addressing these challenges. However, further research is needed to refine these interventions, particularly in terms of cost-effectiveness and cultural adaptation. Strengthening health systems, ensuring the availability of essential medicines, and integrating HDP screening into existing maternal and non-communicable disease programs are crucial steps in improving outcomes. A concerted effort to address these issues will ultimately reduce the burden of HDP and improve maternal health in West Africa.

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