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Perspective

Climate Change and Perinatal Mental Health in Ghana: An Overlooked Public Health Crisis — A Perspective

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Abstract

Introduction: Climate change is a defining public health challenge of the twenty-first century, and its consequences for mental health are increasingly recognized. In Ghana, however, national discussion has centered on agriculture, food security, and infectious disease, and the consequences of climate change for the mental health of pregnant and postpartum women remain largely unexamined. The perinatal period is one of heightened biological and psychosocial vulnerability, and climate-related hazards such as floods and drought are intensifying.

Methods: We conducted a structured search of Scopus, Google Scholar, PubMed, and SAGE Journals (1, 3, 4 and 7 December 2024 respectively), with de-duplication and screening managed in Covidence to identify studies quantifying the impact of climate change on perinatal mental health in Ghana.

Results: No eligible study was identified: the search returned zero studies quantifying the impact of climate change on perinatal mental health in Ghana. Drawing on the global literature and national policy documents, we show that climate-induced stressors - displacement, economic hardship, disrupted services, and constrained access to care heighten the risk of perinatal depression, anxiety, and post-traumatic stress disorder, amplified by cultural stigma, spiritual attribution of distress, and a constrained mental health workforce. We propose a conceptual framework and show that the gap is mirrored across West Africa. This evidence gap leaves clinicians and policymakers without an empirical basis for screening, prevention, or climate-adaptation planning for a large and growing at-risk population.

Conclusion: Integrating validated screening into maternal care, building climate-resilient services, and pursuing intersectoral policy are priorities that will ensure maternal and child health, equity, and climate resilience advance together.

Keywords: Anxiety, Climate change, Ghana, Mental health, Postpartum depression, Pregnancy

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Introduction

Climate change is among the most pressing global challenges of today, with far-reaching consequences for public health.[1,2] The World Health Organization (WHO) projects that, between 2030 and 2050, climate change will cause approximately 250 000 additional deaths per year from malnutrition, malaria, diarrheal disease, and heat stress, and estimates that 3.6 billion people already live in settings that are highly susceptible to its effects.[3] In response, the World Bank's climate and health program is supporting more than 100 countries to strengthen their health systems for early prediction, detection, and response,[4] and, through the Alliance for Transformative Action on Climate and Health (ATACH), the WHO has provided technical guidance on governance, preparedness, and response in climate-vulnerable regions.[5]

The mental health consequences of climate change are increasingly well documented. A systematic review by Cianconi and colleagues found that traumatic exposure to extreme weather events raises the risk of affective and anxiety disorders, particularly post-traumatic stress disorder (PTSD), and that slow-onset changes and loss of livelihood act as chronic stressors on mental health.[6] Health-sector leaders have argued that acting on these risks is a matter of protecting population health rather than a distant concern.[7] In 2022, the WHO drew explicit attention to these effects and recommended integrating climate considerations into mental health policies and programs, calling for multisectoral, community-based approaches to protect at-risk groups, including perinatal women.[8] Women are disproportionately affected, and pregnancy and the first postpartum year are periods of heightened biological and psychosocial vulnerability.[9,10]

Ghana is highly exposed to climate change, yet its consequences for the mental health of pregnant and postpartum women remain unexamined. Because the perinatal period is already characterized by physiological change and emotional strain, climate-related stressors may substantially increase the risk of perinatal depression, anxiety, and PTSD. National discussion of climate change in Ghana has centered largely on agriculture,[11] food security,[12] and infectious disease.[13] A small but growing

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body of Ghanaian research has begun to document the mental health toll of climate stress; for example, drought and elevated depression, anxiety, and stress among farmers in the Upper East,[14] and urban flooding and psychological distress among households in Kumasi[15] but these works have examined general or occupational populations, leaving perinatal mental health unexamined. This perspective has three aims: to establish, through a structured search of the literature and policy documents, the extent of the evidence gap on climate change and perinatal mental health in Ghana; to propose a conceptual framework linking climate hazards to perinatal mental health outcomes; and to translate this into Ghana-specific priorities for policy and research. In doing so, we position Ghana as a case study for a gap that is likely to recur across West Africa.

Methods

This perspective is informed by a structured search of the literature and a review of national policy documents. We searched four databases - Scopus, Google Scholar, PubMed, and SAGE Journals on 1, 3, 4 and 7 December 2024 respectively, using the Boolean string ("climate change" OR "global warming" OR "environmental change" OR "extreme weather" OR "climate crisis") AND ("perinatal mental health" OR "maternal mental health" OR "postpartum depression" OR "antenatal anxiety" OR "pregnancy-related mental health"). The string was applied to titles, abstracts, and keywords; for Google Scholar, which returns a very large, full-text-indexed result set, the first 200 records sorted by relevance were exported and screened, following recommended practice. Records published after December 2024 were excluded so as to reflect the search window. A record was eligible if it was peer-reviewed and reported an empirical association between a climate-related exposure and a perinatal mental health outcome in Ghana; records were excluded if they were not Ghana-specific, did not concern a perinatal population, or did not address a climate-related exposure. Search results were exported to Covidence, in which duplicate records were removed and title/abstract and full-text screening were carried out against the eligibility criteria. To characterize the policy context, we additionally reviewed national documents, including Ghana's Mental Health Act, 2012 (Act 846), the Mental Health Policy 2019-2030, and the National Climate Change Policy (2013).

Results

The four databases yielded 243 records (Scopus, 11; Google Scholar, 198; PubMed, 7; SAGE Journals, 27), with no additional records from grey literature or reference lists. After 6 duplicates were removed, 237 records were screened by title and abstract, of which 167 were excluded as not concerning both a climate exposure and a perinatal population. The remaining 70 full-text articles were assessed for eligibility, and all 70 were excluded because, although they addressed climate change and/or perinatal mental health, none focused specifically on the Ghanaian context (that is, they were not Ghana-specific). No study quantifying the impact of climate change on perinatal mental health in Ghana was identified (Figure 1).

Discussion

The Global Evidence and the West African Gap

Internationally, the link between climate change and mental health is established, even if perinatal populations remain under-studied. Extreme weather events are associated with elevated anxiety, depression, and PTSD,[6] and reviews focusing on women describe both direct trauma and the socioeconomic and eco-anxiety pathways that bear on women and their children.[9,10] Perinatal mental health disorders are themselves highly prevalent in Africa: a systematic review and Bayesian analysis estimated a high pooled prevalence of perinatal depression across African settings,[16] and a cross-sectional study spanning Ghana and Côte d'Ivoire found antenatal depression and anxiety to be common and associated with functional disability.[17] These two bodies of evidence - a climate-mental health link and a substantial baseline burden of perinatal disorders have not been joined in the Ghanaian, or indeed the West African, context. Table 1 summarizes the global evidence base and its limited engagement with perinatal populations. The absence of Ghana-specific data is therefore not an isolated omission but an instance of a broader regional gap, which strengthens the case for treating Ghana as a tractable case study.

Why Ghana is Particularly Vulnerable

Three features make Ghana an especially vulnerable setting. First, its climate exposure is severe and geographically patterned. The south-east experienced

Table 1. Selected global evidence on climate change and perinatal or maternal mental health.

Source	Focus and population	Relevance to perinatal mental health
Cianconi et al, 2020[6]	Global systematic descriptive review	Extreme weather raises the risk of anxiety, depression, and PTSD; loss and migration act as chronic stressors.
Stone et al, 2022[9]	Scoping review; women	Climate change disproportionately affects women's mental health, including in the perinatal period.
Rothschild & Haase, 2023[10]	Women and children	Socioeconomic stresses and eco-anxiety elevate distress for women and their children.
Endomba et al, 2021[16]	Africa; perinatal	High pooled prevalence of perinatal depression indicates a substantial baseline vulnerability.
Bindt, Appiah-Poku et al, 2012[17]	Ghana and Côte d'Ivoire; antenatal	Antenatal depression and anxiety common and associated with disability in West African women.
WHO, 2022[8]	Global policy brief	Recommends integrating climate considerations into mental health policy and protecting perinatal women.

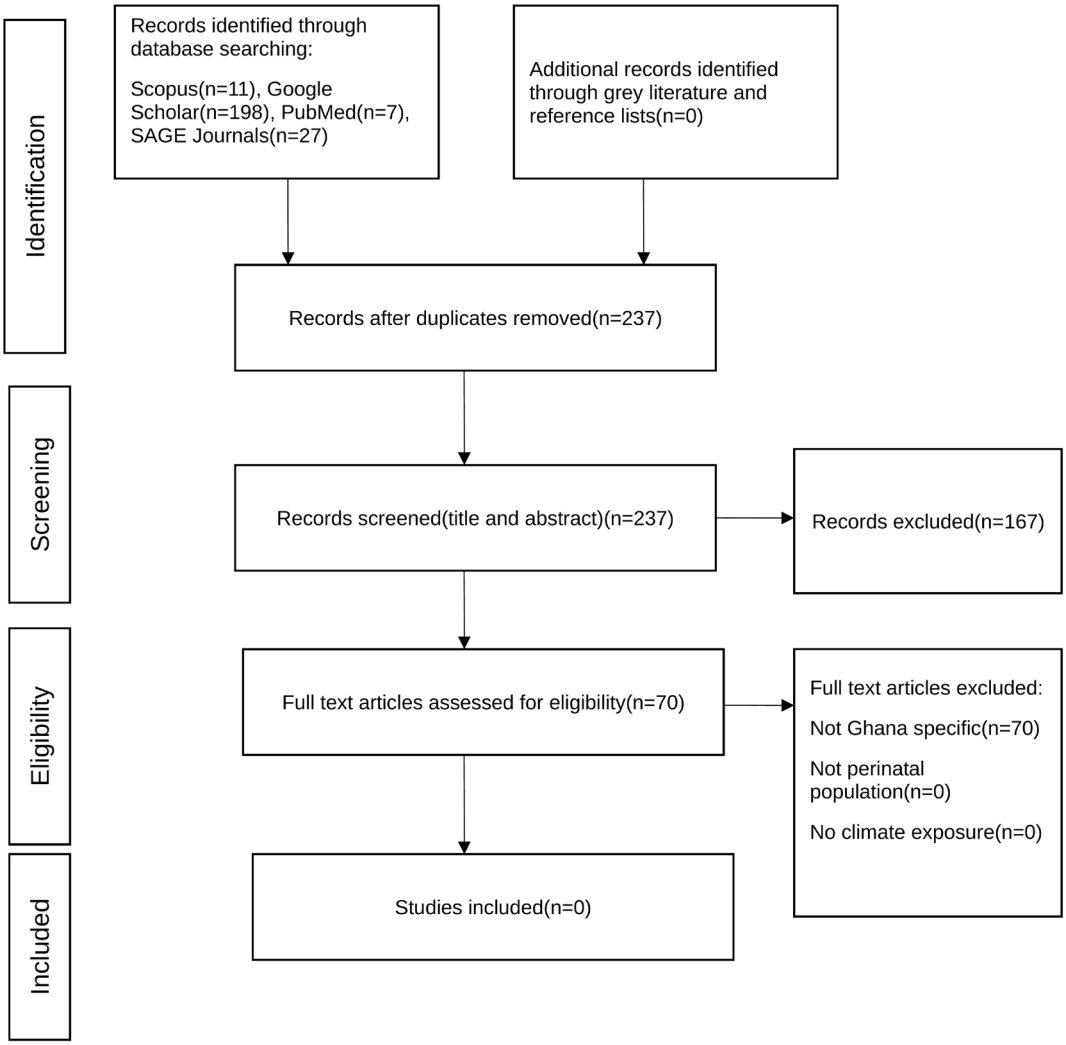


Figure 1. PRISMA-style flow of study identification, screening, and eligibility

major riverine flooding in 2023, when controlled spillage from the Akosombo and Kpong dams following heavy rainfall displaced an estimated 31 000 or more people across parts of the Volta, Eastern, and Greater Accra regions, with North and Central Tongu districts worst affected.[18] The White Volta basin in the Upper East is subject to recurrent flooding linked to upstream dam spillage, the coast and rapidly urbanizing Accra face repeated floods,[19] and the northern savanna belt is drought-prone and dependent on rain-fed agriculture.[11,20,21] Recent Ghanaian studies confirm that these exposures already carry a measurable psychological toll - drought is associated with depression, anxiety, and stress among farmers in the Upper East,[14] and urban flooding with stress, anxiety, depression, and post-traumatic symptoms,[15] though neither examined pregnant or postpartum women. Second, the baseline burden of perinatal mental health disorders is already high, as regional and Ghana-Côte d'Ivoire evidence shows,[16,17] while awareness among frontline providers is limited. Third, the mental health system is severely constrained, with a marked shortage of trained professionals, limited funding, and a large treatment gap.[22,23] These conditions mean that additional climate-related stress falls on a population that is already at risk and on a system with little slack to absorb it.

A Conceptual Framework Linking Climate Change and Perinatal Mental Health

The stressors and barriers described in the literature are often presented separately, but they interact. We propose a simple framework (Figure 2) in which climate hazards affect perinatal mental health through three interacting pathways - a direct pathway (acute trauma from extreme events and displacement), an economic pathway (crop failure, income loss, and food insecurity), and a health-system pathway (damaged facilities and interrupted antenatal and postnatal care); the effects of which are moderated and amplified by cultural stigma, spiritual attribution of distress, a shortage of mental health workers, gendered caregiving burdens, and poverty. The framework is intended to guide hypothesis-driven research and to show why single-sector responses are unlikely to suffice. In this framework, the three pathways function as mediators that transmit the effect of climate hazards to perinatal mental health outcomes, whereas cultural stigma, spiritual attribution of distress, workforce shortages, gendered caregiving burdens, and poverty function as moderators that strengthen or weaken those

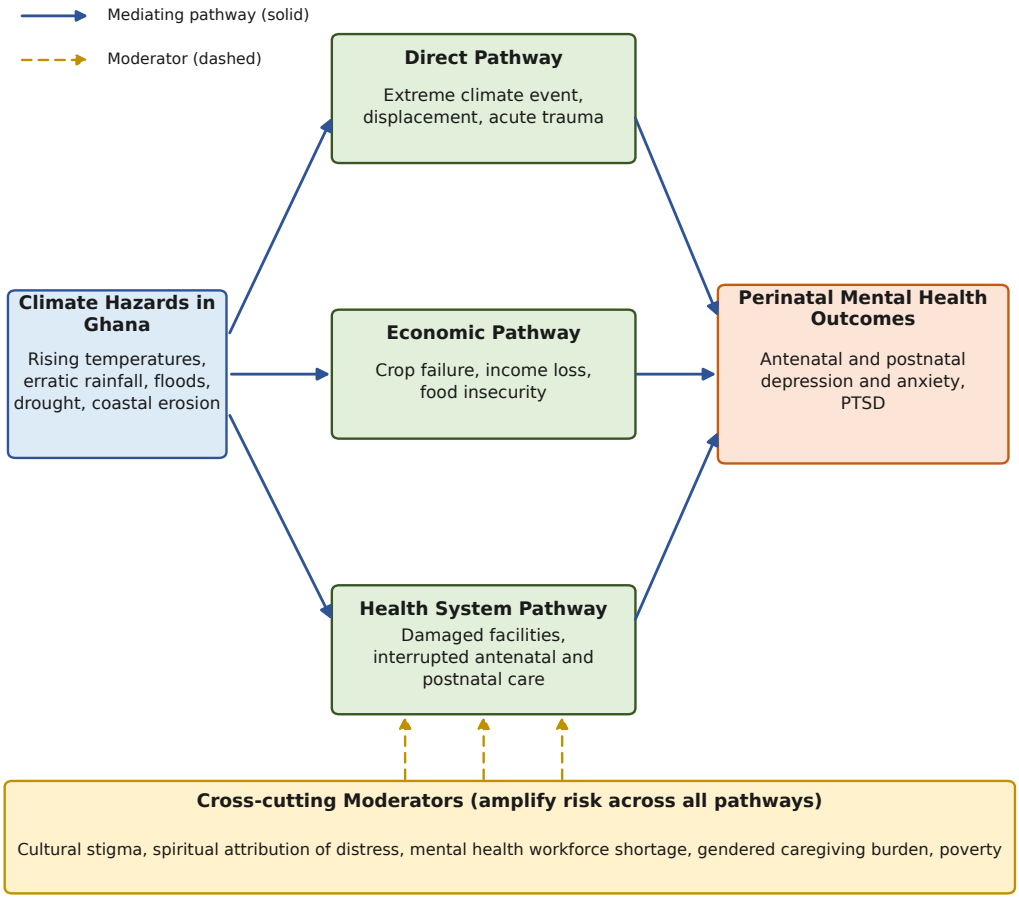


Figure 2. A conceptual framework of the pathways linking climate change to perinatal mental health in Ghana. Solid arrows denote the mediating pathways; dashed arrows denote the cross-cutting moderators

pathways rather than lying on them. The framework yields testable hypotheses; for example, we hypothesize that flood exposure will be associated with higher perinatal depression scores, that this association will be mediated by food insecurity and interrupted antenatal care, and that it will be moderated by social support and stigma.

Direct and economic pathways: In flood- and drought-affected districts such as those in the Volta basin and the northern savanna, forced displacement and economic hardship fall heavily on women in rural and coastal communities, who depend on stable access to health care, food, and clean water.[18,19,21] The loss of homes, livelihoods, and social networks can amplify stress and precipitate perinatal mental health disorders, while crop failure, lost income, and food insecurity add a chronic economic burden that is especially acute where women are primary caregivers.[21,24]

Health-system pathway: Extreme weather can damage infrastructure and cut access to maternal services, including the limited mental health support that exists.[25] During floods, clinics may be unreachable and outreach suspended, which is particularly consequential for perinatal women who require continuous antenatal and postnatal care.

Moderators - stigma and spiritual attribution: Mental illness is widely stigmatized in Ghana, although the degree varies across ethnic and regional groups rather than being uniform.[26] Qualitative work in Ghana shows that distress in pregnancy is frequently understood through spiritual or religious frameworks, and that the psychosocial and spiritual dimensions of childbirth are often downplayed within services;[27,28] where distress is attributed to spiritual causes, women may delay or forgo biomedical care. Culturally grounded interventions are therefore needed, and they must be tailored to specific communities rather than assuming a single national pattern.

Ghana's Mental Health And Climate Policy Landscape

Ghana has a relatively advanced legal and policy architecture for mental health that nonetheless overlooks the perinatal-climate intersection (Table 2). The Mental Health Act, 2012 (Act 846) established the Mental Health Authority and a rights-based framework for care,[23,29] and the Mental Health Policy 2019-2030 sets out goals to promote mental health, prevent disorders, and strengthen services.[30] Neither instrument addresses perinatal mental health as a distinct priority, and implementation remains constrained by limited funding, workforce shortages, and a persistent treatment gap.[22,30] On the climate side, the National Climate Change Policy (2013) recognizes human health as a focus area, but the operational climate-health priorities pursued nationally have been malaria, diarrheal disease, and cerebrospinal meningitis; mental health, and perinatal mental health in particular, are

Table 2. Ghana's principal mental health and climate policy instruments and their attention to perinatal mental health.

Instrument (year)	Primary purpose	Attention to (perinatal) mental health
Mental Health Act, 2012 (Act 846)[29]	Established the Mental Health Authority; rights-based care	Legal basis for services; no specific perinatal provision.
Mental Health Policy 2019-2030[30]	Promote mental health, prevent disorders, strengthen services	Recognizes vulnerable groups; perinatal mental health not a distinct priority; implementation constrained.
National Climate Change Policy (2013)[31]	Adaptation, social development, mitigation; human health focus area	Operational climate-health priorities are malaria, diarrhea, and meningitis; mental health absent.

absent.[31] The current development of a national climate change and health vulnerability assessment and a Health National Adaptation Plan offers a timely opportunity to close this gap, provided maternal mental health is explicitly included.

Implications For Policy

Translating this analysis into action requires Ghana-specific, feasible steps rather than generic prescriptions. We propose four priorities, each with a named locus of implementation.

1. *Integrate validated screening into antenatal and postnatal care:* The Ghana Health Service and the Mental Health Authority could embed a brief validated tool (for example the Edinburgh Postnatal Depression Scale or PHQ-9) into routine antenatal and postnatal contacts delivered through Community-based Health Planning and Services (CHPS) compounds, prioritizing climate-vulnerable districts. Screening tools suitable for primary care in sub-Saharan Africa have been reviewed and can be adapted,[32] and the WHO guide on integrating perinatal mental health into maternal and child health services offers an implementation model.[33]
2. *Build climate-resilient maternal and mental health services:* Investment is needed so that antenatal, postnatal, and mental health services remain functional during extreme weather; mobile outreach and telemedicine can maintain contact in districts such as North and Central Tongu (Volta) and the White Volta basin (Upper East) when facilities are cut off.[18,25]
3. *Task-share and invest in a culturally grounded community response:* Given the workforce shortage,[22,23] community health officers, midwives, and trained traditional birth attendants can deliver first-line psychosocial support using a task-sharing model consistent with the WHO mhGAP approach, working with local and religious leaders to reduce stigma and to bridge spiritual and biomedical understandings of distress.[27,28]
4. *Embed maternal mental health in climate and health policy:* The Ministry of Health, the Ghana Health Service, the Mental Health Authority, and the Environmental Protection Agency, working with the National Disaster Management Organisation, should ensure that the emerging Health National Adaptation Plan and vulnerability assessment explicitly include perinatal mental health, and that disaster preparedness under the National Climate Change Policy accounts for pregnant and postpartum women.[30,31]

Demonstration projects in a small number of contrasting sites - a flood-affected district in the Volta basin, a drought-prone district in the Upper East or Upper West, and a peri-urban district in Greater Accra would allow feasibility, cost, and workforce implications to be assessed before any national scale-up. Addressing this issue is vital for maternal and child health, social equity, and climate resilience.

Directions For Future Research

The framework in Figure 2 points to concrete research priorities. Longitudinal studies are needed to quantify the mental health impact of climate-related events on perinatal women and to capture regional variation across Ghana's diverse settings, ideally leveraging the populations affected by documented events such as the 2023 Akosombo flooding.[18] Qualitative work should examine the lived experiences of pregnant and postpartum women affected by climate-induced stress and the spiritual and social frameworks through which distress is understood.[28] Intervention studies should evaluate community-based, culturally sensitive approaches including screening in antenatal care, task-shared psychosocial support, and stigma reduction in climate-affected districts.[32,33] Finally, collaborative research linking public health, mental health, environmental science, and policy will be essential to test the proposed pathways and to inform the Health National Adaptation Plan.

Limitations

As a narrative perspective, this article has limitations. The literature search was structured but not a full systematic review, and no peer-reviewed study currently quantifies the impact of climate change on perinatal mental health in Ghana; the argument therefore rests on global and regional evidence contextualized to Ghana, together with national policy documents, which may limit the specificity of its conclusions.[6,7,16,17] It also draws on secondary and grey-literature sources that may not fully capture Ghana's cultural, social, and environmental diversity, and given that diversity these observations may not generalize to all regions; primary, regionally disaggregated data are needed.

Conclusion

This perspective highlights a critical but underexplored intersection: climate change and perinatal mental health in Ghana. Climate-induced stressors are likely to increase

the risk of perinatal depression, anxiety, and PTSD through direct, economic, and health-system pathways that are amplified by stigma, spiritual attribution, and a constrained mental health workforce, yet neither Ghana's mental health policies nor its climate policy currently addresses this convergence. Integrating validated screening into maternal care, building climate-resilient services, task-sharing a culturally grounded community response, and embedding maternal mental health in climate and health policy are feasible steps toward protecting perinatal women in a changing climate.

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Competing Interests
The authors declare that they have no competing interests.

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All data supporting this perspective are publicly available and cited in the references; no new data were generated.

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