

Researchers root US maternal health disparities in the social environment

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Monica Keith, assistant professor of Anthropology, recently published insights into the complex factors contributing to maternal hypertension and health disparities in a [paper](#) titled, "Social Determinant Pathways to

Hypertensive Disorders of Pregnancy Among Nulliparous U.S. Women" in the journal *Women's Health Issues*.

This research, based on an analysis of observational cohort data from the "Nulliparous Pregnancy Outcomes Study: Monitoring Mothers-to-Be," sheds light on the alarming rates of hypertensive disorders of pregnancy (HDP) in the United States, particularly among Black mothers.

The study's findings reveal that embodied stress rooted in the [social environment](#) plays a pivotal role in driving maternal hypertensive disparities. This research emphasizes the need for a more comprehensive understanding of the social determinants of health and their impact on maternal and intergenerational outcomes.

Mulubrhan Mogos, assistant professor of nursing and Keith's future collaborator, studies ways to reduce cardiovascular disease risk among women.

According to Mogos, "In the United States, hypertensive disorders of pregnancy (HDP) are documented in 31.6% of in-hospital deaths during childbirth. Innovative technology and data-driven approaches are vital for early HDP risk prediction and prevention, as well as mitigating long-term adverse outcomes."

"The application of wearable devices and telehealth solutions, as well as harnessing large datasets have the potential to lead to solutions that can reverse the disturbing trend in HDP-related maternal morbidity and mortality."

This study, conducted on a cohort of 6,501 participants, including 1,155 non-Hispanic Black mothers-to-be, revealed that non-Hispanic Black mothers exhibited significantly higher rates of hypertensive disorders of pregnancy (32%) compared to non-Hispanic white women (23%).

Pathway modeling identified demographic aspects of the social environment, indexed by metrics such as household income and partnered status, as the most salient predictors of hypertensive risk, particularly among Black women.

Keith highlighted the critical findings from her research, "Our study demonstrates that embodied stress rooted in the social environment is a major driver of maternal hypertensive disparities in the United States. Pre-pregnancy health also impacts the risk and severity of hypertensive outcomes. These disparities are deeply intertwined with systemic inequalities and underscore the significant impact of systemic stressors relative to individual health behaviors."

When asked about the role of stress on the evolution of maternal morbidity, Keith said, "The physiological stress induced by pregnancy compounds with pre-pregnancy allostatic load (wear and tear on the body that accumulates as an individual is exposed to repeated or [chronic stress](#)), and I think about allostasis across gestation as a threshold model."

"Individuals with higher levels of chronic and cumulative stress prior to pregnancy may already be close to or at the limits of their cardiovascular and other systems. This increases the risk of maternal morbidities and adverse outcomes such as [preterm birth](#) as the body works to both sustain maternal physiology and support a growing fetus during pregnancy."

The study used structural equation modeling, linking latent social determinants of health, longitudinal markers of allostatic load across gestation, and hypertensive [pregnancy](#) outcomes in a multigroup framework. The results highlight that the social environment has stronger direct effects on allostatic markers than behaviorally mediated pathways like diet, exercise, or smoking.

These findings challenge existing narratives focused on individual behaviors and demonstrate the need for targeted policy and intervention strategies to address maternal hypertensive disparities.

Keith emphasized the importance of understanding the social determinants of health, stating, "More comprehensive and detailed analyses of socio-structural domains are needed to identify promising avenues for policy and intervention to improve maternal health. Systemic changes are critical to reducing stressors and improving access to and experiences with comprehensive [health](#) care in every phase of life. The burden of these [health disparities](#) cannot fall onto pregnant individuals to mitigate on their own- families and mothers need support."

More information: Monica H. Keith et al, Social Determinant Pathways to Hypertensive Disorders of Pregnancy Among Nulliparous U.S. Women, *Women's Health Issues* (2023). [DOI: 10.1016/j.whi.2023.08.001](#)

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