



The impact of heat on pregnant women and newborns

Extreme weather events, including exposure to high temperatures, affect the health and well-being of pregnant women and can cause adverse birth outcomes. In many countries, women already experience extreme temperatures, and many have limited options to avoid working and staying in the heat. Most countries will experience more frequent and intense heatwaves, drought, and food and water insecurity. Therefore, it is important that maternal and neonatal health services and guidance consider heat risks and that heat health action plans include evidence-based interventions targeted at pregnant women and infants.

The findings presented in this factsheet are from research conducted by the Belmont Forum-funded CHAMNHA project: “Climate, heat, and maternal and neonatal health in Africa”. This project includes partners from Burkina Faso, Kenya, South Africa, Sweden, Norway, United Kingdom, and the U.S. and studies the impact of heat on the health of pregnant and postpartum women and newborns in order to develop protective measures and improve maternal health services.

The purpose of this factsheet series is to showcase key findings from research on climate change and health from projects funded by the EU and Belmont Forum which are part of the ENBEL network. The series includes only findings from research produced by four EU-funded projects

and one JPI Climate-funded project in the ENBEL network as well as from projects funded through the Belmont Forum Climate, Environment and Health Collaborative Research Action (CEH1).

Key findings

- Exposure to heat increases the risk of preterm birth. This effect of heat occurs in most countries, can occur during the summer in temperate zones, and is greater for women who lack good quality maternal care. Heat affects the risk of moderate, very, and extremely preterm births.
- The impact of heat is most apparent a few days before a preterm birth but there is a lack of evidence on the specific physiological mechanisms that cause babies to be born too soon.
- Women in South Africa living with HIV have an increased risk of heat-related preterm birth while other individual factors (e.g., mother's age) do not appear to affect this risk.
- Exposure to high temperatures increases the risk of stillbirth. Acute high temperatures can affect the risk of stillbirth both before and during delivery.
- There is limited evidence regarding the effect of heat on maternal health. Pregnant women are able to thermoregulate so the fetus is protected from temperature extremes until at least the third trimester (for which we have no information). There is currently no evidence that pregnant women are more at risk of heat injury or heat stroke. However, heat does have a range of impacts on health and well-being, particularly among physically active pregnant women.
- High temperatures in the first trimester appear to increase the risk of pregnancy induced hypertension and pre-eclampsia, which is consistent with an adverse effect of heat on the development of the placenta.
- Newborns are particularly vulnerable to heat stress and dehydration from heat exposure that can also undermine infant care and breastfeeding. There is little information on how high temperatures affect newborn mortality or morbidity in African countries due to a lack of data.
- Breastfeeding practices can be significantly affected by high temperatures. Our research indicates that women spend less time breastfeeding during the hottest days. A review of the evidence indicates that infants under 6 months old do not require additional food or fluids so supplementation during breastfeeding should be discouraged, especially in low-income settings, provided that mothers are well hydrated.
- Interviews with mothers in rural Kenya and Burkina Faso found that newborns exposed to high temperatures may develop heat rash and skin problems causing discomfort that may reduce breastfeeding and skin to skin contact.
- In Burkina Faso and Kenya, health facilities can experience high indoor temperatures. Women were less willing or able to access antenatal and postnatal health services in periods of hot weather. Pregnant women may have limited options to reduce their work activities (e.g., domestic and paid work) even in late pregnancy. Women may also have less access to weather information and early warnings of extreme weather events.



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Implications of the research

- The research highlights the vulnerability of pregnant women and newborns to heat, particularly in low-resource settings. Health education and awareness among health professionals, pregnant women, and policy-makers is essential.
- Improved health facilities and better housing are essential to protect pregnant women and infants from heat exposure.
- Recognizing the link between heat exposure and poor infant health outcomes underscores the need for measures that address the impact of temperature extremes on infant health, provide caregivers health-care guidance, and offer advice to pregnant women and breastfeeding mothers during hot weather.

Conclusion

High temperatures affect the health and well-being of pregnant and postpartum women and newborns. Women in low-resource settings may experience exposure to extreme heat due to lack of access to space cooling, and for social reasons, may be less able to avoid working in the heat even in late pregnancy. Evidence-based health guidance for infants, mothers, and health care workers, including nurses and midwives, needs to be developed and implemented. Increased education about heat risks is needed to increase awareness of infant warning signs and to support breastfeeding during hot weather.

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For more information

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