


Invited Perspective: What Do We Know about Fetal–Maternal Health and Health Care Needs after Wildfires? Not Nearly Enough

Colleen E. Reid¹ 

¹Geography Department, University of Colorado, Boulder, Colorado, USA

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Although wildfires have always been a natural and necessary element of many ecosystems, they are becoming more frequent and more severe.¹ This shift can be attributed to a combination of factors, including historical fire suppression, climate change, modifications to fuel loads across the landscape, and greater development at the wildfire–urban interface, which provides more opportunities for humans to ignite fires.²

Several studies show that exposure to wildfire smoke can increase premature mortality,³ affect respiratory⁴ and cardiovascular⁵ health, and increase the risk of respiratory infections.⁶ Due to the large and growing literature on the impacts of air pollution on birth outcomes,⁷ some researchers have begun to investigate the impacts of wildfire smoke in this area as well. In addition to these physiological health effects, there is also growing evidence of significant mental health impacts of living through a wildfire event.^{8,9}

A review in this issue of *Environmental Health Perspectives* by Evans et al.¹⁰ aimed to clarify what we know about birth outcomes and the health and health care needs of childbearing people during and after exposure to a wildfire. By framing the paper in this way, the authors synthesized understanding of the health impacts through both air pollution and mental health pathways—which are not always possible to distinguish during a wildfire event—and provided a holistic perspective of health outcomes for both the pregnant person and the birthed child.

The authors conducted a comprehensive search across four databases but identified only 13 studies that met the inclusion criteria. These 13 included both quantitative and qualitative studies and included studies not just on the health impacts of the newborn, but also on the health impacts to pregnant people, thus broadening the scope of the findings that have been previously reported in reviews solely on birth outcomes and wildfire smoke.¹¹

The lack of studies gave the authors little basis for drawing conclusions about how wildfire smoke affects the health of pregnant people and newborns. However, they stated that the weight of the evidence indicates wildfire smoke is associated with shorter gestation. The literature also supports an association with birth weight that deviates from the standard reference range for the newborn; however, these findings are inconclusive. Six of eight studies found lower birth weight to be associated with wildfire smoke, whereas two found an association with higher birth weight. Both high and low birth weight can be detrimental to the health of the developing child.

Across the quantitative studies analyzed, the authors found differences in study design, particularly in exposure assessment, which made it hard to synthesize results or determine which studies were the least biased. Other differences included contextual factors, such as access to prenatal care and health of the study population. Such factors should be further investigated, given that both studies demonstrating higher birth weight following wildfire exposure were conducted in Australia, whereas the six studies showing lower birth weight were conducted not just in Australia but also in the United States and Brazil.

The authors identified 1–2 studies for each of a variety of other pregnancy-related outcomes, including birth defects, admission to a neonatal intensive care unit, assisted ventilation post birth, gestational diabetes mellitus, gestational hypertension, posttraumatic stress disorder–type symptoms, challenges in breastfeeding, access to health care, and changes in tobacco or alcohol use after a wildfire. Given the dearth of studies, Evans et al. highlighted the need for more research on these topics, including whether domestic violence against pregnant people increases following wildfire events.

This review did document a consistent association between wildfire exposure and increased mental health morbidity among pregnant people exposed to wildfires across three studies. Very few studies on health impacts of wildfires have focused on mental health in general, and even fewer focused on the mental health impacts of pregnant people, despite the high prevalence of postpartum depression.¹²

One key takeaway from this review is that there is an urgent need for more research into the impacts of these extreme events through both mental health and air pollution pathways. It is refreshing for researchers to consider the health of not just the baby but also the pregnant person; the literature on environmental exposures and birth outcomes tends to focus heavily on the child when the health of the pregnant person during and after birth is important in its own right but also important for the newborn to have a physically and mentally healthy parent to care for it. Given worldwide changes in the frequency and severity of wildfires, such information is essential to help inform effective interventions to protect pregnant people and their fetuses from this growing hazard.

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Address correspondence to Colleen Reid, Campus Box 260, University of Colorado, Boulder, CO 80309 USA. Email: colleen.reid@colorado.edu

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