

Study based in Southern California reveals health impacts of repeated wildfires and smoke exposure

August 28 2024



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University of California, Irvine public health researchers have [published](#) a study in the journal *Environmental Research Health* highlighting the

compounded effects of frequent wildfires and smoke exposure on physical and mental health, local economies and community resilience in Southern California.

Through detailed focus groups and surveys across four affected locales—Thermal, Mecca, Oasis and North Shore—in eastern Coachella Valley, the work provides a comprehensive look at the personal and collective toll these disasters take on residents, says corresponding author Suellen Hopper, associate professor of health, society and behavior at UC Irvine's Joe C. Wen School of Population & Public Health.

The eastern Coachella Valley is a desert ecosystem within Riverside County with increasingly invasive grasslands coupled with [extreme heat](#) that frequently experiences wildfires. Hispanic American populations are well established in the valley, with an estimated 92% of residents originating from Latino countries (mostly Mexico). Agriculture and construction are the predominant industries and employers in this region.

Between February and April 2023, Hopper and her team collected and analyzed 118 valley residents' personal stories of evacuations, [health impacts](#) and disruptions to daily life caused by fires and smoke. Their findings are among the few to contribute to the literature about how [low-income](#), marginalized communities can respond to and protect themselves from wildfire threats. They also highlight the strength and perseverance of the people fighting these circumstances.

The residents shared stories with the researchers about physical health issues triggered by wildfire smoke. Breathing difficulties, sinus problems and eye irritation were common, particularly among children, the elderly and those with preexisting conditions. Equally important were the [mental health](#) impacts.

Living with persistent smoke and extreme heat, children unable to go

outside, and [family members](#) working in extreme heat and smoke resulted in continuous psychological stress, anxiety and fear. These psychological stressors were exacerbated by the constant possibility of dangerous wildfires.

"This report is made possible by the eastern Coachella Valley families and community residents who shared their fire experiences and effects with our research team," said Hopfer, who holds a joint appointment in pediatrics. "Through our community-academia partnership, our findings can serve as a critical resource for policymakers, emergency response teams and public health officials aiming to develop more effective support systems to protect ECV's most vulnerable populations."

The findings, she added, underscore the urgent need for improved emergency preparedness and resources. Residents called for better communication channels, affordable trash services to reduce fire risks and tailored fire prevention education in Spanish. The study also emphasizes the importance of community interaction in wildfire mitigation, Hopfer said, with neighbors playing crucial roles in alerting and assisting one another during emergencies.

Additional authors included UC Irvine doctoral candidates Anqi Jiao and Mengyi Li, as well as Jun Wu, professor of environmental and occupational health, from the Joe C. Wen School of Population & Public Health, along with Anna Lisa Vargas from Communities for a New California Education Fund.

More information: Suellen Hopfer et al, Repeat wildfire and smoke experiences shared by four communities in Southern California: local impacts and community needs, *Environmental Research: Health* (2024). [DOI: 10.1088/2752-5309/ad6209](https://doi.org/10.1088/2752-5309/ad6209)

Provided by University of California, Irvine

Citation: Study based in Southern California reveals health impacts of repeated wildfires and smoke exposure (2024, August 28) retrieved 2 September 2024 from <https://medicalxpress.com/news/2024-08-based-southern-california-reveals-health.html>

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