

## RESEARCH BRIEF SERIES

# HEALTH AND EXTREME WEATHER

*This research brief is part of an award program designed to address gaps in knowledge related to extreme weather disasters—such as wildfires, floods, extreme heat, and severe storms—that pose significant health risks, particularly for populations already experiencing health challenges.*

## WILDFIRE SMOKE IN NORTHERN CALIFORNIA: FAMILY RISK PERCEPTIONS AND MENTAL HEALTH IMPACTS

### OVERVIEW

Wildfire smoke emits pollutants that significantly threaten psychological, cardiovascular, respiratory, and neuro-cognitive health. Distinct from other climate change-related hazards, the fluctuating, recurring nature of wildfire smoke may lead to variations in threat perception and response, even within families. Using a dyadic qualitative design, this study examined the mental health concerns, risk perceptions, and protective behaviors among two vulnerable but understudied age cohorts: young adults (ages 18-34) and members of the so-called *sandwich generation* (ages 50-64)—adults who are caring for their children and aging parents at the same time. Twenty parent-child dyads from two California counties with high historical smoke exposure—Sonoma County and Butte County—participated in in-depth interviews.

### KEY FINDINGS

- Interview data suggest that wildfire smoke events heighten the risk of a negative psychological response for both generations, with the smoke acting as a trigger of past wildfire-related traumas.
- Despite heightened anxieties during an acute event, findings also suggest that recurrent exposure to wildfire smoke may have a numbing effect on motivation for taking personal protective action over the long term.



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- Young adult participants described how their experiences with wildfire smoke intertwined with their experiences of the COVID-19 pandemic, leading them to feel a growing sense of fatigue and fatalism about the inevitability of experiencing smoke exposure.

### RESEARCH IMPLICATIONS

The mental health impacts of smoke exposure underscore the need to extend disaster mental health services beyond the immediate aftermath of a wildfire, particularly for families who had to evacuate, were displaced, or who experienced housing damage. The mental trauma from childhood wildfire exposure can persist into young adulthood, suggesting that young adults and adolescents would benefit from counseling support that helps them develop coping strategies. Parents also need additional mental health support to help them cope with the burden of managing their own stress while supporting and protecting their families.

**Full Report:** Lynch, K., Merdjanoff, A., & Abramson, D. (2025). *Wildfire Smoke in Northern California: Family Risk Perceptions and Mental Health Impacts*. (Natural Hazards Center Health and Extreme Weather Report Series, Report 4). Natural Hazards Center, University of Colorado Boulder. [hazards.colorado.edu/health-and-extreme-weather-research/wildfire-smoke-in-northern-california](https://hazards.colorado.edu/health-and-extreme-weather-research/wildfire-smoke-in-northern-california)