



RESEARCH BRIEF SERIES

HEALTH AND EXTREME WEATHER

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\$50,000

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.

LONGITUDINAL EVALUATION OF WILDFIRE IMPACTS ON AN UNHOUSED COHORT IN LOS ANGELES

OVERVIEW

Los Angeles County is home to the largest unsheltered population in the U.S., with around 50,000 people living in tents, makeshift shelters, or vehicles on any given night. During the historic Southern California Wildfires in January 2025, people experiencing homelessness likely experienced disproportionate impacts from the firestorm compared to the general population because of prolonged exposure to hazards, extreme socioeconomic vulnerability, pre-existing health risks, and limited access to health-promoting resources and services.

The objective of this study was to determine the degree of firestorm exposure and its potential short-term health and social impacts for individuals living without stable housing in Los Angeles County. We administered survey questions on exposure two weeks after the wildfires began through the Periodic Assessment of Trajectories of Housing, Homelessness, and Health (PATHS), an ongoing longitudinal monthly panel survey of roughly 550 people experiencing homelessness in Los Angeles County. We linked available participant location data with remotely sensed wind speed and air quality data, and we analysed associations between firestorm exposure variables and self-reported health outcomes

Our findings suggest that unsheltered people experiencing homelessness were especially vulnerable to the firestorm, but that the fire’s impacts did not significantly affect longitudinal measurements of self-reported health and access to basic needs, which were already poor at baseline.



Dense smoke clouds in the hillside over Los Angeles, California in January 2025.

Photo credit: Eley Archive / Shutterstock.com.

KEY FINDINGS

- Among the 403 survey respondents, more than half reported experiencing a disruption related to the January 2025 wildfires and extreme winds. Nearly half (44.2%) reported damage to their living space, 33.0% evacuated, 28.0% lost personal belongings, and 32.8% had greater difficulty finding shelter. Disruptions were most frequently reported among those living unsheltered outdoors or in public spaces, compared to those living in vehicles or some form of temporary shelter or housing.

- One-third of survey respondents experienced extended smoke exposure. Respiratory decline was also common, with 41.6% reporting worsening symptoms, most frequently coughing and shortness of breath.
- While remotely sensed measures of wildfire and extreme wind exposure were useful for illustrating physical hazard intensity and broad geographic gradients of risk, they did not align closely with self-reported experiences in our study.
- At baseline (prior to the January 2025 events), respondents who reported disruption from the firestorm already exhibited higher levels of poor health and social outcomes compared to those who did not, a pattern consistent across multiple indicators including smoke exposure and respiratory symptoms. This baseline imbalance underscores the greater underlying vulnerability of the exposed population.



An encampment in Los Angeles, California in September, 2019.
Photo credit: Philip Pilosian / Shutterstock.com.

- Policymakers should leverage the strengths of people experiencing homelessness by partnering with community-based homeless service organizations that understand these populations intimately and can provide crucial insights on resilience strategies for future disaster planning.
- Homelessness itself constitutes a public health emergency with health impacts comparable to large-scale disasters. Ultimately, effective disaster preparedness requires addressing the root causes of vulnerability through housing solutions and comprehensive health services that build upon existing community strengths.
- Remote-sensing and administrative measures can identify where exposure potential for hazards is greatest, whereas self-reported data provide critical nuances on lived experience and localized consequences during disasters. Such lived experiences may reflect the perceived and experienced harms shaped by factors not fully captured in environmental monitoring, such as housing conditions, baseline health status, or social context. This highlights the value of integrating both sources of data on disaster impact.

AUDIENCE

This research is relevant for local policymakers, public health specialists, and emergency managers seeking to reduce vulnerability and improve health outcomes for people experiencing homelessness.

RESEARCH IMPLICATIONS

- Public health and disaster response efforts should prioritize outreach to unsheltered people experiencing homelessness and increase availability of shelter options. Additionally, if there are forecasted climate events that may lead to disasters, temporary pauses in encampment sweeps and displacements should be implemented.

Full Report: Kuhn, M., Chien, J., Henwood, F. H., & Shannon, E. M. (2026). *Longitudinal Evaluation of Wildfire Impacts on an Unhoused Cohort in Los Angeles*. (Natural Hazards Center Health and Extreme Weather Report Series, Report 9). Natural Hazards Center, University of Colorado Boulder. hazards.colorado.edu/health-and-extreme-weather-research/longitudinal-evaluation-of-wild-fire-impacts-on-an-unhoused-cohort-in-los-angeles



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