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Original Research

Public Health, Risk Perception, and Governance Challenges in the 2025 Los Angeles Wildfires: Evidence from a Community-Based Survey

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Abstract: The January 2025 wildfires in Southern California, notably the Palisades and Eaton Fires, were among the most catastrophic in the state's history, leading to nearly 18,000 structural losses, extensive evacuations, and considerable public health repercussions. This study examines the social, psychological, and policy-related effects of these wildfires via a mixed-methods survey of 90 residents impacted by or near the events. Participants indicated elevated incidences of smoke-related health complications (52%), psychological discomfort (45%), and property or financial losses (35%), with several individuals demonstrating diminished faith in governmental response systems. Awareness of wildfire dangers was moderate; nonetheless, preparatory behaviours, such as establishing evacuation plans, were adopted inconsistently. Confidence in official communication was significantly diminished among historically marginalised populations. Nonetheless, a majority expressed a readiness to engage in community-driven mitigation efforts, encompassing educational programmes and Firewise USA techniques. The study's results correspond with and enhance current literature on climate-induced fire regimes, emphasising deficiencies in prevention-focused governance, mental health interventions, and risk communication. The statistics further underscore the importance of including Indigenous fire stewardship and locally informed preparedness strategies. This research provides timely, community-based evidence to enhance wildfire resilience strategies and facilitates a shift towards more equitable and adaptive fire control systems in California and other high-risk areas.

Keywords: Los Angeles, Wildfires, Public health, Governance, United States

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1. Introduction

The frequency and intensity of wildfires in California have significantly escalated in recent decades due to a combination of climate-related stressors, alterations in land use, and the accumulation of vegetation fuel loads. The January 2025 wildfires in Southern California, comprising the Palisades Fire and Eaton Fire, constituted one of the most devastating wildfire occurrences in modern state history. During a span of three weeks, these fires collectively incinerated 57,565 acres, resulted in 27 civilian deaths, injured numerous first responders, and led to the obliteration of almost 14,000 structures **(CAL FIRE, 2025a; CAL FIRE, 2025b**). The extensive evacuations and infrastructure failure highlighted the growing susceptibility of urban-wildland interface areas, where intense development intersects with fire-prone ecosystems **(Wong et al., 2020)**.

These fires exemplify a wider, intensifying trend. California has witnessed progressively severe wildfire seasons, with historical data indicating prolonged fire seasons and elevated burn rates attributable to human climate change **(Abatzoglou & Williams, 2016)**. This shift is influenced by significant climate factors: elevated summer temperatures, diminished snowpack, earlier snowmelt, and extended droughts – all of which foster optimal conditions for ignition and swift fire propagation **(Flannigan et al., 2000)**. Approximately fifty percent of California's geographical area is currently designated as high-risk for wildfires, presenting a significant ecological and socio-economic hazard **(Westerling, 2016)**.

Megafires have repercussions that reach beyond ecosystems, instigating cascading effects on air quality, public health, and community resilience. Exposure to wildfire smoke, especially fine particulate matter (PM2.5), has been linked to heightened risks of cardiovascular and respiratory diseases **(Reid Colleen et al., 2016)**. Moreover, wildfire-induced migration profoundly undermines mental health and housing stability. Empirical research indicates increased prevalence of PTSD, anxiety, and depression in impacted groups, particularly among youngsters and the elderly **(To et al., 2021)**.

Notwithstanding progress in fire modelling and suppression technologies, a significant deficiency remains in comprehending the human aspects of fire: how individuals assess risk, participate in preparedness initiatives, and react to public policy. Studies indicate that the majority of wildfire research continues to emphasise biophysical modelling rather than public perception and adaptive behaviors **(Mockrin et al., 2020)**. The absence of real-time community data undermines the basis for effective risk governance and mitigation planning **(Reynolds & Seeger, 2005)**. California has achieved significant policy advancements, encompassing revised construction standards, enforcement of defensible space, and fuel management initiatives. However, deficiencies persist especially in evacuation coordination, citizen involvement, and outreach to at-risk communities **(Shittu et al., 2018)**. Although community-based initiatives such as Firewise USA exhibit potential, their execution is

inconsistent and frequently constrained by socioeconomic variables **(Kampfschulte & Miller, 2023)**. This study enhances the ongoing discourse on wildfire resilience by providing data from a structured survey of 90 persons affected by the 2025 Southern California wildfires. The findings seek to inspire inclusive, community-driven fire governance models by analysing public experiences, readiness levels, and preferred mitigation options in a fast-evolving climate context.

2. Literature Review

The rising occurrence and intensity of wildfires in California, especially the 2025 Southern California wildfires, are broadly recognised as connected to human-induced climate change and prolonged ecological transformations. Numerous studies indicate that elevated temperatures, less humidity, extended droughts, and heightened wind events have increased fire activity in the western United States. Climate-induced alterations in fuel aridity and temperature extremes have significantly heightened the probability of extensive wildfire occurrences in U.S. woods **(Abatzoglou et al., 2021)**. Prolonged drying trends and extreme weather fluctuations, including heatwaves and low-precipitation cycles, have exacerbated fire risk, especially in California's Mediterranean ecosystems **(Jones et al., 2022)**. Global meta-analyses corroborate these findings, indicating a concerning increase in fire frequency and spatial extent under climate change scenarios.

However, comprehending the ecological dynamics in isolation provides an inadequate perspective. The human ramifications of wildfires are equally severe often more enduring. A multitude of studies has recorded the social, psychological, and health effects associated with wildfire exposure. Communities impacted by wildfires exhibit elevated incidences of post-traumatic stress disorder (PTSD), anxiety, and depression, especially among displaced persons or those who suffer the loss of homes and livelihoods **(Fatima, 2022)**. Simultaneously, exposure to wildfire smoke, particularly fine particulate matter (PM2.5), markedly elevates respiratory and cardiovascular health risks **(Yu et al., 2023)**. Hospital admissions have surged during and after fire incidents, particularly among children, the elderly, and individuals with pre-existing health issues **(Skinner et al., 2022)**.

The convergence of risk perception and preparedness influences community responses to wildfire threats. The public's comprehension of wildfire risk significantly affects emergency preparedness and evacuation choices; nonetheless, substantial deficiencies persist in both knowledge and action **(Cohn et al., 2006)**. Psychological and cultural influences frequently skew individuals' threat perception, therefore impacting their readiness to evacuate or prepare. Elements such as previous experience, social trust, and access to information significantly influence decision-making in the face of threat **(Martin et al., 2007)**. In this context, confidence in institutions is crucial. In times of disaster, confidence in government and media significantly affects adherence to evacuation directives and public safety communications.

Public perception is shaped via communication, education, and direct interaction. Community-level drills and practical wildfire preparedness initiatives markedly enhance individual preparedness and self-assurance **(Slovic & Paul, 2010)**. Resilience is not solely informational but also behavioural anchored in continuous community involvement and training. Although these behavioural studies emphasise individual reactions, institutional deficiencies frequently hinder systemic readiness. The wildfire policy environment is largely governed by suppression measures, despite increasing evidence of their inadequacy in addressing climate-enhanced hazards **(Moritz et al., 2014)**. Worldwide wildfire governance models reveal that fire management plans often lack integration with ecological or community-orientated strategies**(Eriksen & Prior, 2011)**. Deficiencies in evacuation and land-use strategy, notably the neglect of localised knowledge and sociocultural intricacies, are common. The disjunction between hierarchical planning and community requirements has resulted in policy inadequacies and diminished public trust in certain regions **(Kroepsch et al., 2018)**.

Acknowledging these constraints, an increasing volume of research has focused on community-based and Indigenous-led wildfire management approaches. The notable approach, Firewise USA, has demonstrated efficacy in enhancing local risk awareness and diminishing susceptibility via property-level planning, neighbourhood collaboration, and fire-resistant landscaping **(Heim & Acosta)**. Indigenous fire stewardship techniques, including cultural burning, have garnered increasing recognition in academic and policy domains. These behaviours provide ecologically viable and culturally rooted alternatives to suppression-based techniques, aiding in the preservation of biodiversity and the reduction of fuel loads in fire-adapted ecosystems **(Lake & Christianson, 2020)**.

Comparative international research demonstrates that decentralised, participative techniques frequently surpass inflexible, centralised models. Equipping communities with resources, education, and collaborative governance frameworks not only improves preparedness but also fosters enduring resilience. These models illustrate that wildfire resilience cannot be achieved solely through technical solutions; it necessitates a comprehensive understanding of the interplay among environmental, health, policy, and social systems **(Prior & Eriksen, 2013)**. This collection of work emphasises that wildfires are not merely natural disasters; they are socio-environmental phenomena influenced by climate, behaviour, governance, and local capability. The 2025 Southern California wildfires exemplify these interconnections, underscoring the critical necessity for comprehensive wildfire management solutions that integrate natural reality with human systems.

3. Methodology

This study utilised a questionnaire-based, mixed-methods technique to evaluate the impact, perception, readiness, and mitigation views of residents impacted by the January 2025 Southern California wildfires. The survey aimed to produce quality-driven data in a context where extensive

data collection was limited by restricted access and the emotional sensitivity of the impacted people. The study was performed in wildfire-affected regions of Southern California, specifically targeting high-impact locations such as Altadena (Eaton Fire) and Pacific Palisades (Palisades Fire). These sites were chosen for their considerable destruction, elevated evacuation rates, and varied population demographics. Due to logistical and ethical constraints, data collection occurred on-site where access was authorised by local authorities. The team prioritised safety and ethical considerations, refraining from behaviours that could disrupt emergency response or induce distress in individuals.

Data were gathered by the in-person administration of standardised questionnaires. A non-random, purposive sampling method was employed to involve those directly or indirectly impacted by the fires. The study team members visited specified areas and disseminated printed surveys and digital forms on-site using tablets. The poll was accessible from February 8 to March 8, 2025, allowing a one-month period for data collecting. Participants were approached with respect, educated of the study's objective, and made aware of their ability to withdraw or omit any question at any moment.

Figure 1: Wildfire questionnaire components.

The questionnaire comprised 14 items, systematically categorised into four principal domains: (1) general demographic data (e.g., age, occupation, duration of residence); (2) experiences and perceived effects of the wildfire; (3) awareness of wildfire risk and preparedness actions; and (4) perspectives on governmental policies, emergency response mechanisms, and prospective mitigation strategies. The majority of questions were closed-ended, employing multiple-choice or Likert-scale responses; however, a single open-ended question solicited participants' suggestions for enhancing wildfire control in Los Angeles.

All survey data were aggregated and analysed utilising Microsoft Excel. Descriptive statistical methods frequency distributions, percentage analyses, and fundamental cross-tabulations were utilised to evaluate overarching tendencies within the sample. Manual thematic coding was employed for the open-ended item to discern reoccurring themes, concerns, and suggestions articulated by respondents. Given the delicate circumstances of the post-disaster environment and the existing constraints, the

Figure 2: Research workflow for the wildfire impact study conducted in Los Angeles, January–March 2025.

survey adhered to an anonymous and ethically rigorous data-gathering approach. No personally identifying information was collected. Participants were explicitly apprised of the study's scholarly

intent, and their involvement was wholly voluntary. The research did not engage vulnerable populations or clinical interventions and presented no danger to participants; thus, a formal assessment by the institutional ethics board was unnecessary.

Nonetheless, certain restrictions must be recognised. The ultimate sample size, however thematically rich, was limited by access permissions, the emotional readiness of potential participants, and the restricted timeframe for safe post-fire fieldwork. The poll was administered many weeks post-wildfire occurrences, potentially impacting the immediacy of participants' recollections. Moreover, those experiencing significant trauma or displacement may have been inadequately represented due to non-response or lack of presence in accessible areas. These limitations, while considerable, do not diminish the study's contribution to comprehending the complex human effects of climate-augmented wildfire tragedies in Southern California.

4. Results

This section presents the findings from a survey conducted with 90 individuals affected by the January 2025 Southern California wildfires, primarily from high-impact areas such as Altadena (Eaton Fire) and Pacific Palisades (Palisades Fire). The results are organized into five thematic categories: demographic characteristics, wildfire exposure and impact, awareness and preparedness, policy and mitigation preferences, and qualitative insights.

4.1. Demographic Characteristics

Respondents represented a wide age range, with the largest group aged 36–45 (30%), followed by 26–35 (25%) and 46–55 (20%). The remaining participants were aged 18–25 (10%) and 56+ (15%). Most had lived in Los Angeles for more than 10 years (45%), followed by 6–10 years (30%), 1–5 years (20%), and less than a year (5%). Occupationally, 40% identified as residents from the wildfire-affected areas, while the remaining respondents included students (15%), emergency responders (15%), researchers (10%), government officials (10%), and others (10%).

Table 1. Demographic Summary

Response Category	Percentage (%)	Respondents (n=90)
Age Group		
18–25	10%	9
26–35	25%	22
36–45	30%	27
46–55	20%	18
56+	15%	14
Occupation		

Student	15%	14
Researcher	10%	9
Govt. Official	10%	9
Emergency Responder	15%	14
Resident	40%	36
Other	10%	9
Years in LA		
Less than 1 year	5%	4
1–5 years	20%	18
6–10 years	30%	27
More than 10	45%	40

4.2. Wildfire Exposure and Impact

A majority (65%) of respondents reported being directly affected by the wildfire. Key impacts included health issues due to air pollution (50%), psychological distress (45%), and evacuation (40%). A smaller but significant portion faced economic losses (35%) and property damage (30%). Half of the respondents perceived the wildfire's environmental impact as "severe," and 20% as "catastrophic."

Table 2. Wildfire Exposure and Impact

Response Category	Percentage (%)	Respondents (n=90)
Directly Affected		
Yes	65%	58
No	35%	32
Types of Impact (multi)		
Property Damage	30%	27
Evacuation	40%	36
Health Issues	50%	45
Economic Loss	35%	32
Psychological Distress	45%	40
Severity of Environmental Impact		
Minimal	5%	4
Moderate	25%	22
Severe	50%	45
Catastrophic	20%	18
Long-term Effects Noticed		
Yes	60%	54
No	20%	18
Not Sure	20%	18

4.3. Awareness and Preparedness

Participants' knowledge of wildfire risk before the January 2025 event was moderate to high, with 35% identifying as "very informed" and 50% as "somewhat informed." Only 15% considered themselves "not informed." Half of respondents had a personal or family emergency plan, while 30% did not and 20% were unsure. Information was primarily obtained from news media (70%), government agencies (55%), and social media (50%), followed by community meetings (30%) and scientific publications (20%).

Figure 3: Community-based field survey conducted in Los Angeles County following the January 2025 wildfires. The team administered questionnaires to residents across affected neighborhoods, gathering data on health impacts, psychological stress, preparedness, and perceptions of governance. Data collection followed ethical guidelines and was anonymized due to post-disaster sensitivity.

Table 3. Risk Awareness and Preparedness

Response Category	Percentage (%)	Respondents (n=90)
Awareness		
Very Informed	35%	32
Somewhat Informed	50%	45
Not Informed	15%	14
Sources of Information (multi)		
Government Agencies	55%	50
News Media	70%	63
Social media	50%	45
Community Meetings	30%	27
Scientific Publications	20%	18

Emergency Planning		
Yes	50%	45
No	30%	27
Not Sure	20%	18

4.4. Mitigation Preferences and Policy Perceptions

The respondents were asked to prioritize wildfire prevention and management options. The most popular options were emergency response infrastructure (60%), community education and awareness (55%), early warning systems (50%), research funding (45%), stricter land-use rules (40%), and controlled burns (35%).

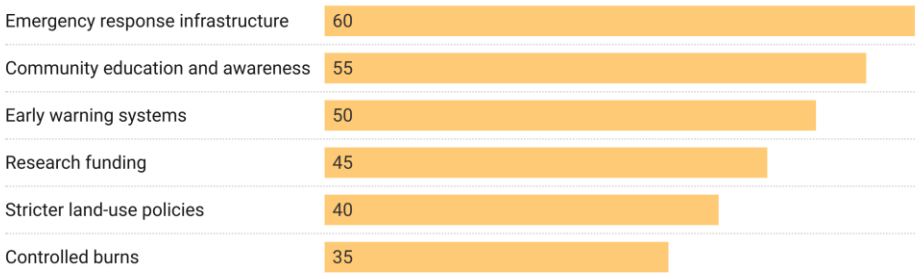

Figure 4: Respondent priorities for wildfire mitigation measures in Los Angeles following the January 2025 fires.

Most respondents (60%) said they would be willing to participate in community-based wildfire prevention efforts. Only 15% said they would not. In terms of government policy, only 10% rated current measures as "very effective," while 50% considered them "somewhat effective." A notable 30% felt policies were "not effective," and 10% were unsure.

Table 4. Mitigation Strategies and Government Response

Response Category	**Percentage (%)**	**Respondents (n=90)**
Preferred Mitigation Measures (multi)		
Stricter Land-Use Policies	40%	36
Enhanced Early Warning Systems	50%	45
Community Education & Awareness	55%	50
Emergency Response Infrastructure	60%	54
Wildfire Research Funding	45%	40
Controlled Burns	35%	32
Willingness to Join Initiatives		
Yes	60%	54
No	15%	14
Maybe	25%	22

Effectiveness of Government Policy		
Very Effective	10%	9
Somewhat Effective	50%	45
Not Effective	30%	27
Not Sure	10%	9

4.5. Qualitative Insights

Responses to the open-ended question yielded several thematic suggestions Many emphasized the need for greater wildfire awareness campaigns in schools and neighbourhoods. Several called for stronger building regulations, particularly in high-risk zones. Technological recommendations included modern firefighting equipment, drone surveillance, and AI-based early warning systems. Others proposed incentives for fire-resistant construction materials and community-led disaster simulations to improve preparedness. These narratives reinforce quantitative findings and underscore public demand for community-cantered, evidence-based wildfire management.

5. Discussions

This study's findings offer significant insights into public experience, perception, and readiness regarding the January 2025 Southern California wildfires, namely the Palisades and Eaton fires. The study of 90 inhabitants underscores a multifaceted convergence of environmental health effects, psychological repercussions, public risk perception, governance obstacles, and mitigation desires. These findings not only corroborate previous studies but also uncover community-level intricacies that hold significant implications for wildfire management and policy formulation in ecologically susceptible areas.

In accordance with prior research, health issues surfaced as a significant consequence, especially respiratory difficulties arising from smoke exposure **(Naeher et al., 2007; Ansari et al., 2024)**. More than 50% of participants indicated experiencing health consequences from inadequate air quality, highlighting the necessity for public health programmes focused on air quality surveillance and prompt response measures during fire incidents **(Mithun et al., 2024)**. Prolonged exposure to fine particulate matter from wildfire smoke has been linked to heightened hospitalisations for cardiovascular and respiratory ailments, underscoring the gravity of these occurrences **(Haikerwal et al., 2015)**.

Psychological stress and trauma emerged as notable effects, with almost 45% of respondents reporting psychological suffering. Marginalised populations, including economically disadvantaged households and emergency personnel, are particularly susceptible. Survey results indicate that first responders endure much greater levels of distress compared to the general population. The alignment of findings underscores the necessity of incorporating mental health services into catastrophe preparedness and

recovery strategies.

The study indicated moderate public risk awareness and significant deficiencies in preparedness. Merely 50% of participants possessed a wildfire emergency plan. A pervasive lack of confidence in official communications constituted another significant obstacle. This reflects wider patterns in historically marginalised populations, where past neglect and uneven communication diminish adherence to evacuation orders. These interactions necessitate community-driven communication strategies customised for social vulnerability.

Participants predominantly endorsed enhanced emergency infrastructure, educational initiatives, and land-use regulations for mitigation preferences. Nonetheless, their assessment of governmental initiatives was predominantly negative 30% characterised the programmes as ineffectual, while an additional 10% expressed uncertainty over their efficacy. These issues indicate persistent governance challenges, characterised by excessive expenditure on repression rather than prevention. Criticism persists concerning delays in emergency response and the absence of warning systems following previous fire incidents **(Regehr & Bober, 2005; Kuddus et al., 2022)**. These deficiencies underscore the pressing necessity to reallocate resources towards prevention, education, and equitable recovery strategies.

Many respondents expressed a readiness to engage in community-led preventative activities. Community-based initiatives that prioritise property-level risk mitigation and cooperation have shown reduced structural loss rates. Nonetheless, engagement in low-income and rental communities remains minimal, indicating a necessity for equity-centred outreach. Moreover, Indigenous-led methods like prescribed burns have demonstrated significant efficacy in mitigating wildfire intensity and restoring ecological equilibrium. Public endorsement of these ecocultural solutions indicates the possibility of policy transitions towards co-management frameworks that empower Indigenous and local populations **(Regehr & Bober, 2005)**.

Notwithstanding these significant discoveries, certain restrictions require consideration. Access constraints and post-disaster sensitivity resulted in a limited participant size, and the survey was administered weeks after confinement, which may have influenced recollection accuracy. Furthermore, although our study concentrated on public perception and community impact, it excludes technical environmental data and clinical health records, which could augment the analytical depth.

Future research should emphasise longitudinal studies that monitor recovery, mental health outcomes, and preparedness behaviours across time. Monitoring public opinion in real-time during wildfires, alongside geographical and environmental data, would enhance policy-relevant insights. Further assessment of grassroots and Indigenous fire control initiatives is essential to scale effective models and integrate community resilience into wildfire governance.

This study enhances the existing evidence regarding the diverse effects of wildfires on health, mental

well-being, societal trust, and policy effectiveness. As climate change exacerbates fire seasons in California and elsewhere, the incorporation of community perspectives, evidence-based policies, and equity-focused mitigation techniques is essential for enhancing resilient and adaptive wildfire management.

6. Conclusion

The January 2025 Southern California wildfires exposed significant issues in public health, mental health, preparedness, and administration. This study, based on community-level data, emphasises that the effects of wildfires transcend ecological harm and significantly influence social systems. Residents' experiences indicate distinct requirements: enhanced emergency infrastructure, equitable risk communication, and the incorporation of Indigenous and community-led mitigation strategies. This paper advocates for a transition to adaptive, prevention-orientated wildfire management that prioritises resilience, justice, and sustained recovery by integrating local insights with scientific knowledge.

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Author Contribution
The authors were involved in the creation of the study design, fieldwork, data analysis, and execution stages. Every writer gave their consent after seeing the final work.

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A statement of conflicting interests
The authors declare that none of the work reported in this study could have been impacted by any known competing financial interests or personal relationships.

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