

Smoke, heat and stress: A snapshot from Southern California of life in an altered climate

December 14 2021, by Kyla Thomas

Wildfires are seriously affecting air quality in Los Angeles

Half of all respondents in the LABarometer Survey said they avoided going outdoors at some point in 2021 because of wildfire smoke, up from 30% in 2020.



Surveys conducted June 3-July 13, 2020 (1,421 respondents) and July 19-Sept. 5, 2021 (1,244 respondents) Credit: Chart: The Conversation, CC BY-ND Source: USC Dornsife

From record-breaking heat waves to massive wildfires, floods and long-running drought, the impacts of climate change across the U.S. have been impossible to ignore in 2021. While conditions vary from one region to another, it is clear that no part of the nation will be unaffected.

I work in Southern California, a region long famous for its [temperate climate](#). For the past two years, my colleagues and I at the [USC Dornsife Center for Economic and Social Research](#) have been surveying a representative internet panel of 1,800 Los Angeles County residents to

better understand how social and environmental factors such as [climate change](#) affect people's well-being.

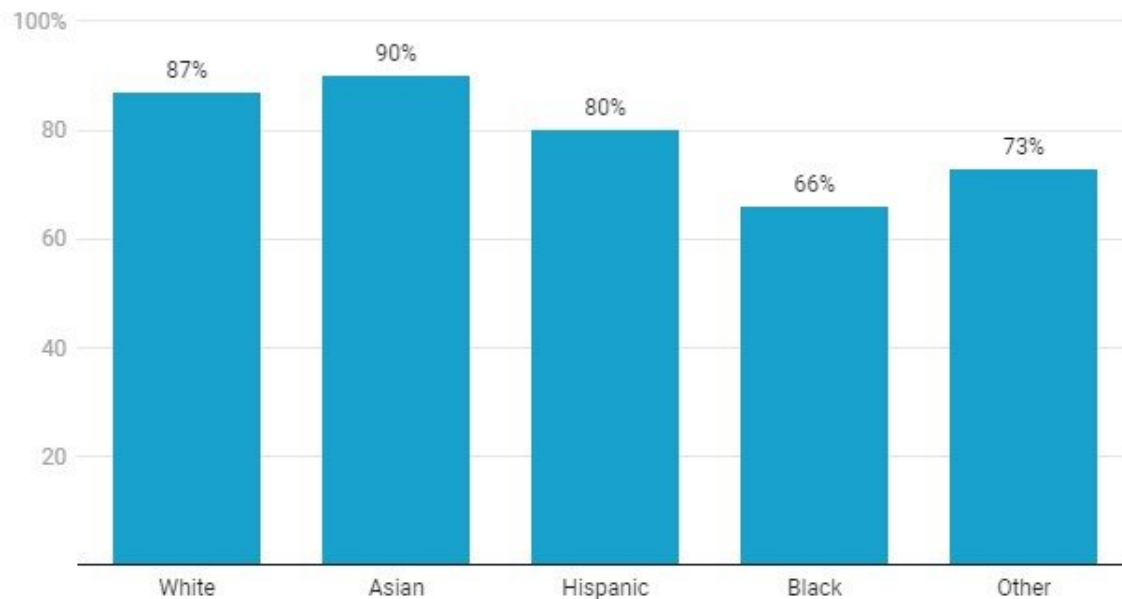
For areas of the U.S. that have yet to feel the full force of rising temperatures, the results of our latest [USC Dornsife-Union Bank LABarometer survey](#) show what kinds of challenges they can expect. In Los Angeles the climate crisis is already reducing the quality of residents' lives. And our findings clearly show that its impacts are falling disproportionately on residents who are young, poor, Black and Hispanic.

Growing numbers are staying indoors

The COVID-19 pandemic wasn't the only threat to [public health](#) in 2021. Wildfires burned more than [6.8 million acres](#) across the U.S. after consuming 10.1 million acres in 2020. And our data shows that many L.A. residents stay home when wildfires threaten air quality in their neighborhoods.

Access to air conditioning at home in Los Angeles varies by race

One in three Black respondents in the LABarometer survey lives in a home without air conditioning, compared with one in eight white residents.



Survey conducted July 19-Sept. 5, 2021; 1,244 respondents Credit: Chart: The Conversation, CC BY-ND Source: USC Dornsife

According to our survey, 50% of Angelenos avoided going outdoors at some point between July 2020 and July 2021 because of air quality concerns from a nearby wildfire, up from 30% in the previous year. We expect this number will continue to grow as wildfires increase in frequency and size. A recent [climate vulnerability assessment](#) predicts that by 2050 there could be a 40% increase in area burned by wildfires in Los Angeles.

Large-scale wildfires have become annual events in California in an ever-expanding fire season. Los Angeles residents have received [warnings](#)

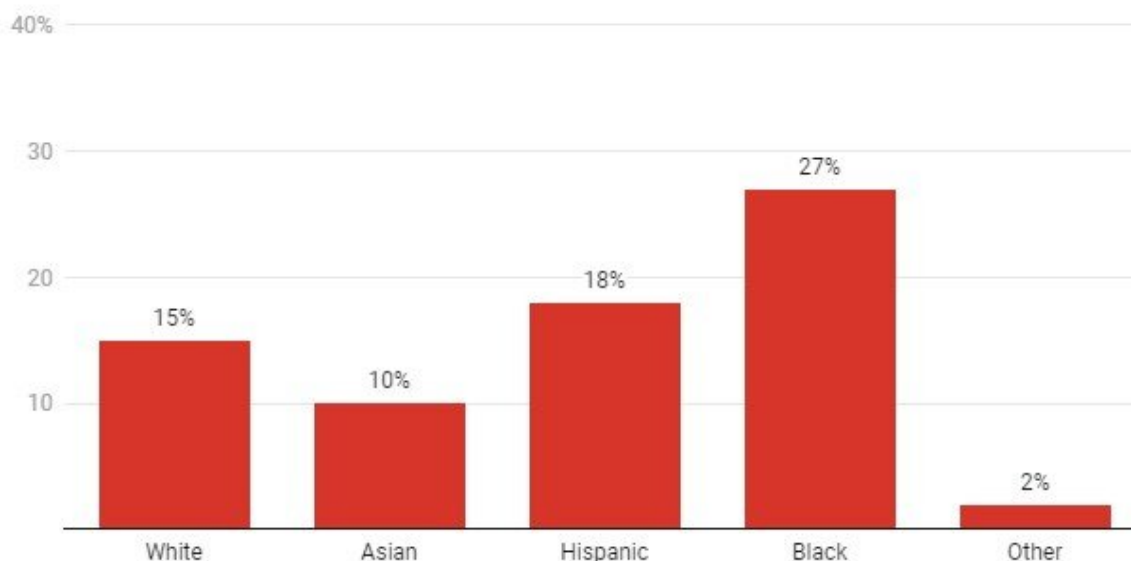
about the [health risks](#) of wildfire smoke, which can cause lung damage and worsen cardiovascular problems like heart disease and stroke with heavy or long-term exposure. These health risks may explain why Angelenos are increasingly curtailing outdoor activities when wildfires are burning.

Exposed to heat at home and work

Southern California is no stranger to heat, but the frequency, intensity and length of its [heat waves](#) have [increased substantially since the 1950s](#), especially in urban areas like Los Angeles County. Los Angeles experienced multiple heat waves in the summer and fall of 2021, with [triple-digit temperatures in many zones](#).

Black Angelenos are most likely to be exposed to heat on the job

One in four Black respondents reported holding jobs that require them to work outdoors without cover.



Survey conducted July 19-Sept. 5, 2021; 1,244 respondents. Credit: Chart: The

Conversation, CC BY-ND Source: USC Dornsife

By 2050, Los Angeles expects up to a [tenfold increase](#) in the frequency of extreme heat waves. This equates to over five heat waves per year compared with the historic average of less than one per year.

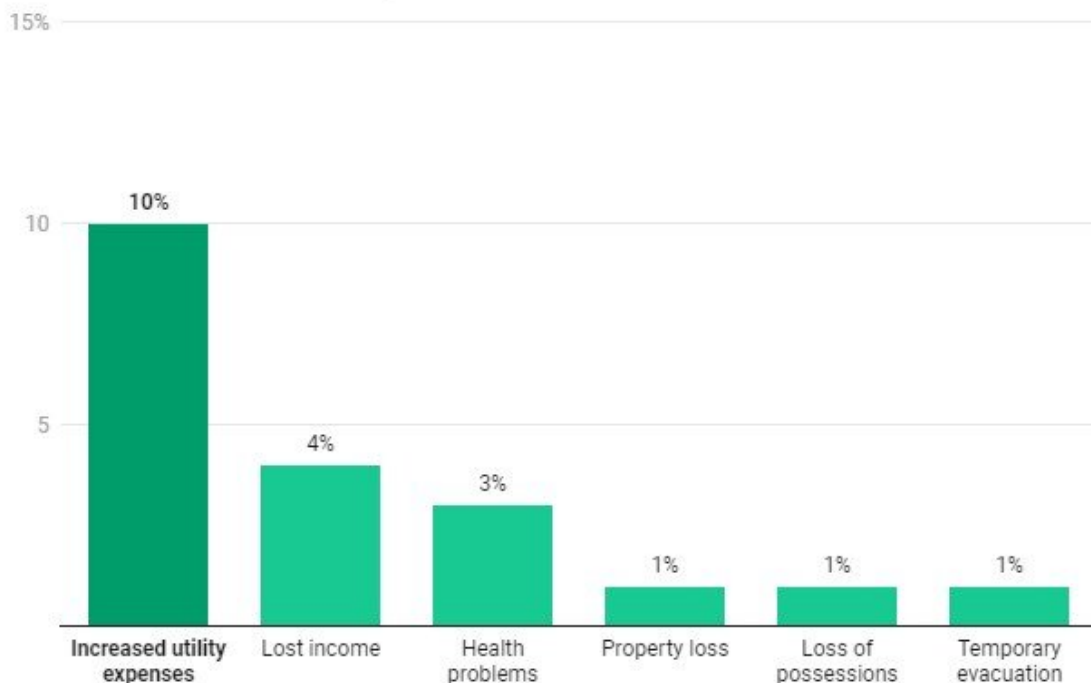
This forecast poses troubling implications for health equity in the region. According to our data, vulnerability to heat is unequally distributed across the population. Black residents are significantly more likely than white residents to be exposed to heat at home and at work.

At home, rates of access to air conditioning are heavily stratified by race. Asian and white residents are the most likely to report having air conditioning in their homes (90% and 87%, respectively), while Black residents are the least likely to have this amenity (66%).

At work, approximately 27% of Black residents report working outdoors without cover—for example, from a tent or booth—compared with 18% of Hispanic residents, 15% of white residents and 10% of Asian residents. Prolonged heat exposure, especially without the opportunity to cool off overnight, is a serious health risk.

Angelenos are feeling many impacts from extreme weather

Respondents reported increased expenses, property losses and other impacts from natural disasters such as wildfire, flooding and extreme heat between mid-2020 and mid-2021.



Survey conducted July 19-Sept. 5, 2021; 1,244 respondents Credit: Chart: The Conversation, CC BY-ND Source: USC Dornsife

Expensive and stressful

Our survey also reveals that climate change is affecting Angelenos' financial and mental health. According to self-reported data, nearly 10% of residents saw an increase in their utility expenses, 4.4% lost income and 3.1% suffered health problems because of a natural disaster such as [wildfire](#), flooding or extreme heat in the past year.

Living in Los Angeles has never been risk-free: Earthquakes are a well-known hazard here and elsewhere in California. But climate change is

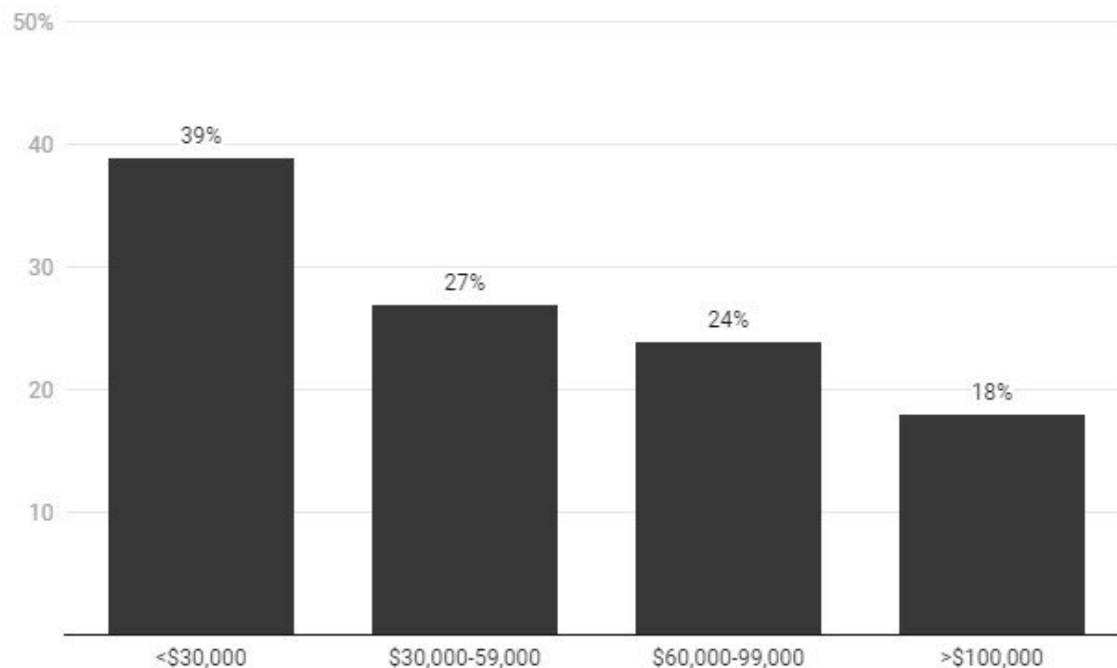
magnifying other threats, such as wildfires, droughts and [heat](#) waves. All of these events can damage property, threaten residents' health and safety and force some people from their homes.

Natural disasters can also trigger various forms of psychological distress. Over 1 in 4 Angelenos reported experiencing some form psychological distress over the past 12 months because of a natural disaster, including anxiety, depression, prolonged fatigue or high stress.

These mental health impacts were most pronounced among young and low-income residents. Angelenos with a household income below \$30,000 per year were almost twice as likely as those with higher incomes to report psychological distress due to a natural disaster. Likewise, compared with Angelenos ages 60 and older, more than twice as many Angelenos under age 40 reported experiences of psychological distress due to a natural disaster.

Low-income Angelenos report the most psychological distress due to natural disasters

Twice as many low-income respondents experienced psychological distress due to a natural disaster such as wildfire, flooding or extreme heat as their wealthiest neighbors.



Survey conducted July 19-Sept. 5, 2021; 1,244 respondents. Credit: Chart: The Conversation, CC BY-ND Source: USC Dornsife

The climate crisis is a social and economic crisis

As cities and counties around the country brace for more extreme climate conditions, our findings in Los Angeles show that extreme weather can have serious social and economic impacts. In the span of just the past year, climate change has left millions of Americans isolated and financially or psychologically distressed.

Adapting to these risks isn't just a matter of weatherizing homes and

educating the public about climate hazards. Local governments also need to prepare for inevitable strains on social and [health](#) care systems as climate conditions make it increasingly difficult for people to meet their most basic needs.

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