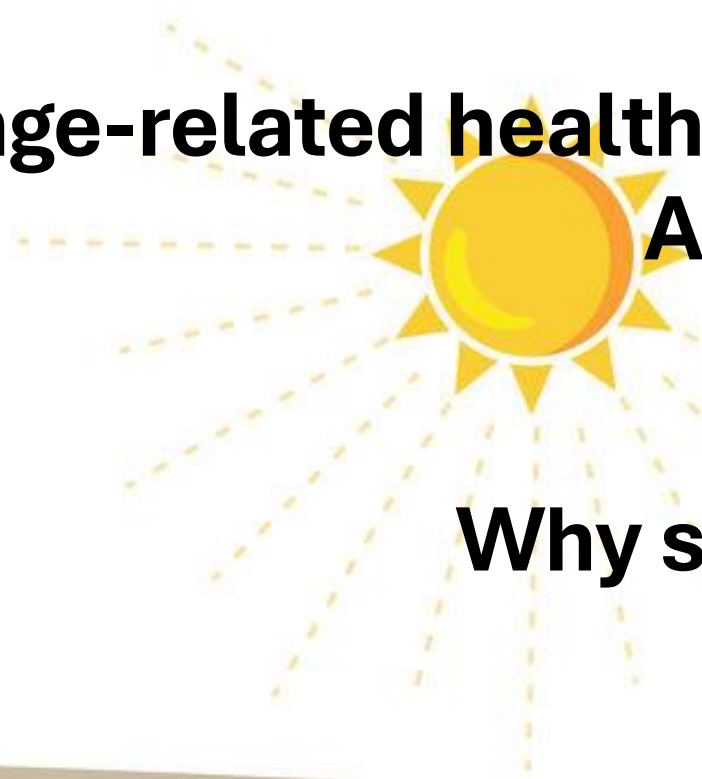


Climate change-related health impacts in the world, Africa and South Africa



Why should we be worried?



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5 December 2024

People are dying from climate change



- Findings from the 2022 Report of the Lancet Countdown: Tracking progress on health and climate change
 - Extreme heatwaves in 2020 were associated with 98 million more people suffering from food insecurity than annually in 1981-2010.
 - Heat exposure led to 470 billion potential labor hours lost globally in 2021.
 - Life-threatening extreme weather events are becoming increasingly frequent, and weather conditions are becoming more suitable for the spread of infectious diseases.

What's happening in Africa?

IPCC AR6 Africa Chapter 2021

Summary of confidence in direction of projected change in climatic impact drivers in Africa

Climatic impact drivers are drivers of impacts that are of climatic origin that affect an element of society or ecosystems

IPCC AR6 Chapter 9, 2021

Region	Climatic Impact-Driver																									
	Heat and Cold				Wet and Dry						Wind			Snow and Ice		Coastal & Oceanic				Other						
	Mean air temperature	Extreme heat	Cold spell	Frost	Mean precipitation	River flood	Heavy precipitation and pluvial flood	Landslide	Aridity	Hydrological drought	Agricultural and ecological drought	Fire weather	Mean wind speed	Severe wind storm	Tropical cyclone	Sand and dust storm	Snow, glacier and ice sheet	Hail	Relative sea level	Coastal flood	Coastal erosion	Marine heatwave	Ocean acidity	Air pollution weather	Atmospheric CO ₂ at surface	Radiation at surface
North Africa (MED)*	●	●	●	●	●				●	●	●	●	3					●			4	●		●	●	
Sahara (SAH)	●	●	●			●													●		4		●		●	
Western Africa (WAF)	●	●	●		1				1	1	1								●		4	●	●	●	●	
Central Africa (CAF)	●	●	●			●													●		4		●	●	●	
North Eastern Africa (NEAF)	●	●	●		1,2				1	1	1								●		4		●	●	●	
South Eastern Africa (SEAF)	●	●	●		1				1	1	1			3					●		4		●	●	●	
West Southern Africa (WSAF)	●	●	●	●					●	●	●								●		4		●	●	●	
East Southern Africa (ESAF)	●	●	●	●		●			●	●	●			3					●		4,5		●	●	●	
Madagascar (MDG)	●	●	●			●				●	●			3					●		4,5		●	●	●	

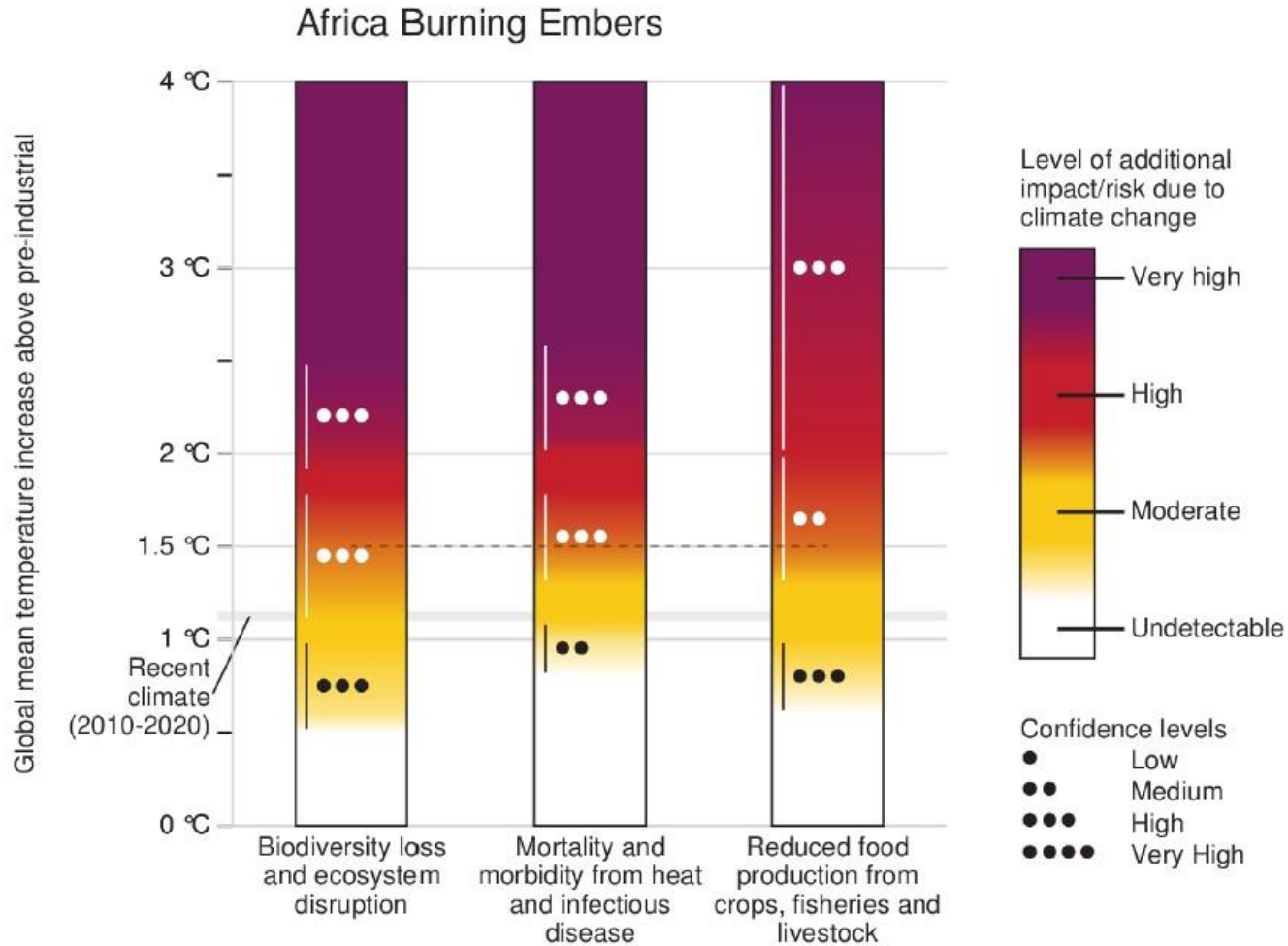
1. Contrasted regional signal: drying in western portions and wetting in eastern portions
2. Likely increase over the Ethiopian Highlands
3. Medium confidence of decrease in frequency and increase in intensity
4. Along sandy coasts and in the absence of additional sediment sinks/sources or any physical barriers to shoreline retreat.
5. Substantial parts of the ESAF and MDG coasts are projected to prograde if present-day ambient shoreline change rates continue

* North Africa is not an official region of IPCC AR6, but assessment here is based upon the African portions of the Mediterranean Region

- Already emerged in the historical period (*medium to high confidence*)
- Emerging by 2050 at least in Scenarios RCP8.5/SSP5-8.5 (*medium to high confidence*)
- Emerging after 2050 and by 2100 at least in Scenarios RCP8.5/SSP5-8.5 (*medium to high confidence*)

Key	
Blue	High confidence of decrease
Light Blue	Medium confidence of decrease
White	Low confidence in direction of change
Light Orange	Medium confidence of increase
Red	High confidence of increase
Grey	Not broadly relevant

Things have changed, and they will change more for the worse



Globally, 12 million lives are lost every year from living or working in unhealthy environments



Dust Storm Impacts

- Vehicular accidents (visibility)
- Eye irritation
- Respiratory effects (e.g., COPD)



Flood Impacts

- Drowning
- Injuries
- Spread waterborne diseases
- Loss of infrastructure



Maternal and Child Health

- Pre-term birth
- Stillbirth
- Low birth weight
- Stunting
- Malnutrition
- Asthma
- Allergies
- Learning disabilities
- Epigenetic effects



Non-communicable Diseases

(Increased frequency/severity)

- Acute and chronic respiratory diseases
- Type-2 diabetes
- Cardiovascular disease
- Cancers
- Mental disorders
- Injuries
- Malnutrition



Infectious Diseases

- Vector-borne
- Water-borne
- Food-borne
- Rodent-borne
- Air-borne
- Zoonoses



Snowstorm Impacts

- Injuries
- Cardiac conditions
- Respiratory effects (due to power outages and burning of dirty fuels)
- Post-traumatic stress disorder

Climate-change Related Health Impacts in Africa

(Non-Exhaustive)



Drought Impacts

- Food insecurity
- Malnutrition
- Stunting
- Respiratory effects



Storm Impacts

- Injury
- Loss of life
- Stress
- Anxiety
- Destruction/ Loss of healthcare facilities
- Disruption to healthcare access/services
- Contamination of drinking water sources
- Increased risk of waterborne diseases



Wildfire Impacts


- Smoke inhalation
- Eye irritation
- Respiratory effects
- Drought impacts
- Food and personal hygiene
- Food and water security
- Undernutrition (due to reduced food yield and quality)



Mental Health

Health, environmental and economic impacts and consequences of climate change related disasters contributes towards feelings of:

- Sadness, fear, despair, grief, anxiety
- Mood disorders
- Increased risk of suicide
- Violence/aggression
- Sleep disorders
- Substance abuse
- Mental disorders



Heat-related Impacts

- Heat stress
- Heat exhaustion
- Heat stroke
- Increased risk of mortality associated with pre-existing chronic health conditions
- Dehydration
- Heat exhaustion and stress can lead to damage to brain, kidneys and liver.



Socio-health Impacts

- Conflict over resources (water, arable land)
- Forced migration due to weather-related disasters
- Reinforced gender inequities
- War
- Displacement
- Loss of jobs and income

Climate change and health impacts in South Africa

- Pressing climatic changes:

- Increase in ambient temperature
- Increase in hot days / heatwaves intensity
- Heavy rainfall
- Flooding
- Drought
- Air pollution
- Dust storms

- Health impacts include:

- Mortality
- Cardiovascular / cardiorespiratory
- Heatstroke
- Diarrhea
- Infectious diseases
- Injuries
- Etc.



'We were struggling to breathe': Five farm workers died of heat stroke in sweltering Northern Cape heat

Cebelihle Mthethwa

news24

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SA WEATHER CONFIRMS RECORD HIGH TEMPERATURES FOR CT

The mercury climbed to 42 degrees in an unprecedented heat wave on Tuesday.



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HOME > AP NEWS > SOUTH AFRICA HEAT WAVE CLAIMS 11 LIVES, SAY OFFICIALS

South Africa heat wave claims 11 lives, say officials

By *AT editor* - 11 January 2016 at 3:17 pm

JOHANNESBURG (AP) — South African health officials say 11 people have died of heatstroke after a weeklong heatwave across the country.

Provincial spokesman Tebogo Lekgethwane said Sunday that eight people died on Thursday as temperatures passed 40 degrees Celsius (104 degrees Fahrenheit) in

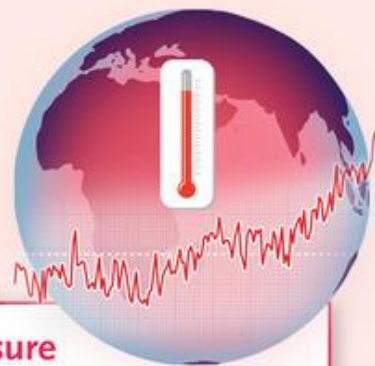
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Key Factors Affecting the Risk of Heat-Related Illness

Individual Susceptibility

Age
Coexisting conditions
Pregnancy
Medications or drugs
Cognitive impairments
Disabilities
Social isolation
Immobility



Heat Exposure

Ambient temperature and humidity
Heat amplification (urban heat islands)
Occupation (outdoor or indoor without cooling)
Lack of access to cooling at home
Indoor heat sources

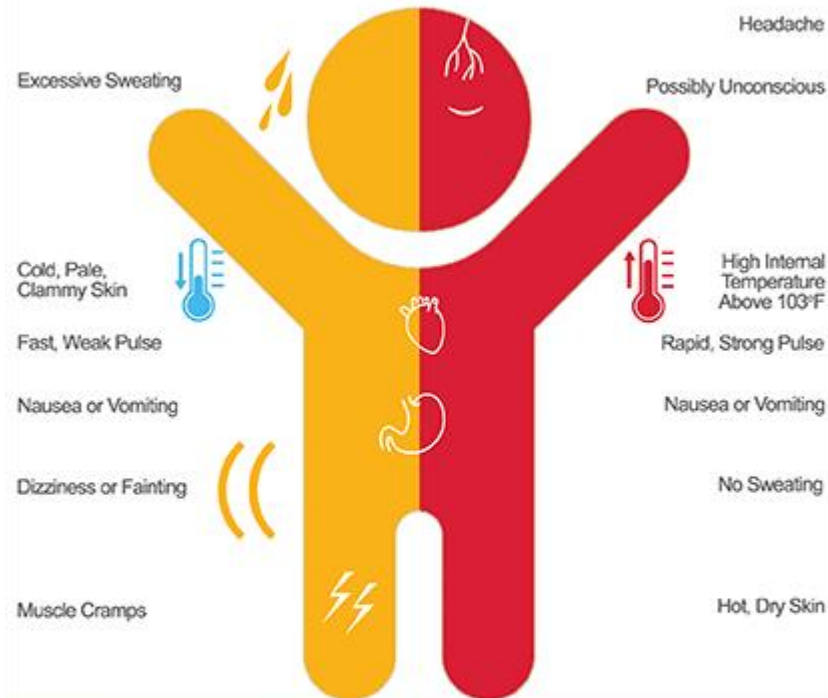
Sociocultural Factors

Poverty
Structural and environmental racism
Social cohesion
Housing status
Literacy
Limited worker protections

Know The Signs

Heat Exhaustion

Heat Stroke



What To Do

1. Move to a cooler location.
2. Lie down and loosen your clothing.
3. Apply cool, wet cloths to as much of your body as possible.
4. Sip water.
5. If you have vomited and it continues, seek medical attention immediately.

What To Do

1. **CALL 911 IMMEDIATELY**
2. Move the person to a cooler environment.
3. Reduce the person's body temperature with cool cloths or even a bath.
4. Do NOT give fluids.

Pediatric Vehicular Heatstroke

- Children's thermoregulatory systems aren't as efficient as adults and their body temperatures warm at a rate 3 to 5 times faster.
- A child's body has a greater skin surface area to mass ratio than an adult's, which means they absorb heat more quickly.
- Children also don't sweat as much as adults do, making them less able to lose heat through evaporative cooling.

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Dad in UCT baby death may not be charged

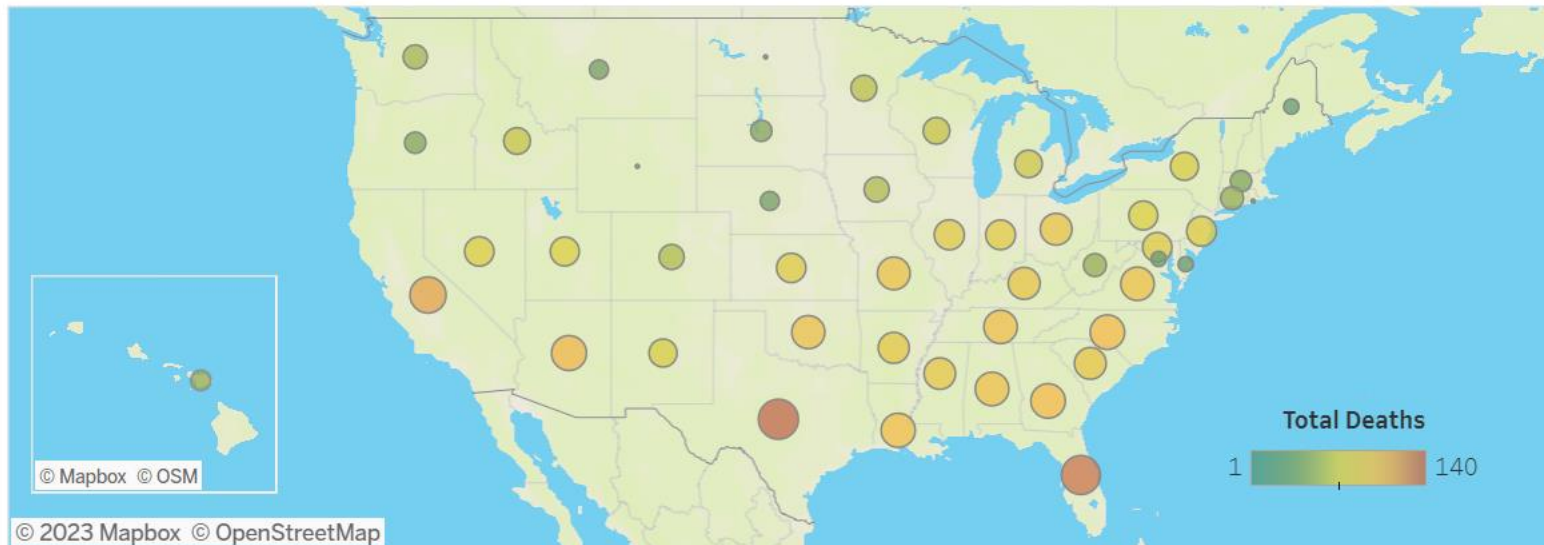
Published Oct 16, 2006

SHARE      

By Karen Breytenbach

A baby boy died after being left for hours on the back seat of a locked car.

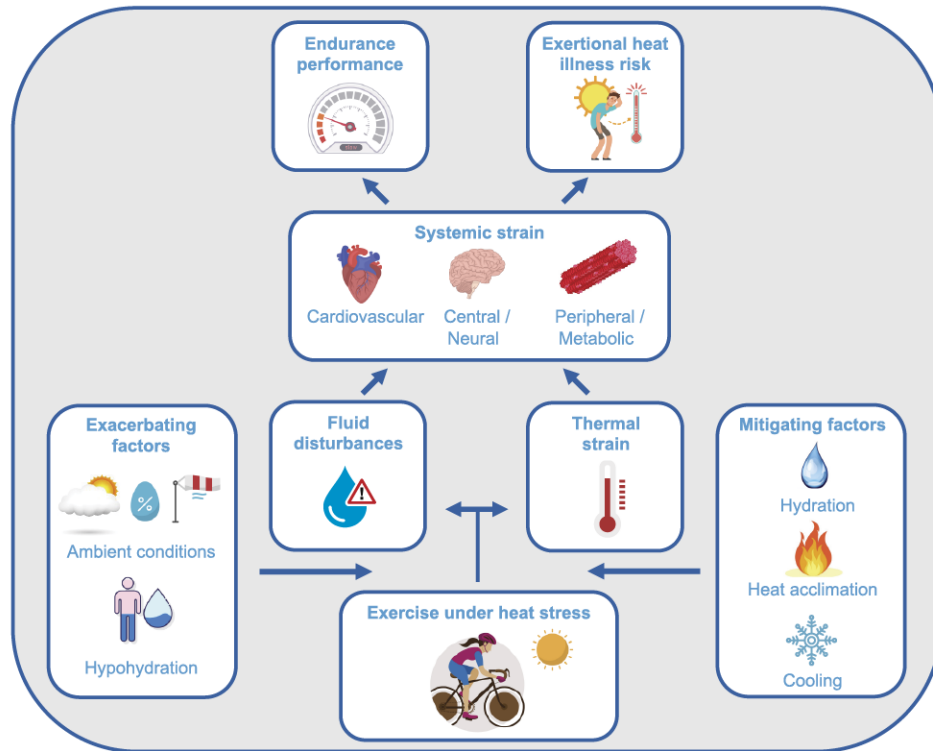
Child heatstroke deaths in vehicles, United States, 1998 - current



On average, 38 children under 15 years die from heat stroke after being left in a closed vehicle in the USA each year.



Ambient heat exposure and child heatstroke



Pediatric exertional heat stroke occurs in young, otherwise healthy individuals who engage in heavy exercise during hot and humid conditions.

ICD-9 code E900: “excessive heat—hyperthermia”—specifically subpart E900.0: “due to weather conditions.”

ICD-10 code X30: “exposure to excessive natural heat—hyperthermia.”

[Home](#) > [Sports Medicine](#) > Article

Leading Article | [Published: 23 December 2012](#)

Heat Illness in Athletes

The Dangerous Combination of Heat, Humidity and Exercise

[Eric E. Coris](#) , [Arnold](#)

[Sports Medicine](#) **34**, 9–5724 Accesses | 178

> [Environ Res.](#) 2018 Feb;161:229-235. doi: 10.1016/j.envres.2017.11.001. Epub 2017 Nov 20.

The association between ambient temperature and mortality in South Africa: A time-series analysis

Noah Scovronick ¹, Francesco Sera ², Fiorella Acquaotta ³, Diego Garzena ³, Simona Fratianni ³, Caradee Y Wright ⁴, Antonio Gasparini ²

Affiliations + expand

PMID: 29161655 PMCID: [PMC5773242](#) DOI: [10.1016/j.envres.2017.11.001](#)

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Abstract

In 1980, 1700 people died from heat-related illness prevention. In 2010, 1.5 million people died from heat-related illness prevention. In 2015, 1.5 million people died from heat-related illness prevention. In 2020, 1.5 million people died from heat-related illness prevention.

Abstract

Background: There is an extensive literature describing temperature-mortality associations in developed regions. [Environ Health Perspect.](#) 2022 Feb; 130(2): 024003. PMID: [PMC8878139](#)

Methods: We conducted a time-series analysis of all 8.8 million records from 2000 to 2019. [Environ Health Perspect.](#) 2022 Feb 25. doi: [10.1289/EHP10850](#) PMID: [35212564](#)

It's Hot out There: Extreme Temperatures and Children's Emergency Department Visits

lag non-linear model

[Wendee Nicole](#) 

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See "[Warm Season and Emergency Department Visits to U.S. Children's Hospitals](#)" in volume 130, 017001.

ENVIRONMENTAL HEALTH AND EXTREME WEATHER EVENTS



ENVIRONMENTAL HEALTH AND EXTREME WEATHER EVENTS





Reference



Caradee Y. Wright, Thandi Kapwata, David Jean du Preez, Bianca Wernecke, Rebecca M. Garland, Vusumuzi Nkosi, Willem A. Landman, Liesl Dyson, Mary Norval, Major climate change-induced risks to human health in South Africa, *Environmental Research*, Volume 196, 2021, 110973, <https://doi.org/10.1016/j.envres.2021.110973>.

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