

What's climate  
got to do with it?


**ASSOCIATIONS BETWEEN  
CLIMATE CHANGE AND MENTAL HEALTH**  
JACOB LEE, MD

# WHO AM I?

## DR. JACOB LEE

- **PGY3-** University of Missouri Kansas City Psychiatry Residency
- **General Assembly Member** - State of Missouri, American Psychiatric Association  
Member of 7-person national **APA Committee on Climate Change and Mental Health**  
Caucus with the **APA Climate Change and Mental Health Caucus**
- **President-** University of Missouri Kansas City Psychiatry Residency Association
- **Executive Board Member-** Missouri Psychiatric Physicians Association

 @doctor\_jacobli



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**ASSOCIATIONS BETWEEN  
CLIMATE CHANGE AND MENTAL HEALTH**  
JACOB LEE, MD

**WARNING:**

**THE FOLLOWING  
PRESENTATION MAY INDUCE  
EXISTENTIAL DREAD.**

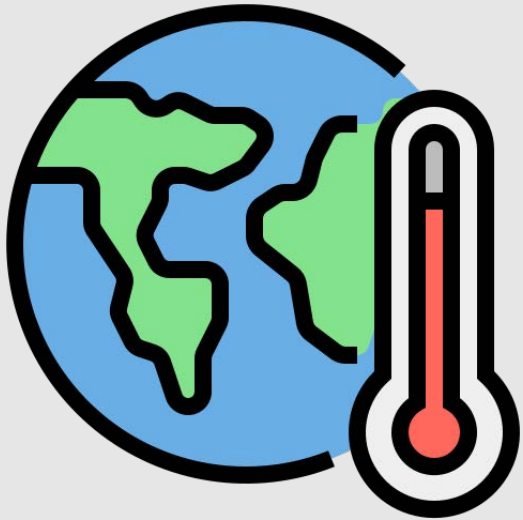
**SORRY.**

# LEARNING OBJECTIVES

- Briefly outline critical milestones and projections for earth's climate
- Identify direct and indirect associations between classical psychiatric conditions and rising temperatures, natural disasters, and other climate outcomes.
  - PTSD
  - Depression
  - Suicidality
  - Anxiety
  - Substance use disorders
- Be able to discuss climate-related psychiatric illness with your patients



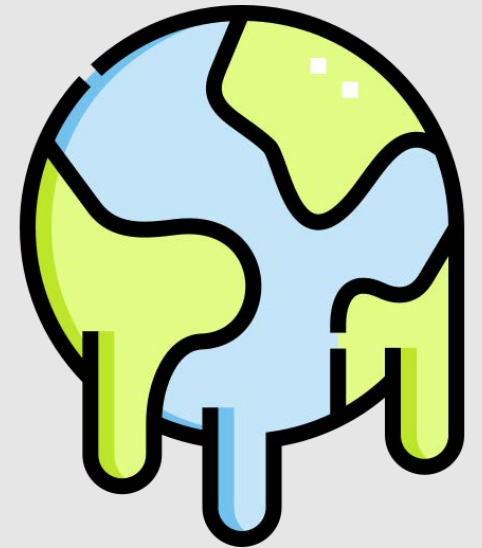
**WHAT IS  
CLIMATE  
CHANGE?**



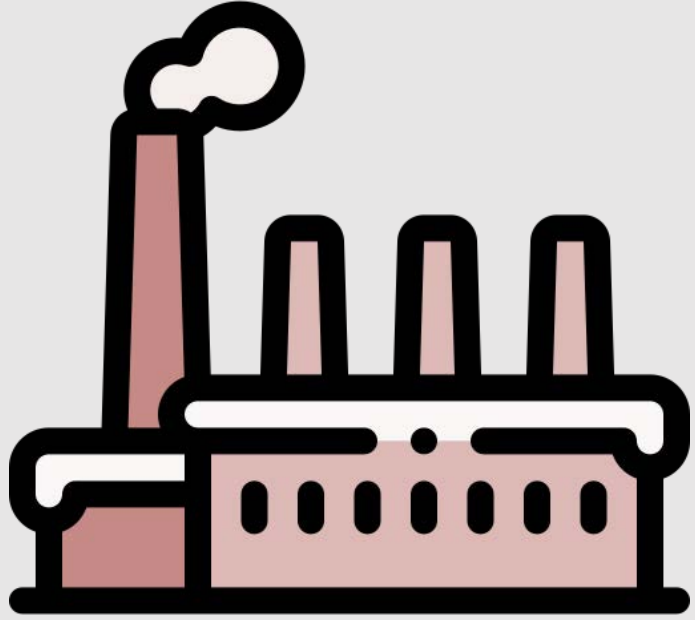
**GLOBAL WARMING**



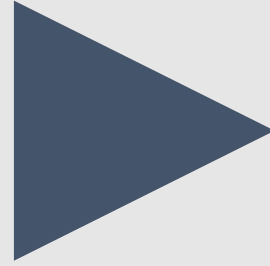
**LARGE-SCALE  
SHIFTS IN WEATHER  
PATTERNS**



**CLIMATE  
CHANGE**



**HUMAN ACTIVITY**



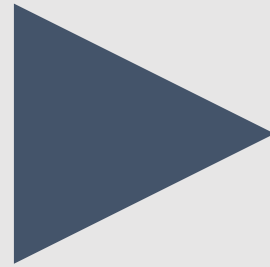
**CLIMATE CHANGE**



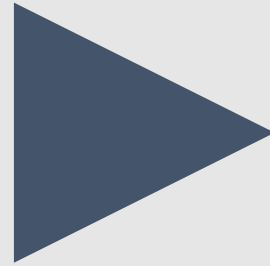
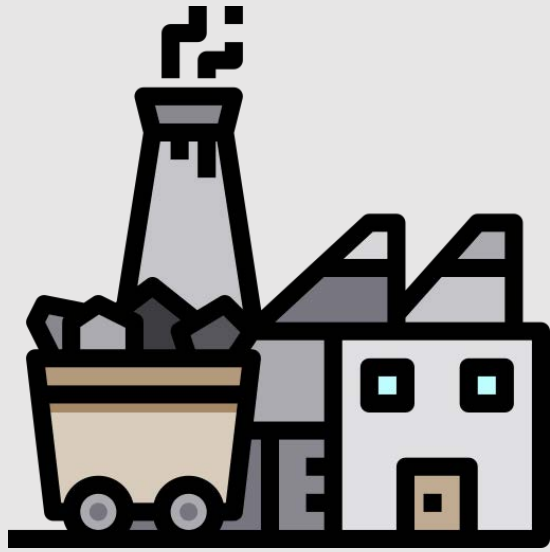
- Academia Chilena de Ciencias, Chile
- Academia das Ciencias de Lisboa, Portugal
- Academia de Ciencias de la República Dominicana
- Academia de Ciencias Físicas, Matemáticas y Naturales de Venezuela
- Academia de Ciencias Medicas, Fisicas y Naturales de Guatemala
- Academia Mexicana de Ciencias, Mexico
- Academia Nacional de Ciencias de Bolivia
- Academia Nacional de Ciencias del Peru
- Académie des Sciences et Techniques du Sénégal
- Académie des Sciences, France
- Academies of Arts, Humanities and Sciences of Canada
- Academy of Athens
- Academy of Science of Mozambique
- Academy of Science of South Africa
- Academy of Sciences for the Developing World (TWAS)
- Academy of Sciences Malaysia
- Academy of Sciences of Moldova
- Institution of Mechanical Engineers, UK
- InterAcademy Council
- International Alliance of Research Universities
- International Arctic Science Committee
- International Association for Great Lakes Research
- International Council for Science
- International Council of Academies of Engineering and Technological Sciences
- International Research Institute for Climate and Society
- International Union for Quaternary Research
- International Union of Geodesy and Geophysics
- International Union of Pure and Applied Physics
- Islamic World Academy of Sciences
- Israel Academy of Sciences and Humanities
- Kenya National Academy of Sciences
- Korean Academy of Science and Technology
- Kosovo Academy of Sciences and Arts
- l'Académie des Sciences et Techniques du Sénégal

**CO<sub>2</sub>**  
**CH<sub>4</sub>**

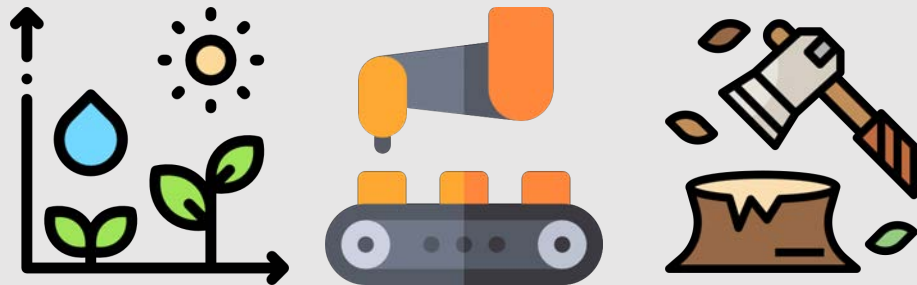
**HUMAN ACTIVITY**



**CLIMATE CHANGE**



**CLIMATE CHANGE**



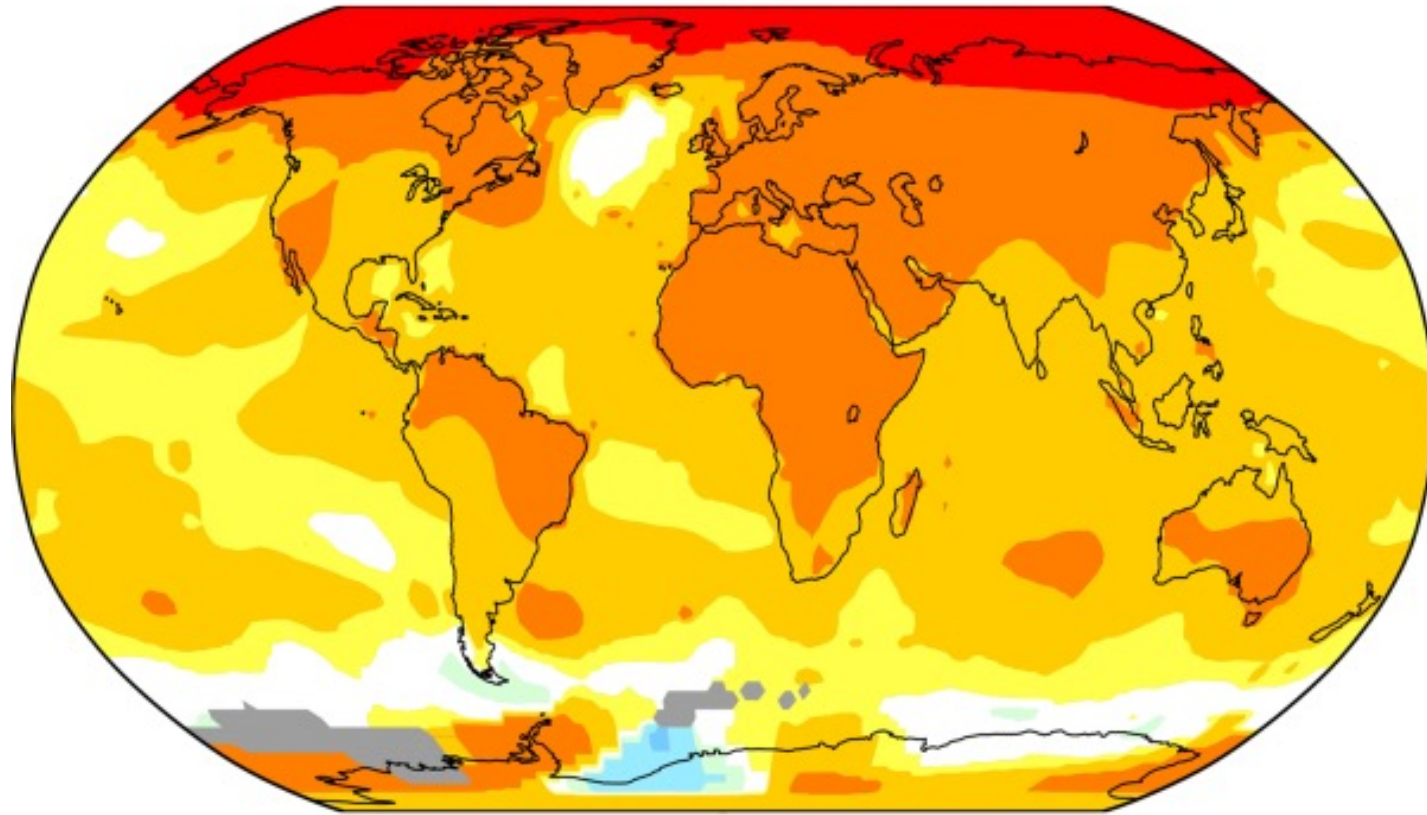
**HUMAN ACTIVITY**

[Images with attribution from Freepik, Payungkead, Surang]

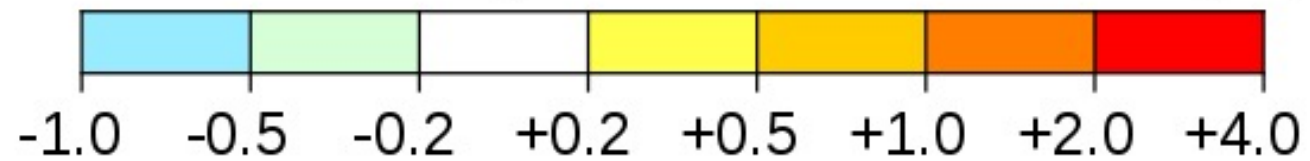


## **GREENHOUSE GAS EFFECT**

## Temperature change in the last 50 years



2010-2019 average vs 1951-1978 baseline (°C)



[Image with attribution from NASA]

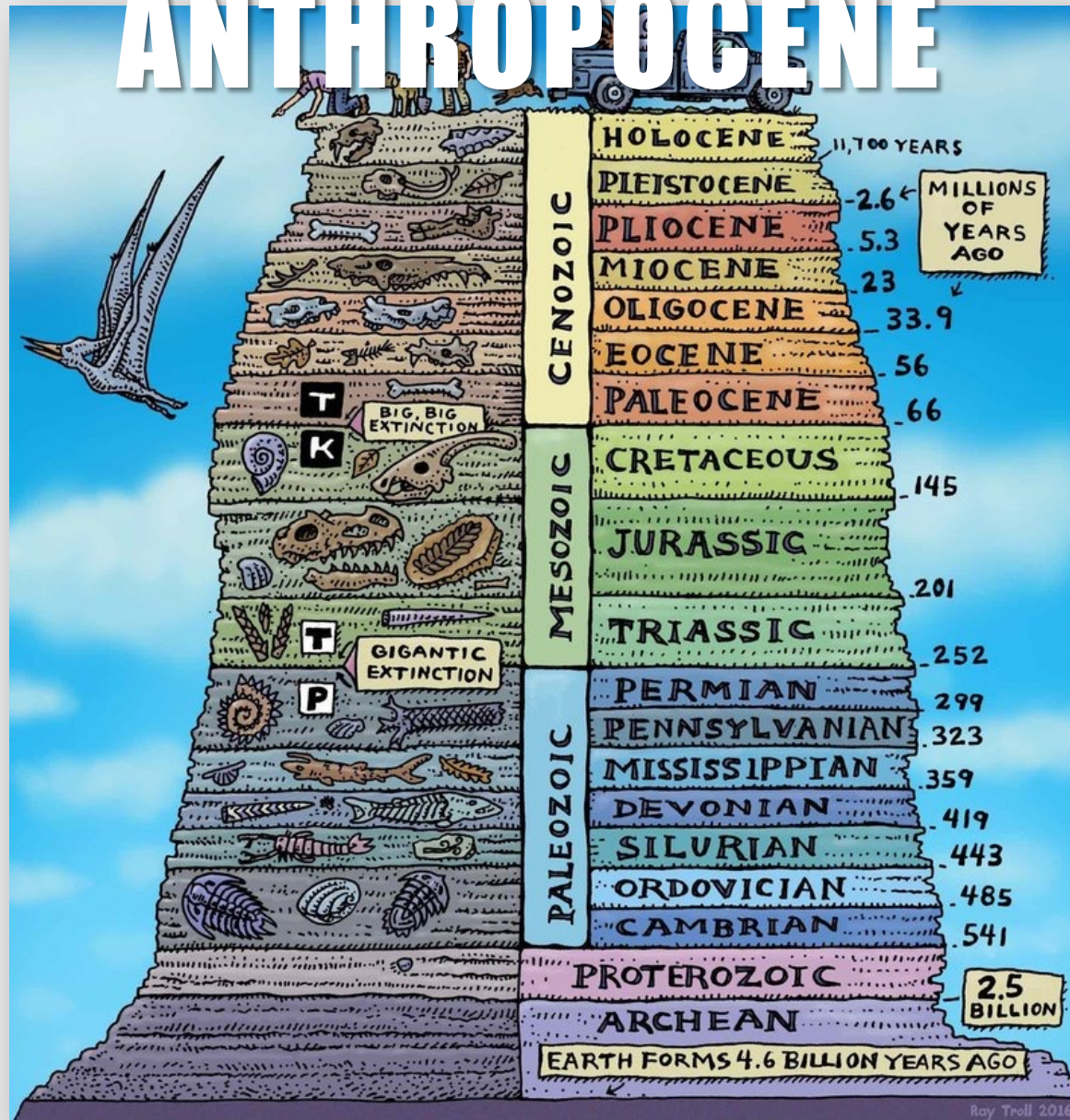


**INTENSE STORMS**



**WEATHER EXTREMES**

# ANTHROPOCENE



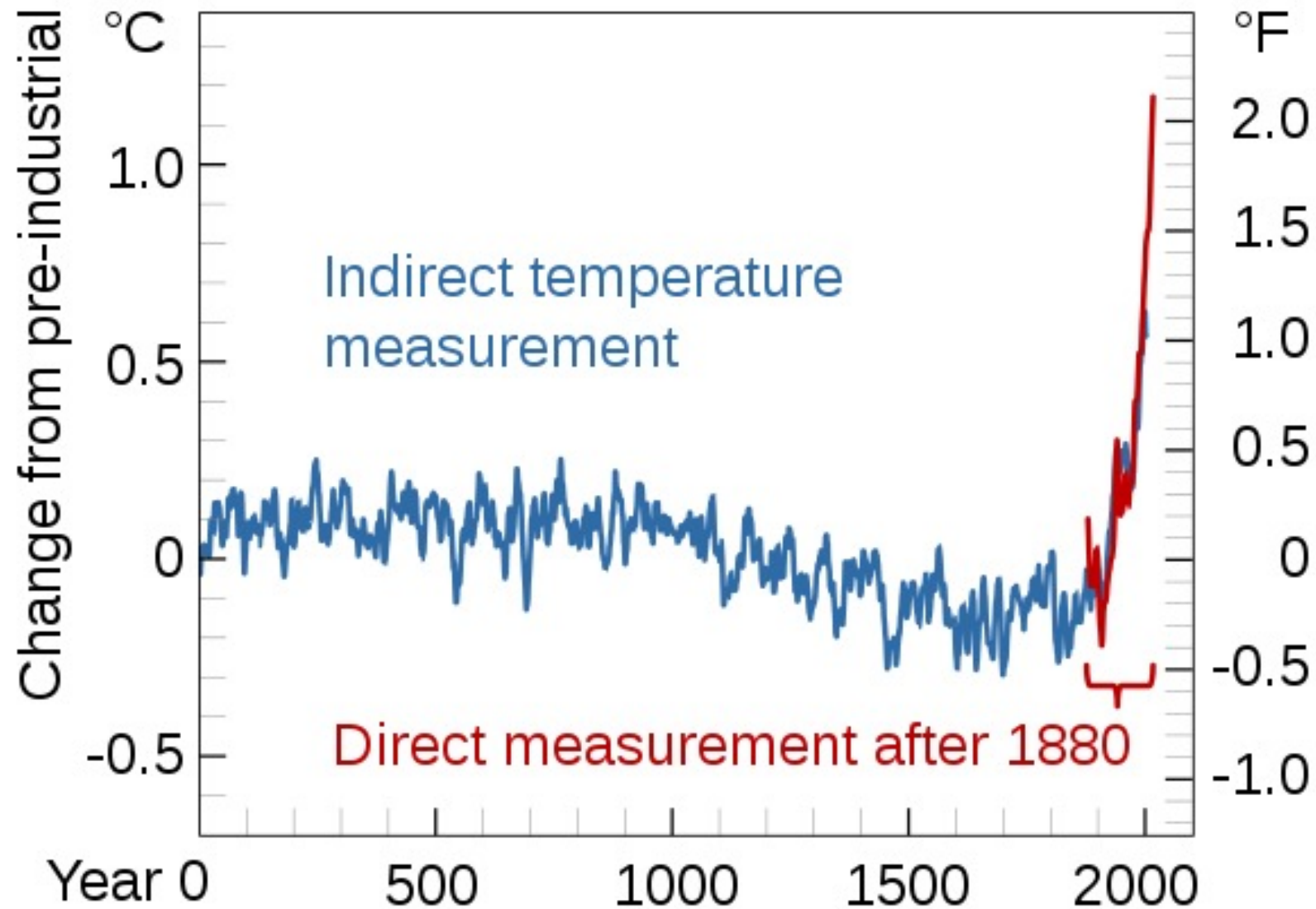
[Images with attribution from Ray Troll on behalf of NPR]



**WHAT'S  
HAPPENING WITH  
TEMPERATURE?**



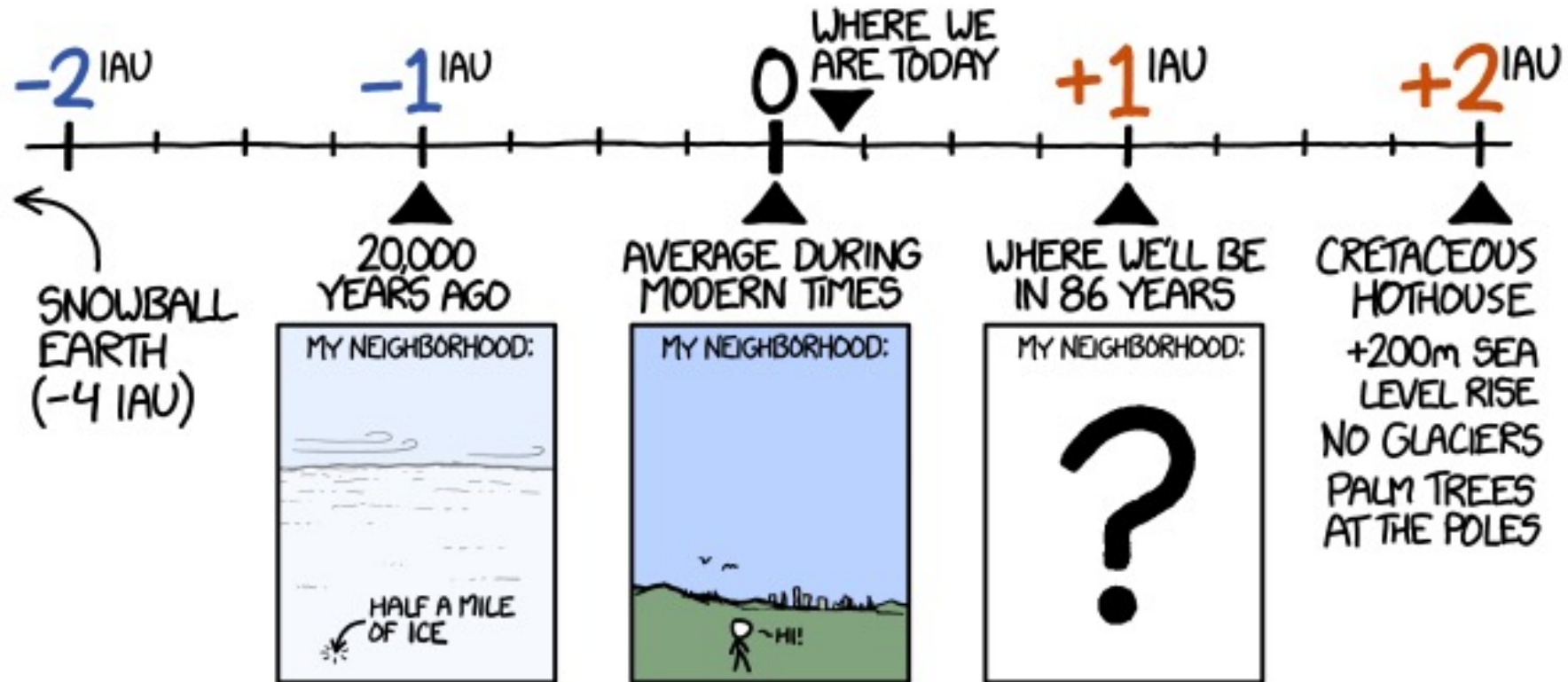
## Global temperature in the Common Era



WITHOUT PROMPT, AGGRESSIVE LIMITS ON CO<sub>2</sub> EMISSIONS, THE EARTH WILL LIKELY WARM BY AN AVERAGE OF 4°-5°C BY THE CENTURY'S END.

# HOW BIG A CHANGE IS THAT?

IN THE COLDEST PART OF THE LAST ICE AGE, EARTH'S AVERAGE TEMPERATURE WAS 4.5°C BELOW THE 20<sup>TH</sup> CENTURY NORM.  
LET'S CALL A 4.5°C DIFFERENCE ONE "ICE AGE UNIT."

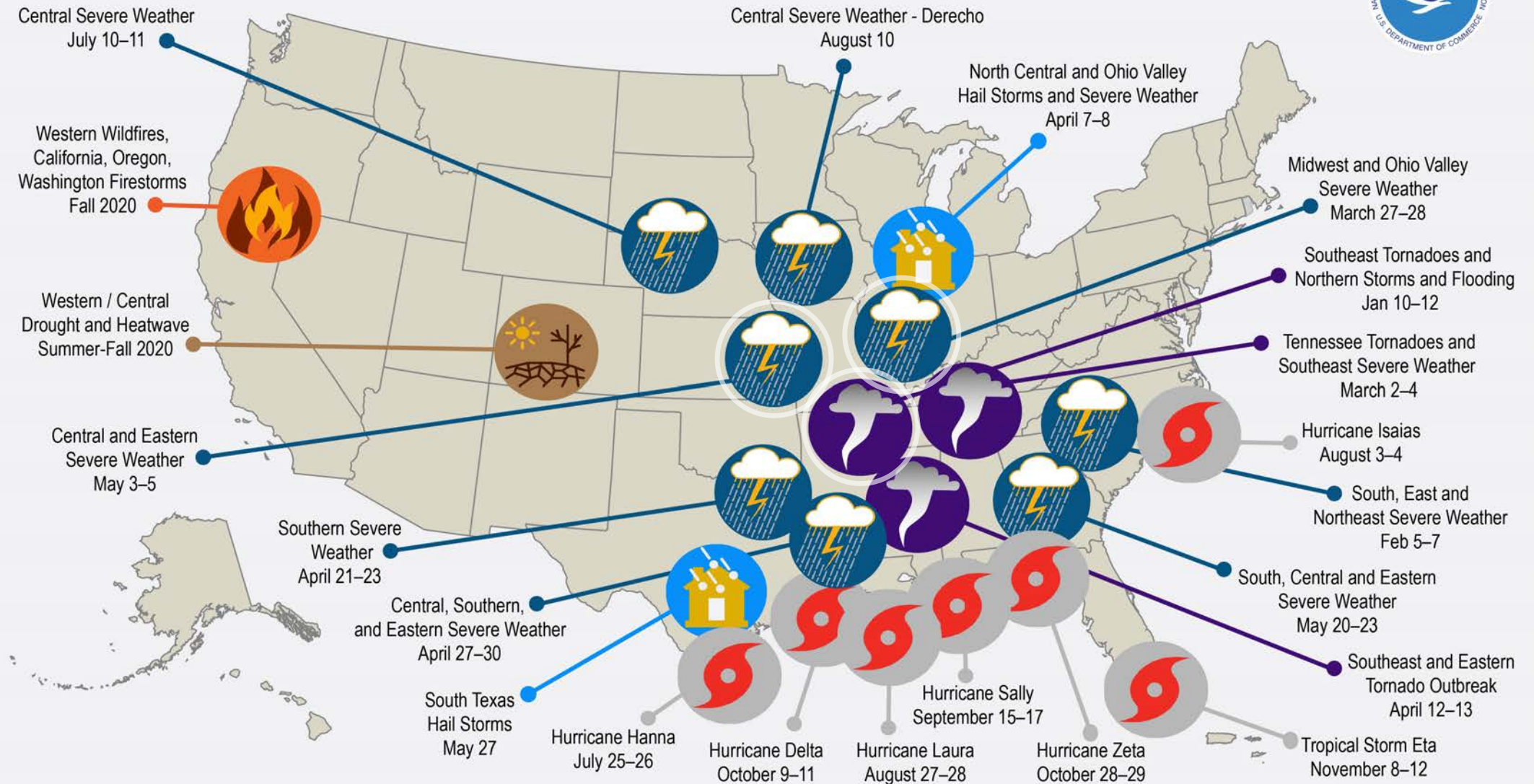




# IMPLICATIONS OF CLIMATE CHANGE

WIDESPREAD EMERGENCIES  
ACROSS THE GLOBE

# U.S. 2020 Billion-Dollar Weather and Climate Disasters



*This map denotes the approximate location for each of the 22 separate billion-dollar weather and climate disasters that impacted the United States during 2020.*

[2, 4]

[Image with attribution from the NOAA/NCEI]



[2]  
[Image with attribution from the New York Times]



[2]

[Image with attribution from Ready.gov]

GETTY

USA  
TODAY

[2]

[Image with attribution from USA Today via Getty]



[2]

[Image with attribution from Joseph Prezioso]





[2]

[Image with attribution from the New York Times]



[2]

[Image with attribution from the Popular Mechanics]



[2]

*Stephen Jones*

[Image with attribution from Stephen Jones]



[2, 28]

[Image with attribution from ABC7 News]



[2]

[Image with attribution from ABC News]



# CLIMATE DESTABILIZATION



[2]

[Image with attribution from National Oceanic and Atmospheric Administration]



**ISN'T THIS A  
PSYCHIATRY  
GRAND ROUNDS?**



**250,000 ADDITIONAL DEATHS  
ANNUALLY STARTING IN 2030  
FROM CLIMATE CHANGE**






**DIRECT HEALTHCARE COSTS  
EXCLUDING COSTS IN HEALTH-  
DETERMINING SECTORS IS EST. AT  
\$2-4,000,000,000 ANNUALLY BY 2030**



**EACH YEAR SINCE 2008, AN AVERAGE OF  
MORE THAN 20 MILLION PEOPLE ARE  
FORCED TO MOVE BECAUSE OF WEATHER-  
RELATED EVENTS.**

[54]

[Image with attribution from United Nations]



“THE EVIDENCE IS OVER-  
WHELMING: CLIMATE CHANGE  
ENDANGERS HUMAN HEALTH.  
SOLUTIONS EXIST AND WE  
NEED TO ACT DECISIVELY TO  
CHANGE THIS TRAJECTORY.”

**DR. MARGARET CHAN**  
**WHO DIRECTOR-GENERAL**



“CLIMATE CHANGE IS THE  
GREATEST THREAT TO GLOBAL  
HEALTH IN THE 21ST CENTURY.”

**WORLD HEALTH ORGANIZATION**

“THE APA RECOGNIZES THAT CLIMATE CHANGE POSES A THREAT TO PUBLIC HEALTH, INCLUDING MENTAL HEALTH. THOSE WITH MENTAL HEALTH DISORDERS ARE DISPROPORTIONATELY IMPACTED BY THE CONSEQUENCES OF CLIMATE CHANGE.”

**AMERICAN PSYCHIATRIC ASSOCIATION**

**2017**

IS  
**CLIMATE CHANGE**  
AFFECTING OUR HEALTH?

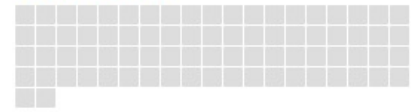




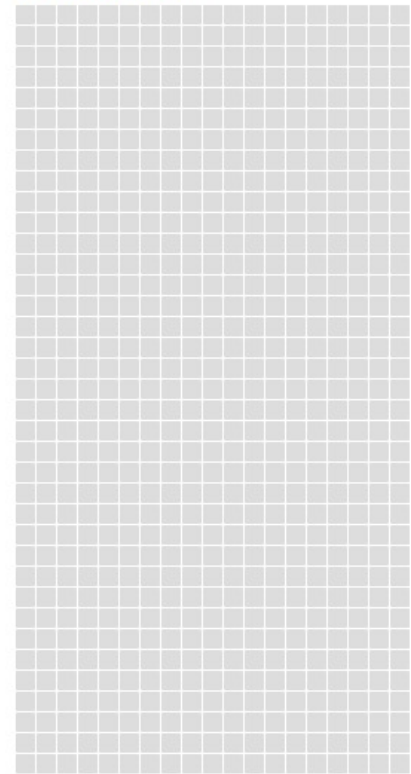
**WILDFIRES**

San Francisco  
**30,000 acres**  
■ □—10k acres

Yosemite National Park  
**748,000 acres**

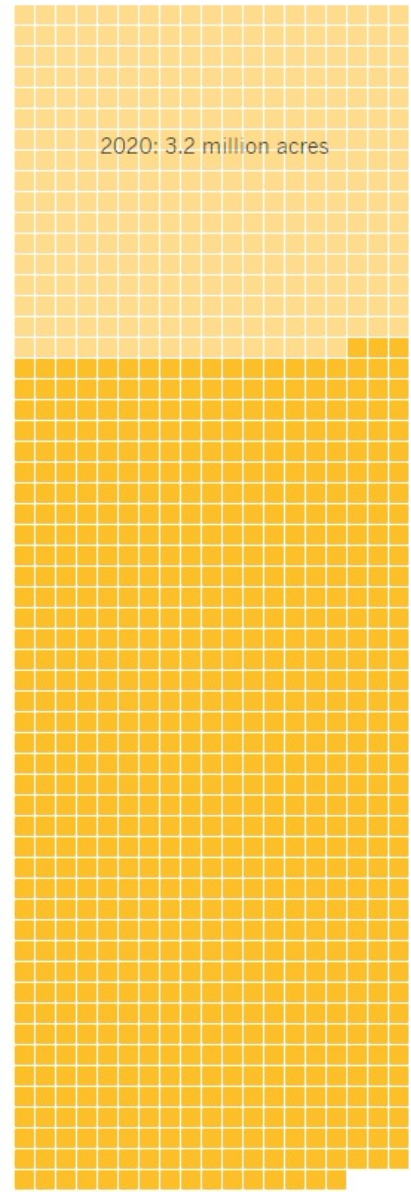


Total burned from 2001-10  
**7.03 million acres**



Total burned from 2011-20  
**10.8 million acres**

2020: 3.2 million acres







OUR WORK

PEOPLE

PLACES

WILDLIFE

About How to help



DONATE



ADOPT



STORIES

## 3 billion animals harmed by Australia's fires



[29, 43]

[Image with attribution from World Wildlife Fund]

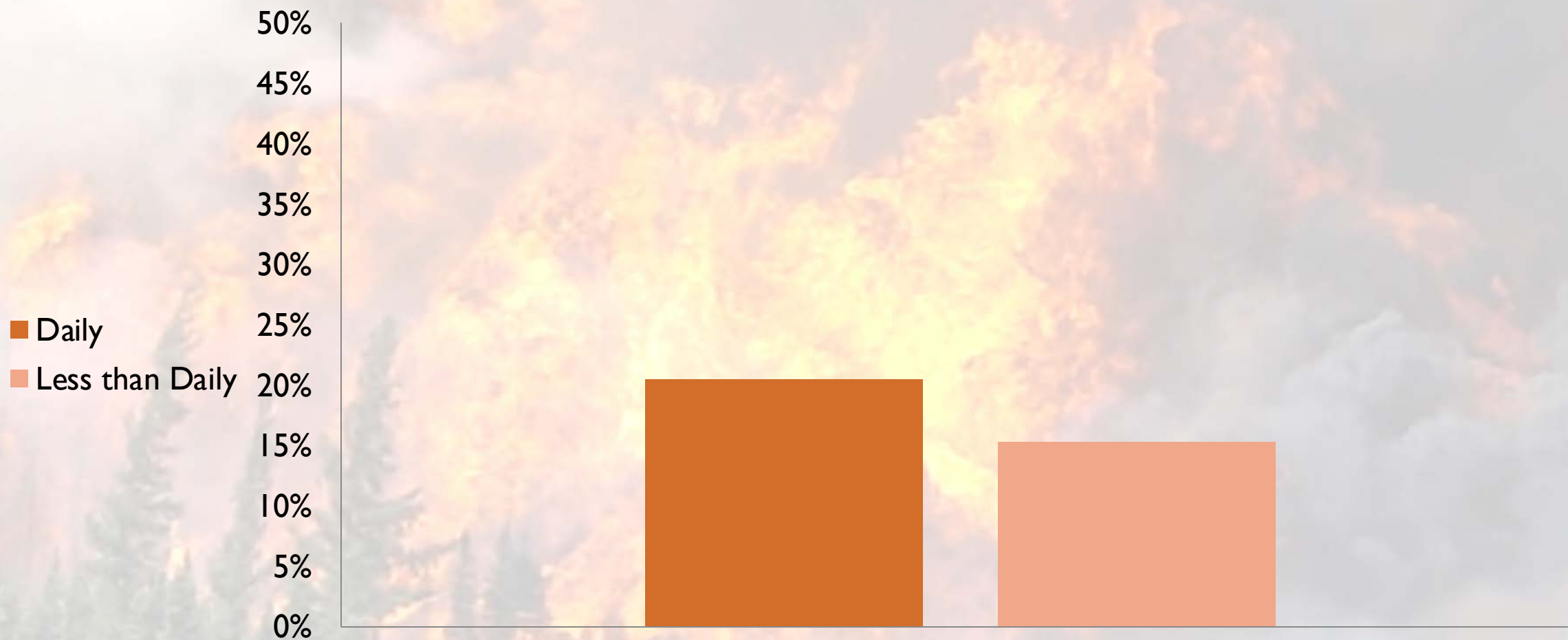


(n=486)

[6, 29, 43]

[Image with attribution from the CBC]

# % of Population with Elevated GAD-7 6mo after Fort McMurray Fire



Frequency of Wildfire-Related Media Coverage

[6, 29, 43]

(n=486)

[Image with attribution from the CBC]

## % of Population with Elevated GAD-7 6mo after Fort McMurray Fire

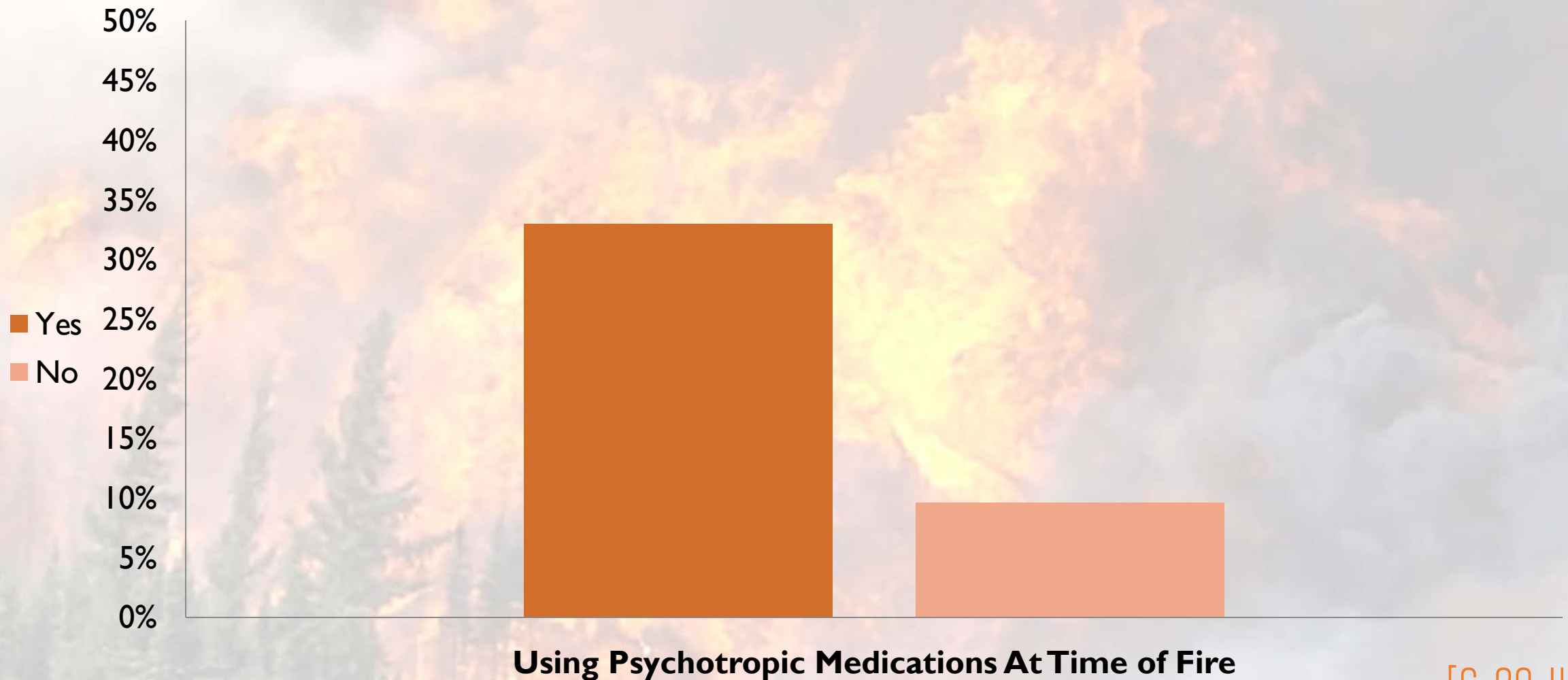


[6, 29, 43]

(n=486)

[Image with attribution from the CBC]

## % of Population with Elevated GAD-7 6mo after Fort McMurray Fire



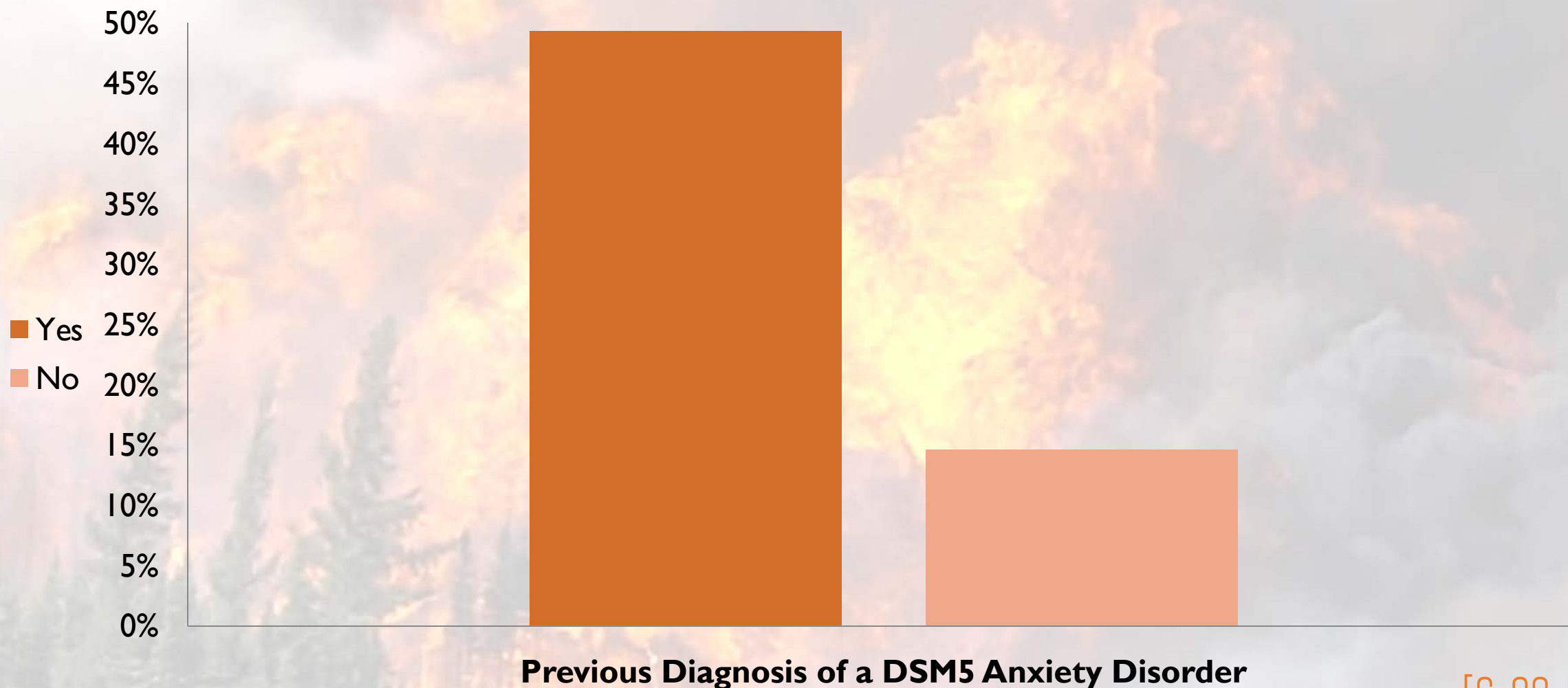
Using Psychotropic Medications At Time of Fire

[6, 29, 43]

(n=486)

[Image with attribution from the CBC]

## % of Population with Elevated GAD-7 6mo after Fort McMurray Fire



(n=486)

[6, 29, 43]

[Image with attribution from the CBC]



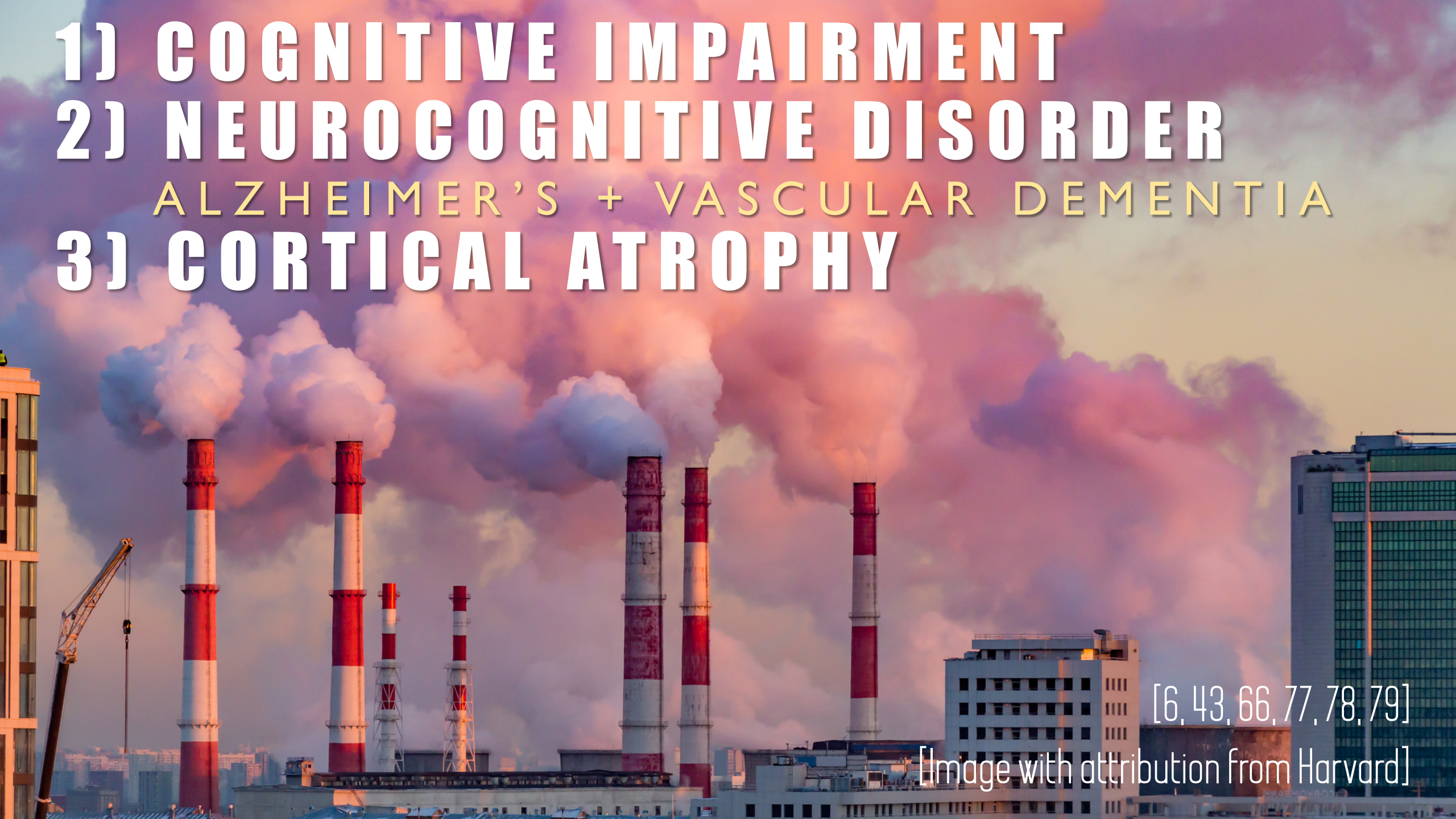
# AIR POLLUTION

**1) COGNITIVE IMPAIRMENT**

**2) NEUROCOGNITIVE DISORDER**

ALZHEIMER'S + VASCULAR DEMENTIA

**3) CORTICAL ATROPHY**



[6, 43, 66, 77, 78, 79]

[Image with attribution from Harvard]



# PM<sub>2.5</sub> (PARTICULATE MATTER WITH DIAMETER ≤ 2.5 MM)



(California: n=682, p< 0.05)  
(Japan: n=33,911, p< 0.05)

[6, 29, 43, 65, 66, 75]

[Image with attribution from Daily Mail]

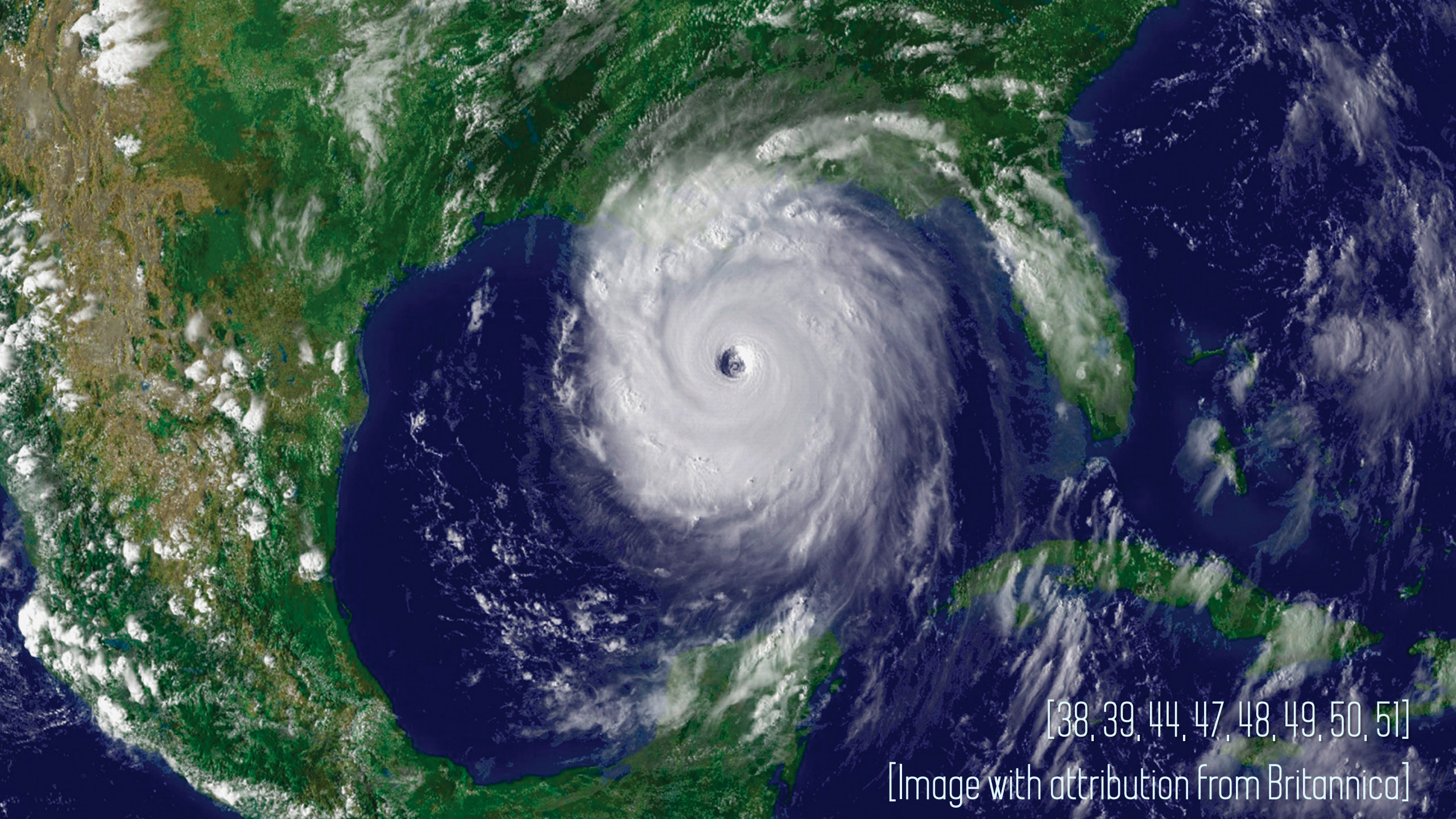


[32, 62, 66, 67, 74, 80, 81]

[Image with attribution from Time Magazine]



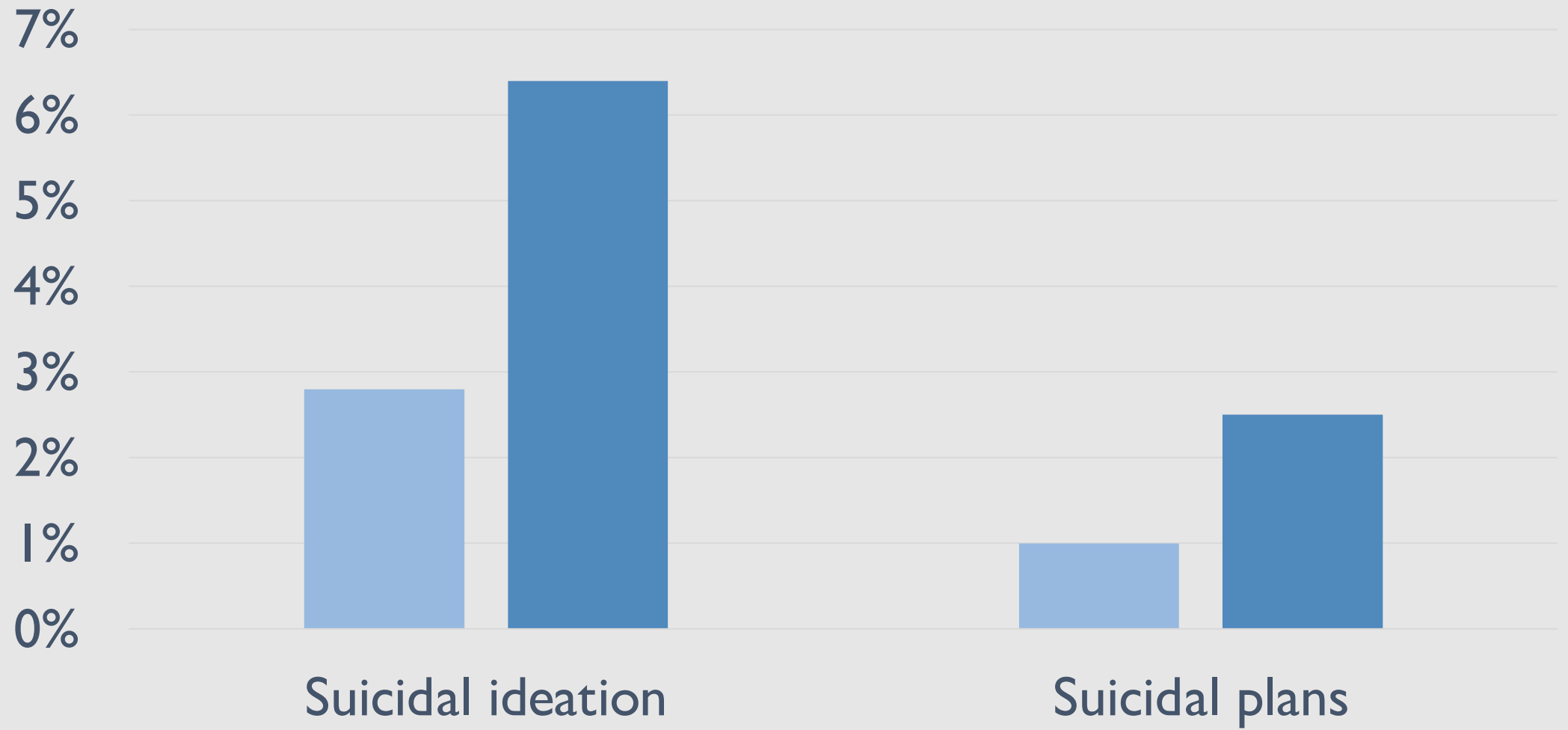
# HURRICANES



[38, 39, 44, 47, 48, 49, 50, 51]

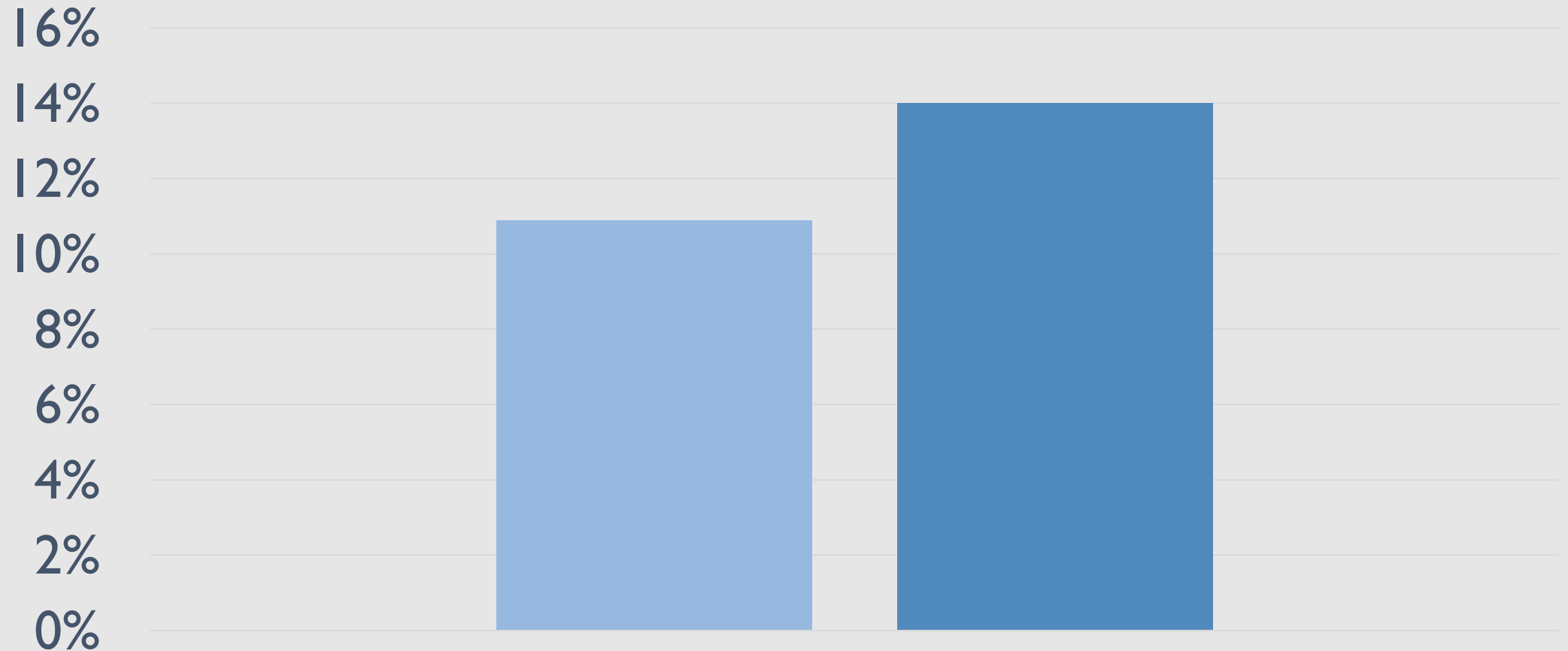
[Image with attribution from Britannica]

# Suicide Following Katrina



n = 815

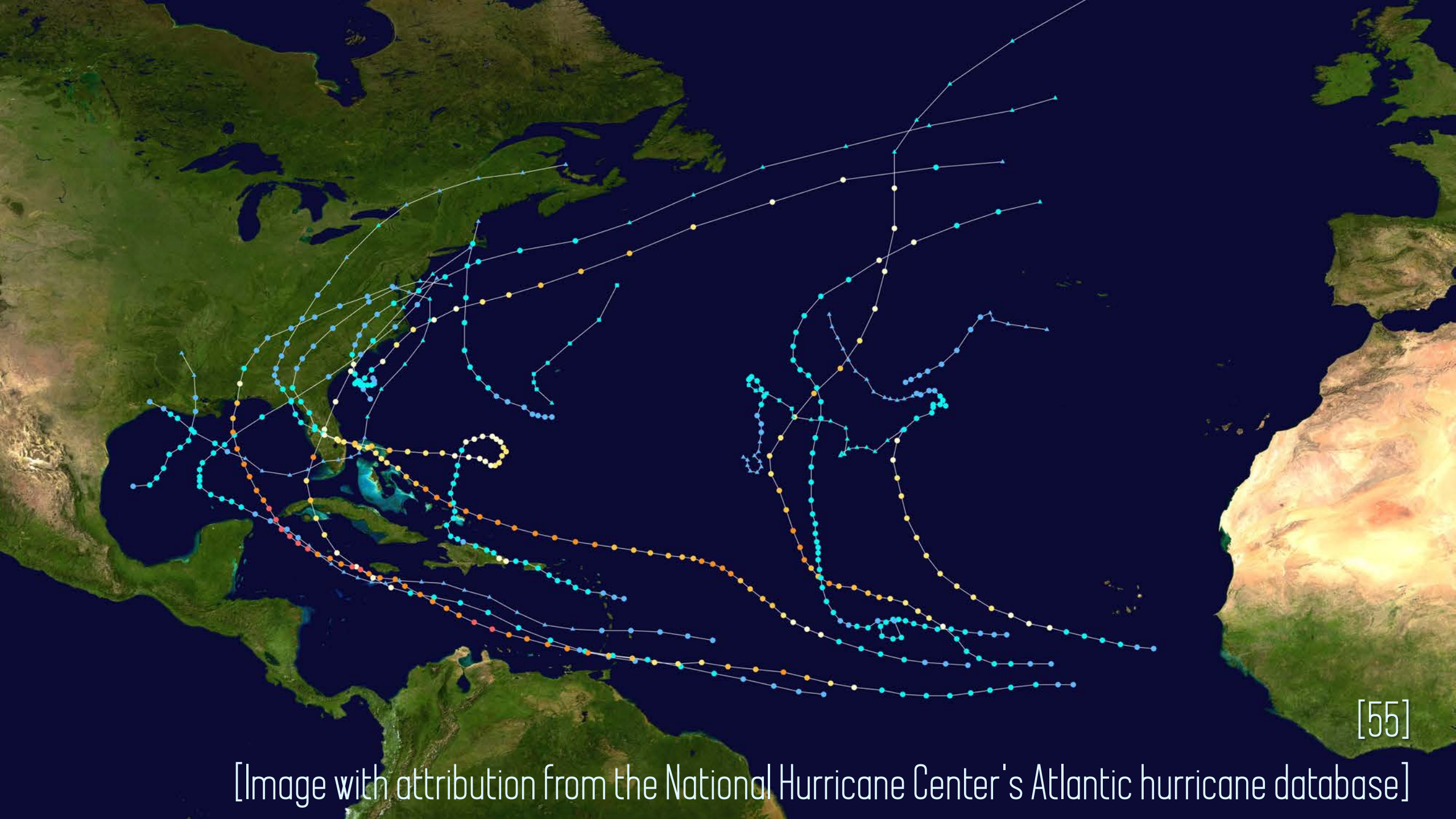
# Serious Mental Illness Following Katrina



Serious Mental Illness

Per the Substance Abuse and Mental Health Services Administration's definition of serious mental illness

n = 815



[Image with attribution from the National Hurricane Center's Atlantic hurricane database]



**FLOODING**





[43,74]

[Image with attribution from MDPI]



[43, 45]

[Image with attribution from Caixin Global]

The image features a solid coral-colored background. On the left side, there are three vertical, wavy lines that resemble a stylized coastline or a decorative border. The lines are layered, with the outermost being white, the middle one a light pink, and the innermost one a slightly darker shade of pink. The word "TSUNAMIS" is written in a bold, white, sans-serif font, centered horizontally in the middle of the page.

**TSUNAMIS**



[41, 42, 43]

[Image with attribution from CNN]

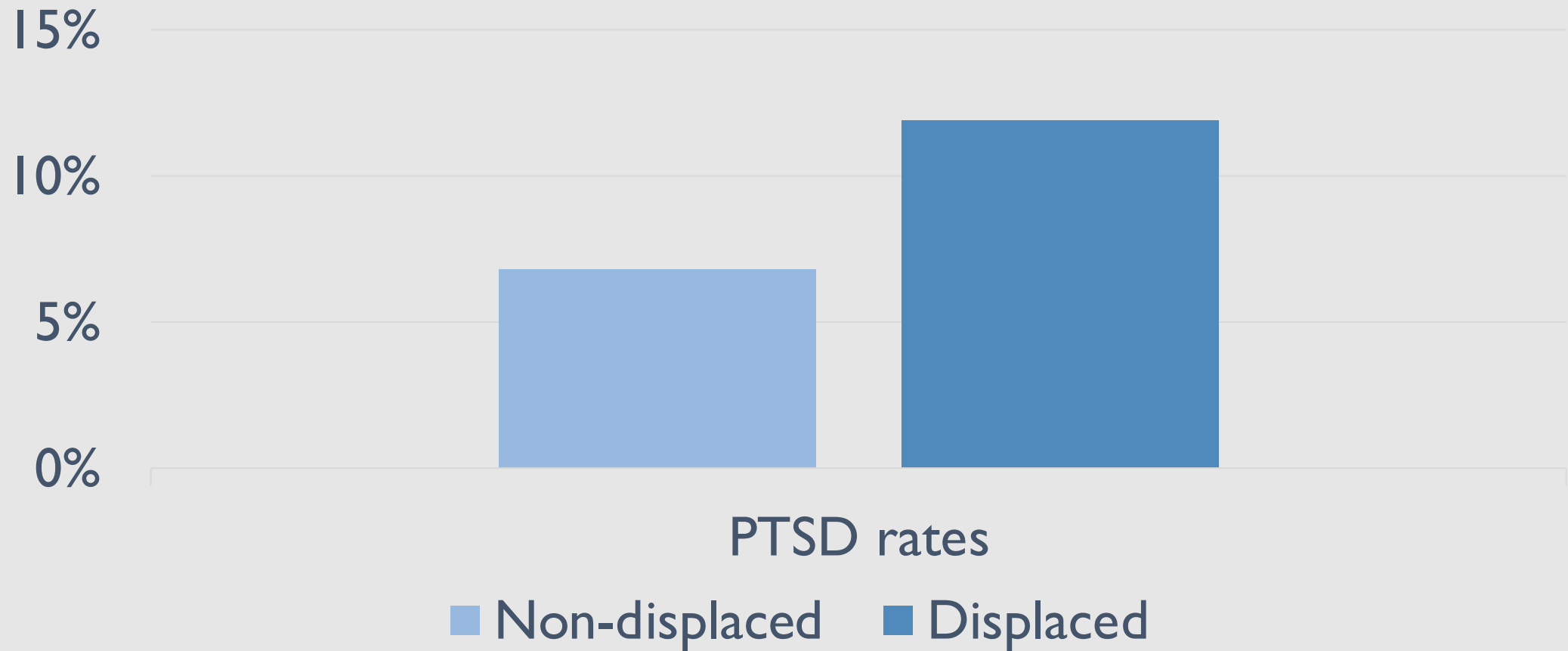


**Disruption of gender roles**  
**Gendered violence**



[6, 40, 41, 43]

# PTSD Rates in Displaced vs Non-Displaced Thai Survivors of the Boxing Day Tsunami



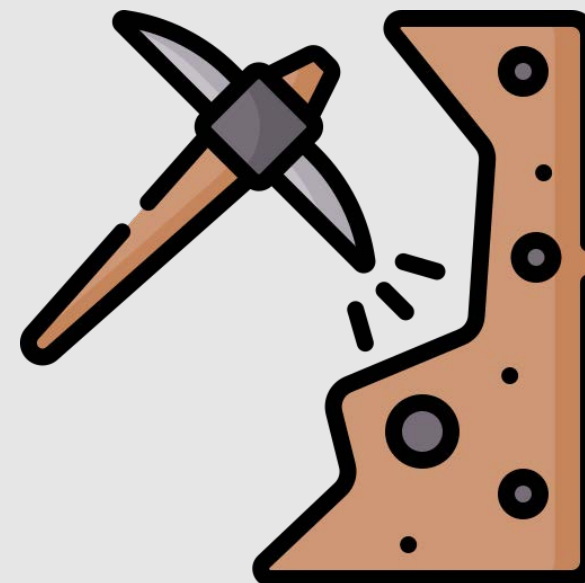
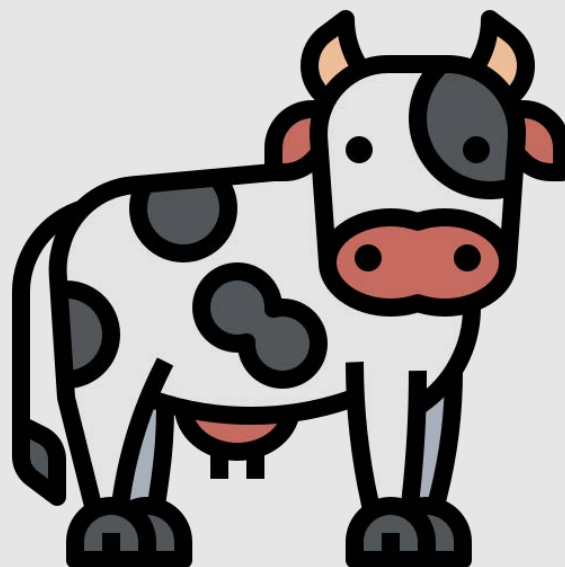
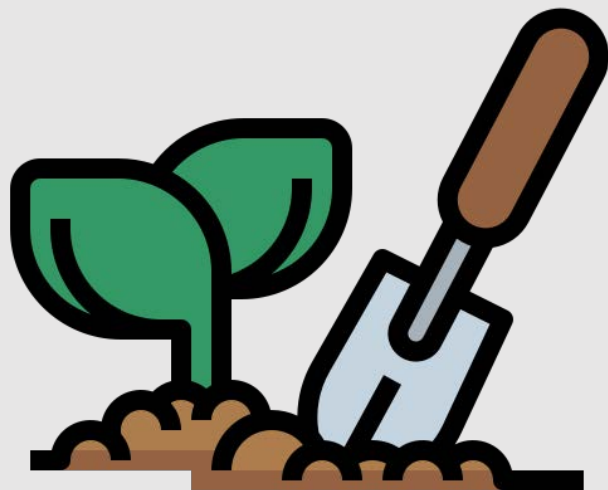
n = 371 displaced, 690 non-displaced

[6, 4], 43]



**DEFORESTATION /  
LOSS OF GREEN  
SPACE**





[2, 60, 61, 65]

[Image with attribution from ultimatearm, surang and Freepik]



[2, 60, 61]

[Image with attribution from Reuters]

Green space = “public green areas for predominantly recreational use such as gardens, zoos, parks” of at least 0.25 Hectares



**AIR QUALITY**  
**CARDIOVASCULAR FUNCTION**  
**MENTAL HEALTH**  
**LIFE EXPECTANCY**

**CITY TEMPERATURE**  
**STRESS**  
**RATE OF COGNITIVE DECLINE**  
**NOISE POLLUTION**

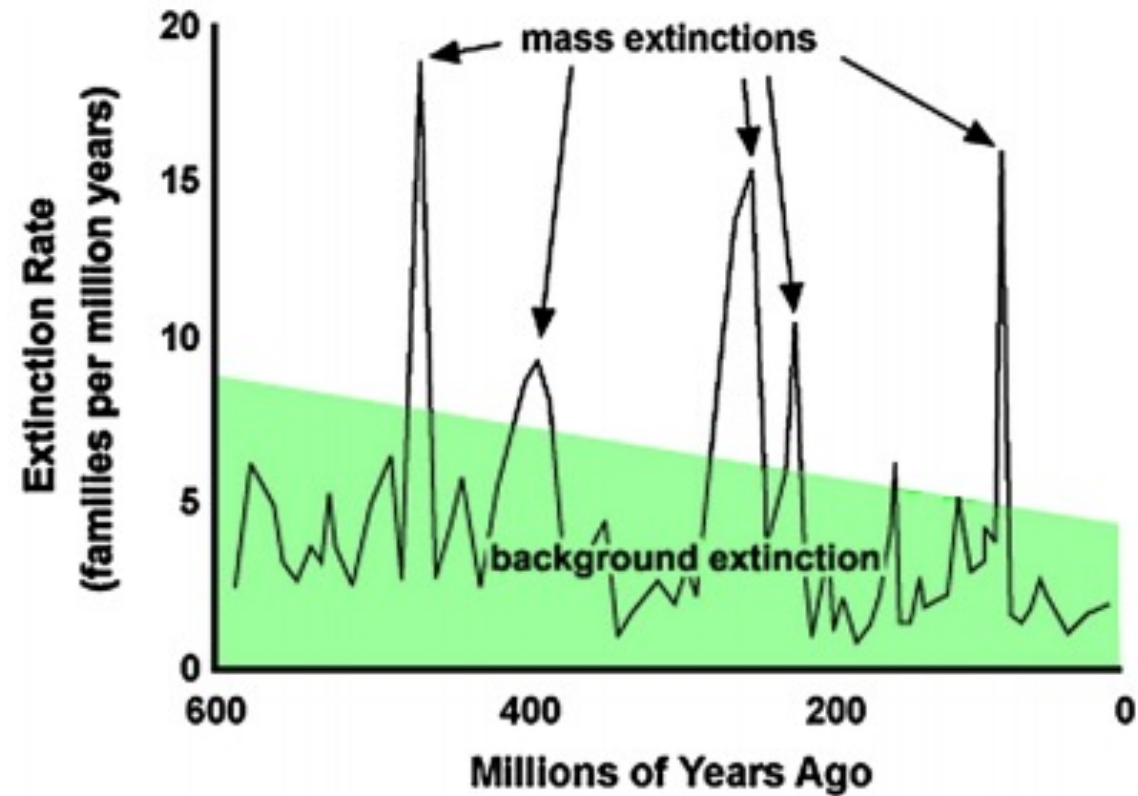
[2, 60, 61, 62, 74]

[Image with attribution from NewPro Containers]

The image features a solid coral-colored background. On the left side, there are three vertical, wavy lines in shades of white and light pink, creating a decorative border. The text 'MASS EXTINCTIONS' is centered in the right two-thirds of the image.

# **MASS EXTINCTIONS**

# THE GREAT DYING



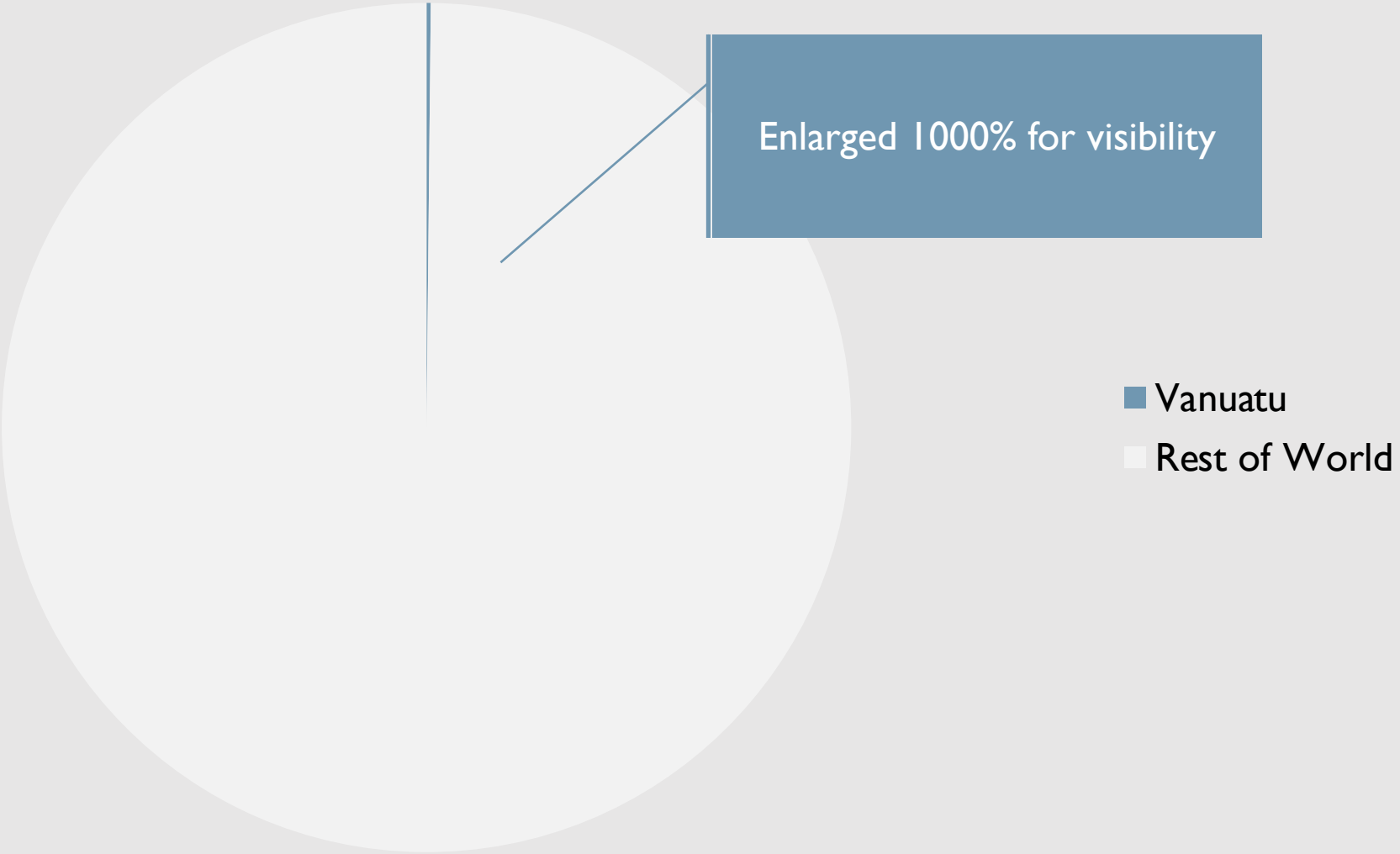
**Fig. 1** Earth's five mass extinctions. Source: University of California Museum of Paleontology's Understanding Evolution/evolution.berkeley.edu



**SEA LEVEL  
RISING +  
GLACIAL MELT**

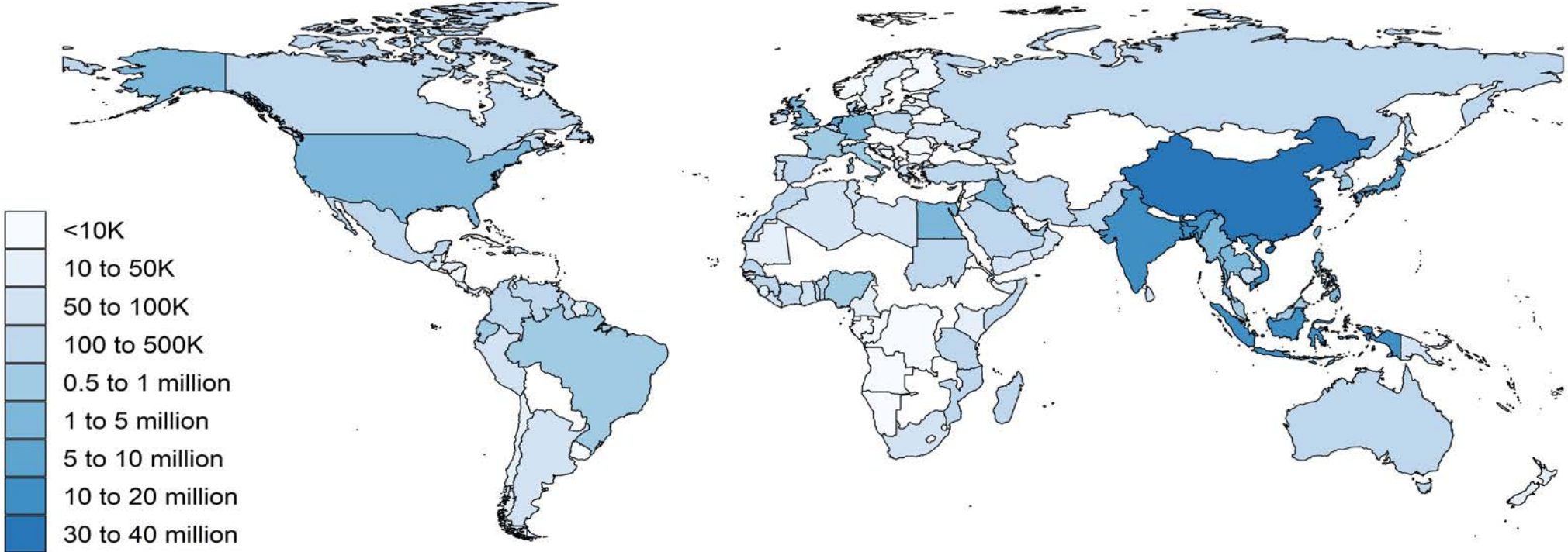


# GLOBAL EMISSION CONTRIBUTIONS



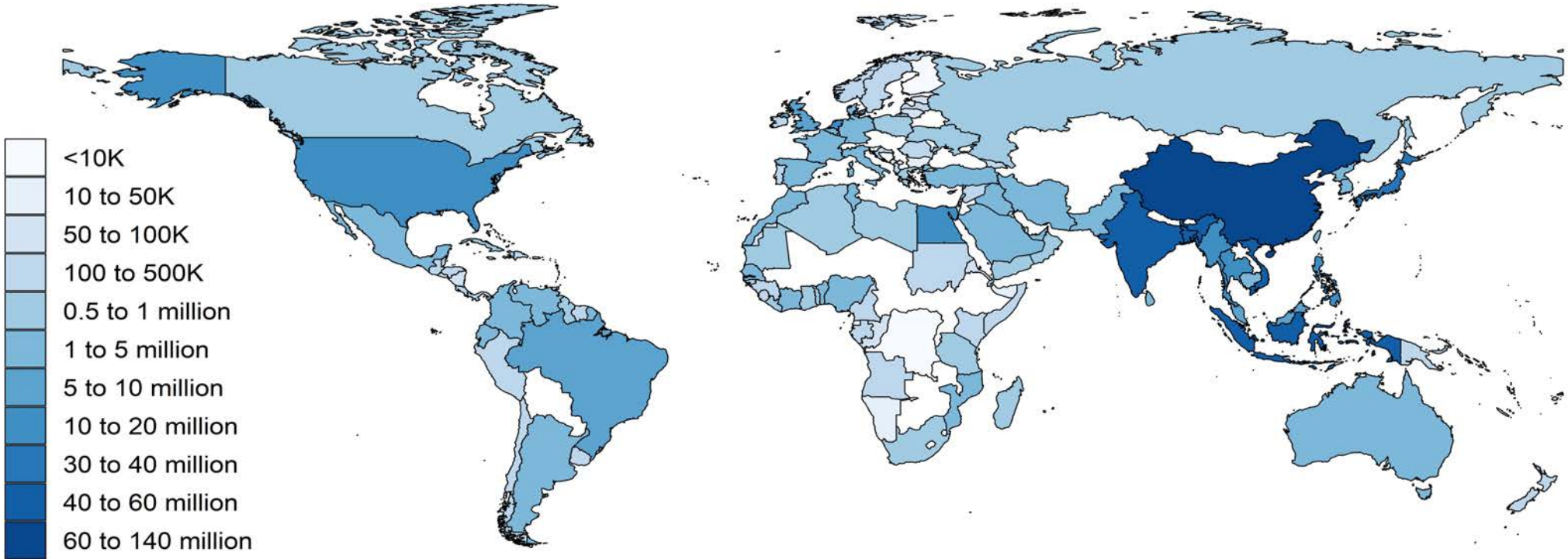


# IMPACTED BY 1 METER OF SEA LEVEL RISE



[Data from the Lancet]

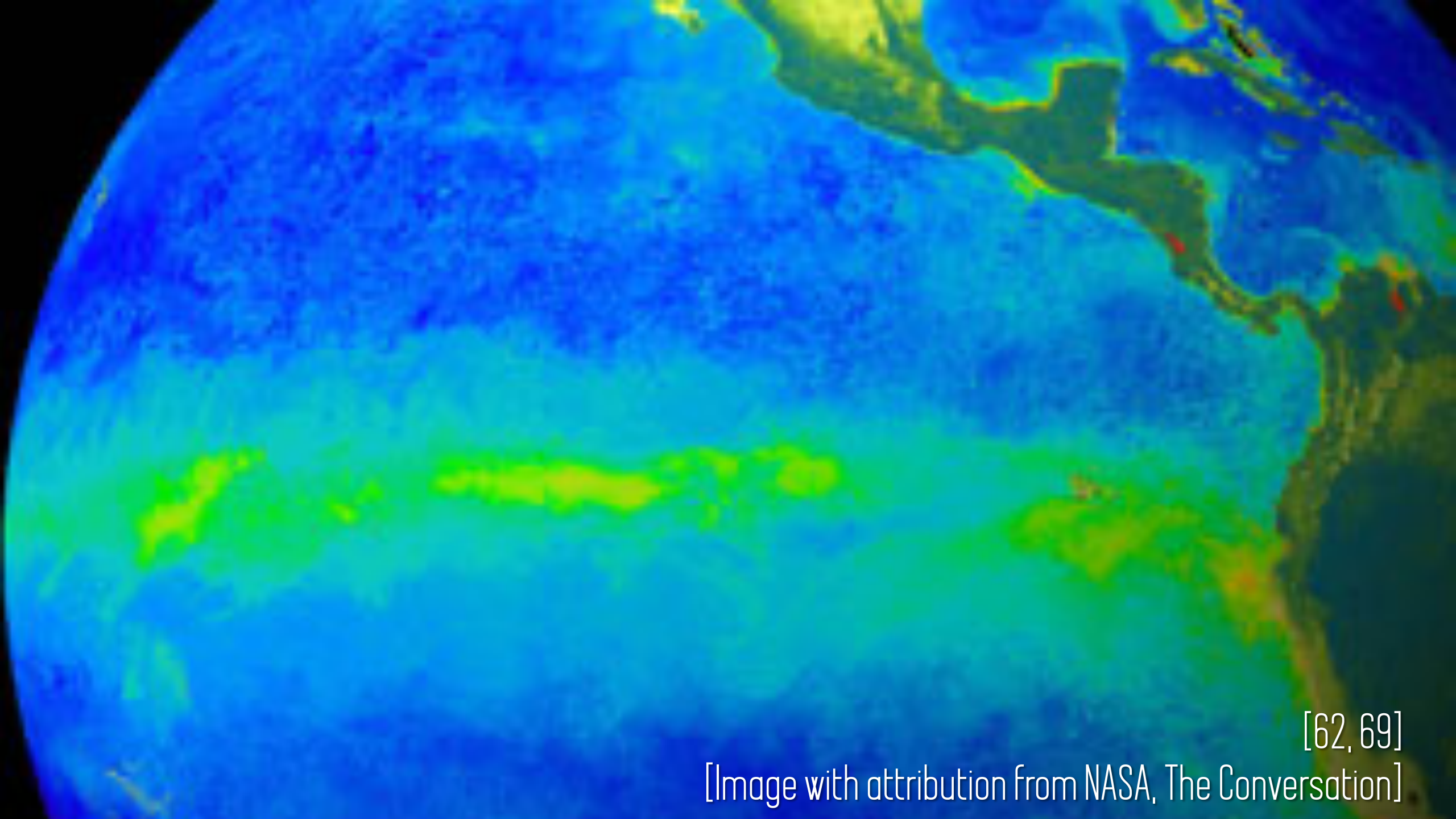
# IMPACTED BY 5 METERS OF SEA LEVEL RISE



[Data from the Lancet]



# DECREASING OCEAN PRODUCTIVITY



[62, 69]

[Image with attribution from NASA, The Conversation]



[62, 69]

[Image with attribution from SeaTechDaily]



[2,64]

[Image with attribution from arhonoglimer]



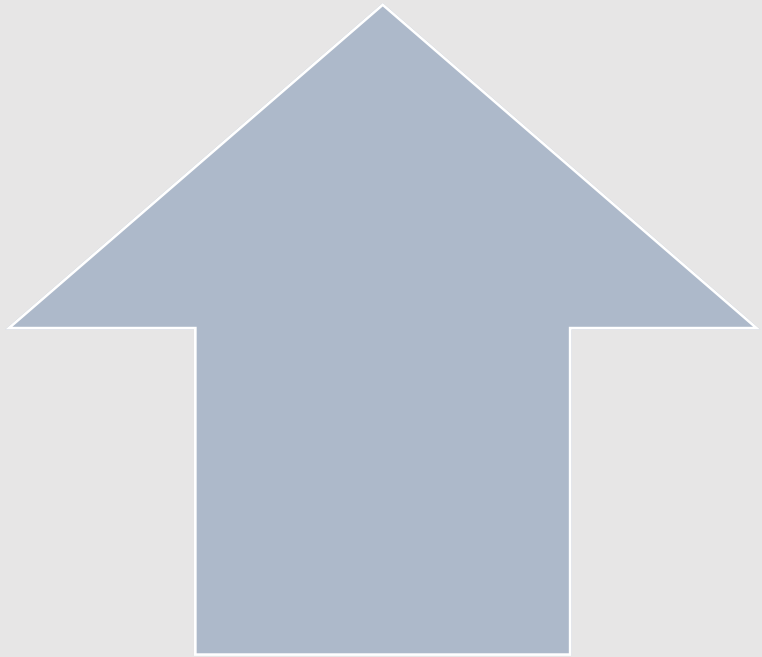
# **WARMING TEMPERATURES**



[2,74]

[Image with attribution from Beaumont Health]





**MOOD DISORDERS**

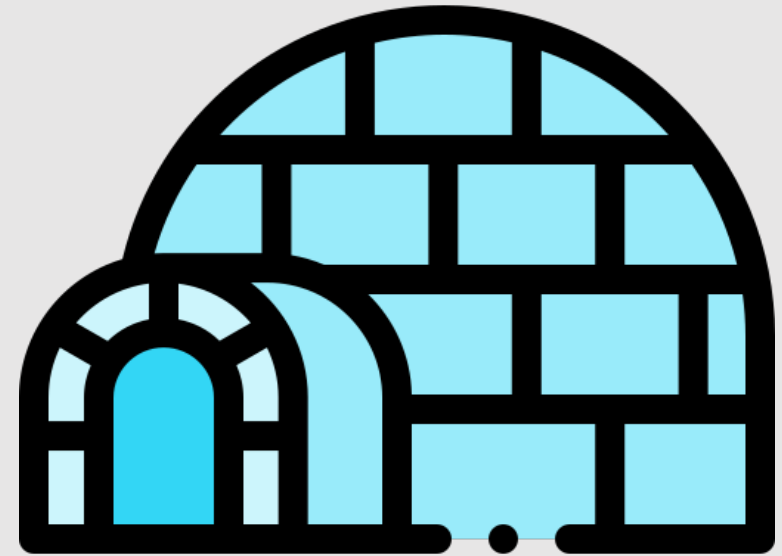
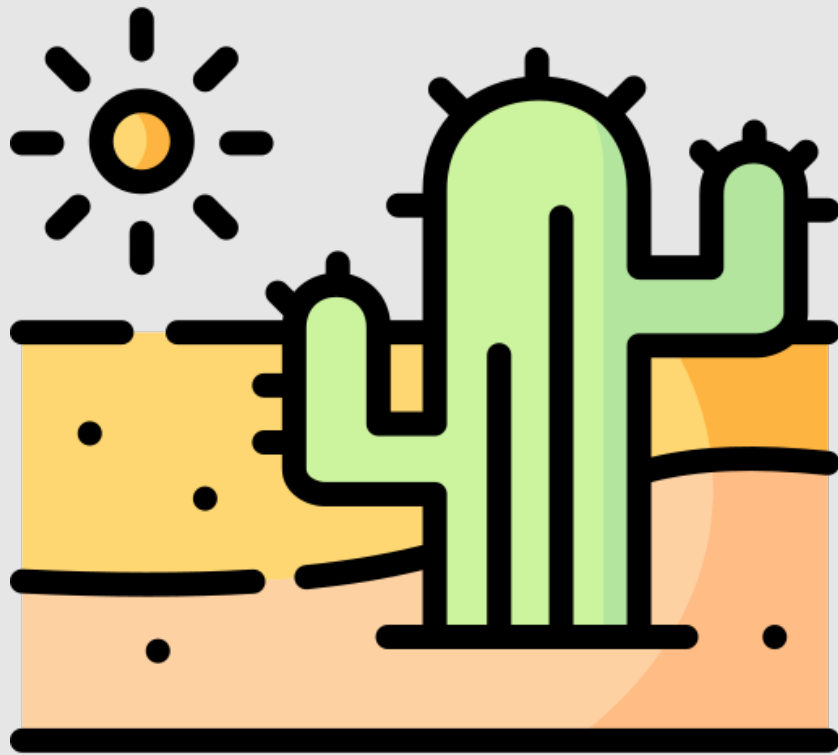
**ANXIETY DISORDERS**

**3X INCREASE IN HEAT-RELATED DEATHS  
IN THE MENTALLY ILL**

**INCREASED PRETERM BIRTH**

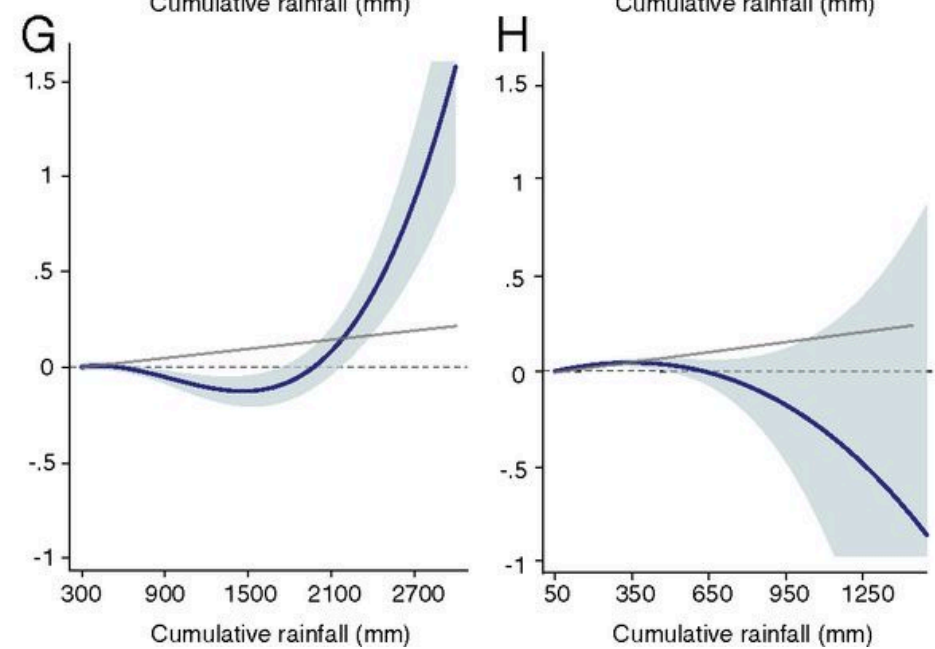
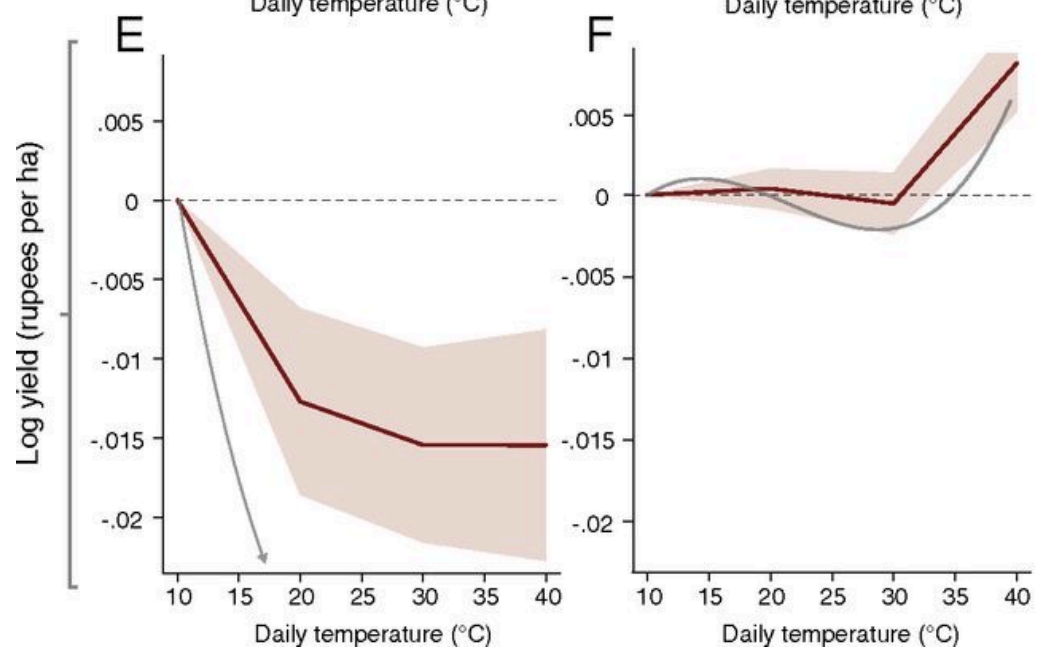
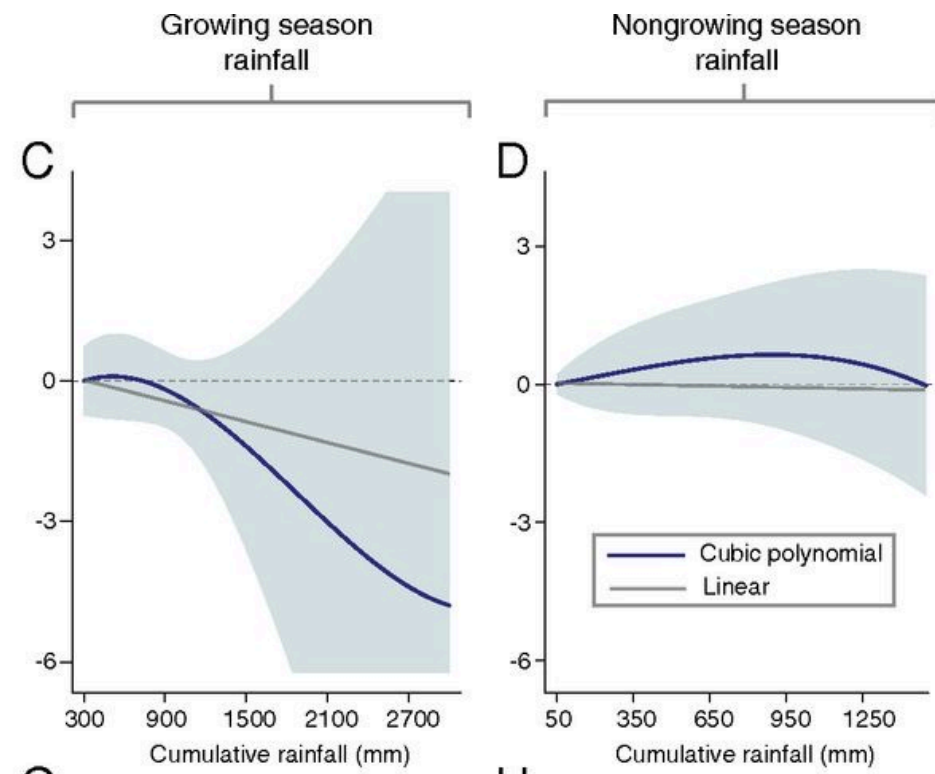
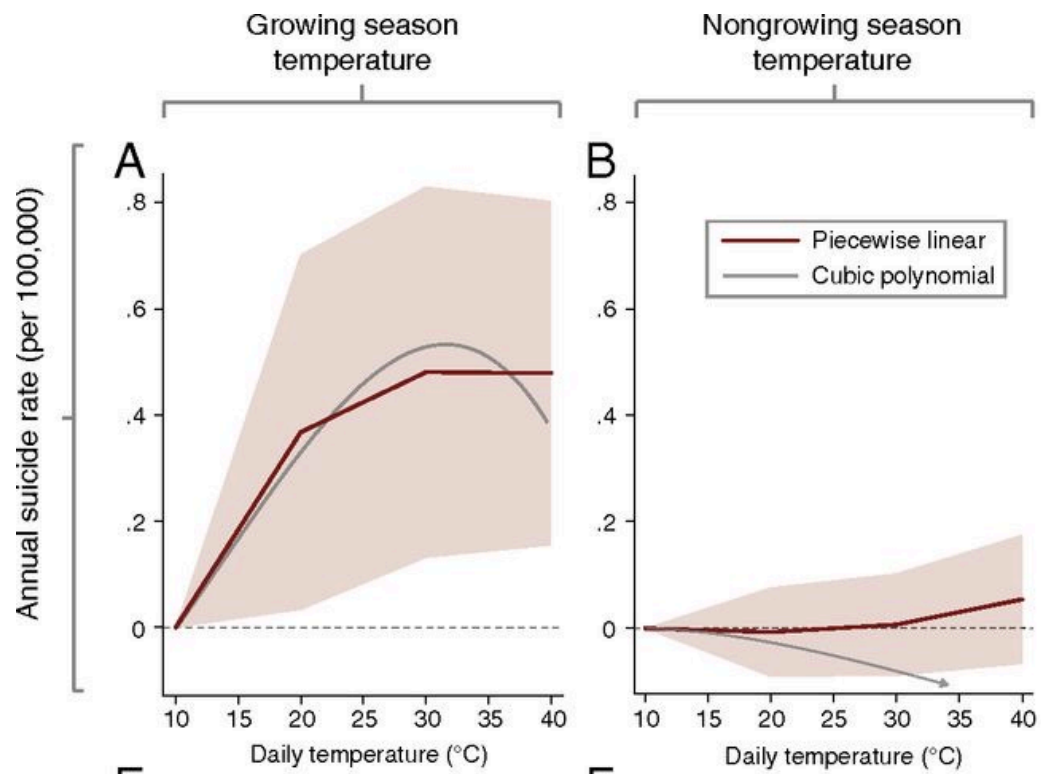


**REDUCED BIRTH WEIGHTS**



The left side of the image features a white background with three wavy, vertical lines in shades of light orange and red, creating a decorative border.

# **DROUGHT & DESERTIFICATION**



# SOLASTALGIA

*Sol.a.stal.gia*

(noun)

**Definition:** Derived from nostalgia, Solastalgia is a form of homesickness one gets when one is still at home, but the environment has been altered and feels unfamiliar.

Used primarily to describe the negative psychological effect of chronic environmental destruction on an individual's homeland.

A large crowd of people, many wearing face masks, walking along a street. The scene is busy, with people carrying bags and some wearing head coverings. The background shows a city street with buildings and a bus. The text is overlaid on the image.

**+25% RISK**  
**FOR MOOD DISORDER**  
**IN FIRST-GENERATION**  
**INVOLUNTARY MIGRANTS**

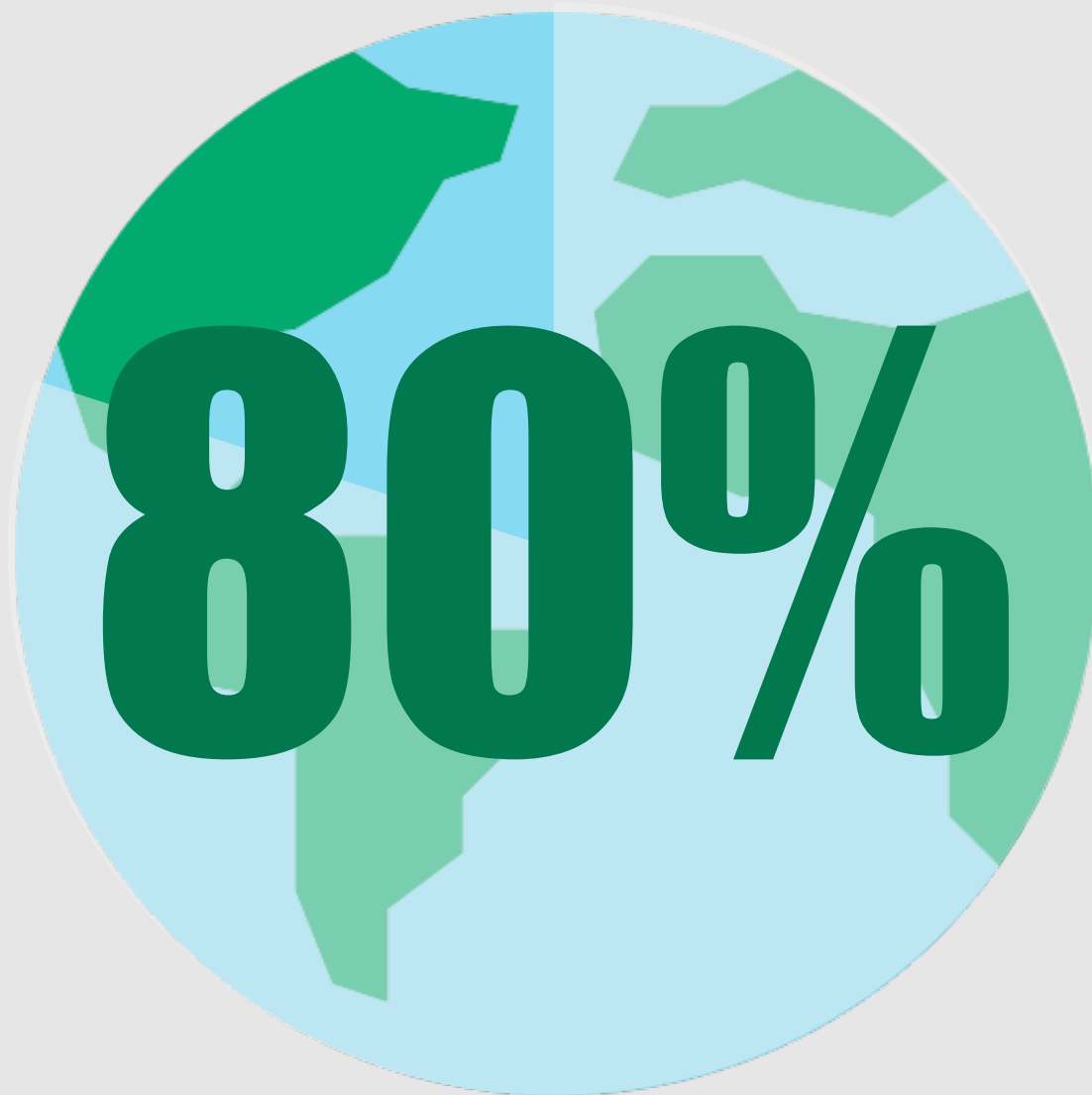
[2, 64]

[Image with attribution from Quartz]



[2, 8, 64]

[Image with attribution from DW]



[37, 65]

[Images with attribution from Turkkub]






**1,100,000,000**  
**LACK ACCESS TO WATER**

[37, 65]

[Images with attribution from Turkkub]



**2,700,000,000**  
**EXPERIENCE WATER SCARCITY**

[37, 65]

[Images with attribution from Turkkub]



# **INFECTIOUS DISEASE & PANDEMICS**



"DISEASE EMERGENCE REFLECTS  
DYNAMIC BALANCES AND  
IMBALANCES WITHIN COMPLEX  
GLOBALLY DISTRIBUTED  
ECOSYSTEMS COMPRISING HUMANS,  
ANIMALS, PATHOGENS, AND THE  
ENVIRONMENT..."

**DR. ANTHONY FAUCI**

**DIRECTOR OF THE NATIONAL INSTITUTE OF  
ALLERGY AND INFECTIOUS DISEASES**

[30]

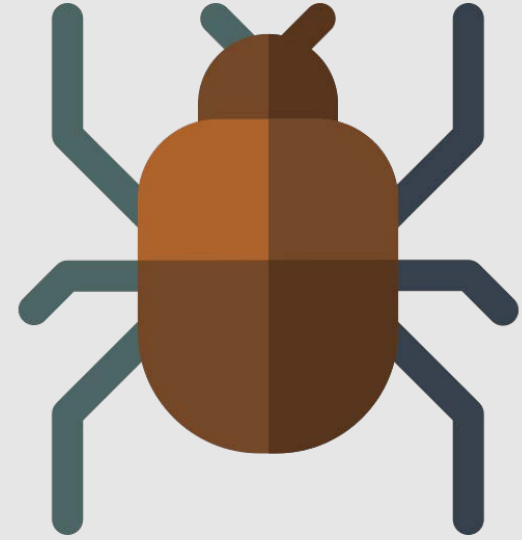
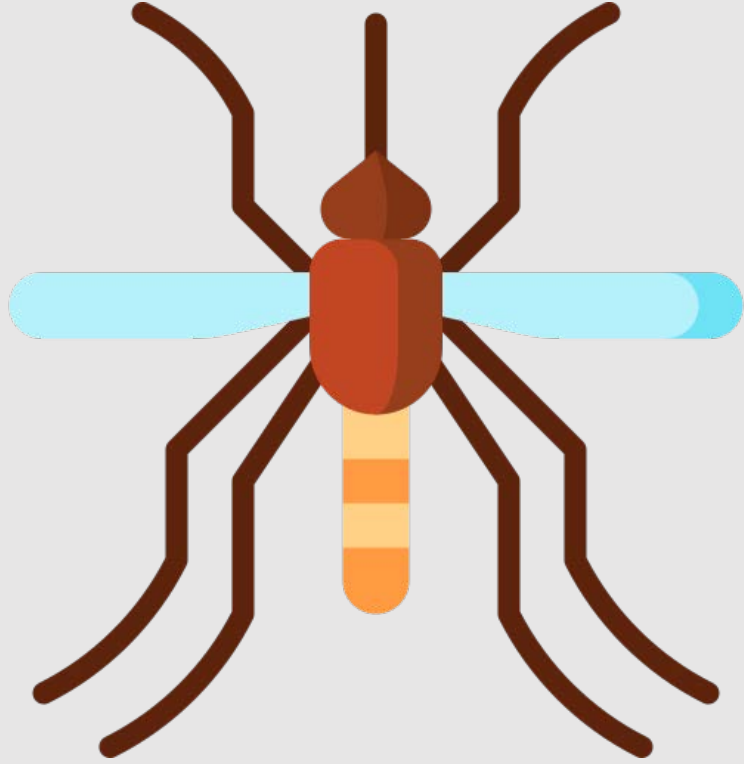
[Image with attribution from Newsweek]



“...UNDERSTANDING THESE  
VARIABLES IS A NECESSARY STEP  
IN CONTROLLING FUTURE  
DEVASTATING DISEASE  
EMERGENCES.

**DR. ANTHONY FAUCI**

**DIRECTOR OF THE NATIONAL INSTITUTE OF  
ALLERGY AND INFECTIOUS DISEASES**



[30, 74]

[Image with attribution from Freepik]




**"WE HAVE ENTERED  
A PANDEMIC ERA."**

**DR. ANTHONY FAUCI**

**DIRECTOR OF THE NATIONAL INSTITUTE OF  
ALLERGY AND INFECTIOUS DISEASES**

[30]

[Image with attribution from Newsweek]



**2,400,000,000**  
**LACK BASIC SANITATION**

[37, 65]

[Images with attribution from Turkkub]



“THE RELATIONSHIP BETWEEN THE SPREAD OF EXISTING AND NOVEL INFECTIOUS DISEASES, AND WORSENING ENVIRONMENTAL DEGRADATION, DEFORESTATION AND LAND-USE CHANGE, AND ANIMAL ILL-HEALTH HAVE LONG BEEN ANALYZED AND DESCRIBED.

# THE LANCET

2020 REPORT OF ‘THE LANCET COUNTDOWN’ [5]

[Image with attribution from OSHA]

A large, detailed illustration of a coronavirus particle, showing its characteristic spherical shape with a textured surface of red and white spikes. The particle is centered in the background, with a soft, glowing effect around it. The overall background is a light, hazy grey with faint, larger-scale versions of the virus particle.

“WE ARE IN A MENTAL  
HEALTH PANDEMIC.”

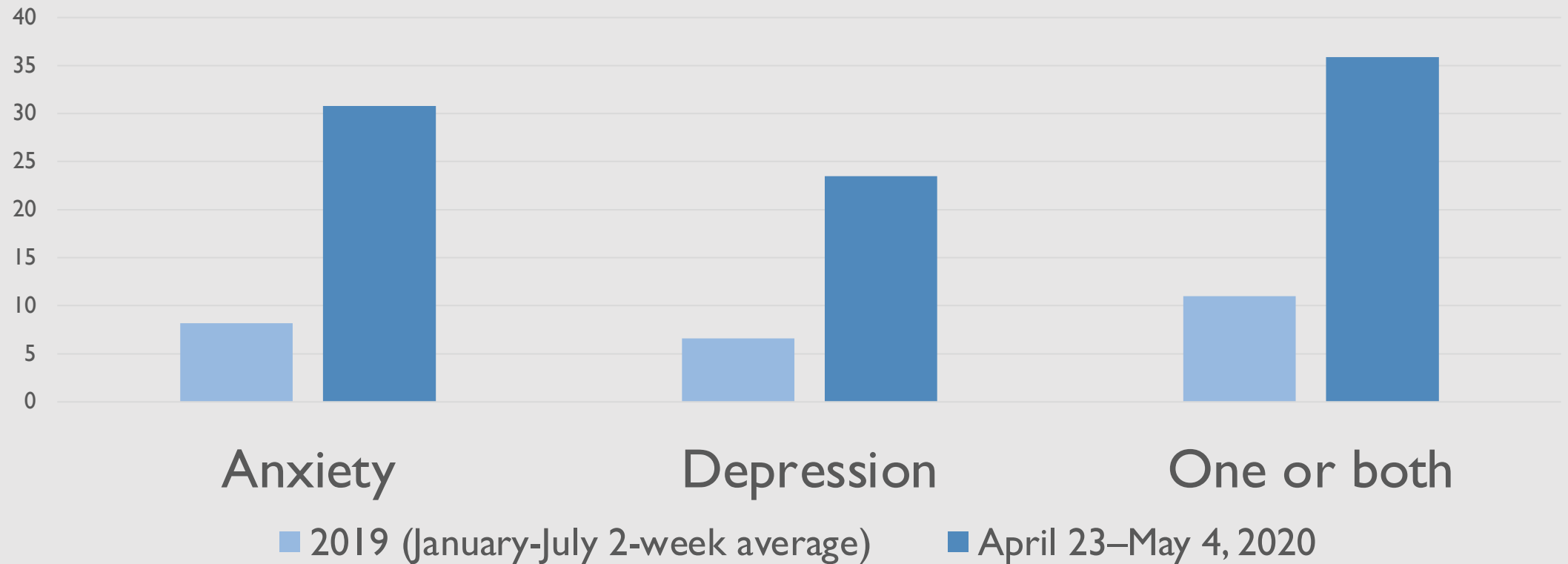
**DR. SAUL LEVIN**

APA CEO AND MEDICAL DIRECTOR

[5]

[Image with attribution from OSHA]

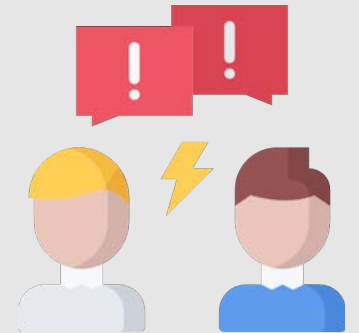
# Symptoms of Anxiety Disorder, Depressive Disorder, and “one or both”



n = 336,000

[31, 74]

# PANDEMIC STRESSORS





# **DISPROPORTIONATE RISK**



[4.54]

[Image with attribution from CBS News]



[4, 14, 54]

[Image with attribution from the International Fund for Agricultural Development]



[4.54]

[Image with attribution from the Statesman]







# **ECO ANXIETY**

**Acute**

**Subacute**

**Chronic**

Pop Culture • Analysis

# Climate-change anxiety is now a part of growing up. Pop culture has caught on.

---



[2, 6, 65, 74]

[Image: Washington Post, Marli Miller,  
Polar Bears International]



**CALL TO  
ACTION**





[Image: BBC]

# Carbon Footprint Calculator

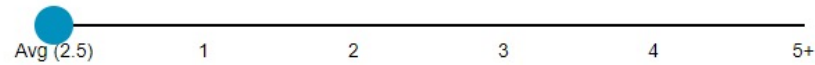


Get Started

START WITH A QUICK CARBON FOOTPRINT ESTIMATE

Zipcode State City County Country

How many people live in your household?



What is your approximate gross annual household income?



NEXT

|                                    |                                    |                     |
|------------------------------------|------------------------------------|---------------------|
| <b>49 tons CO<sub>2</sub>/year</b> | <b>49 tons CO<sub>2</sub>/year</b> | <b>0%</b>           |
| Your Total Footprint               | Similar Households                 | Better than Average |



[70, 71]  
[Tool: Nature.org]

# CONSIDER JOINING ME IN ACHIEVING CARBON NEUTRALITY



EARTH IS OUR ONLY HOME,  
AND NOW IT NEEDS OUR HELP.

ITS CHEAPER THAN YOU THINK.

FOR ME, CARBON OFFSETS  
FOR MY ADULT LIFE COST  
LESS THAN \$300 TOTAL.

[Original content]





— India

### A Bright Idea

Bringing renewable energy to over 50 million homes in rural India

 \$4.94 per tonne

[LEARN MORE](#)



— Brazil

### Brazilian Amazon Rosewood Conservation Project

Restoring forests to improve lives

 \$3.02 per tonne

[LEARN MORE](#)



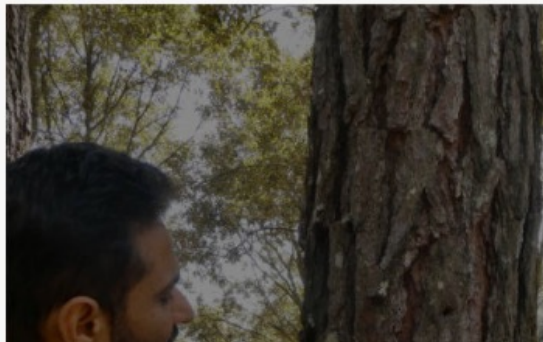
— China

### Biogas Digesters and Clean Cookstoves

Healthy households create a healthy planet.

 \$5.02 per tonne

[LEARN MORE](#)





**4.6%**

**OF GLOBAL GHG RESULT  
FROM HEALTHCARE SECTOR**

A ground crew member wearing a dark jacket and a bright yellow high-visibility vest stands on a runway, holding two orange wands. In the background, a large commercial airplane is visible, slightly out of focus. The sky is overcast.

**80%**

**OF AMERICAN GHG RESULT  
FROM HEALTHCARE SECTOR**

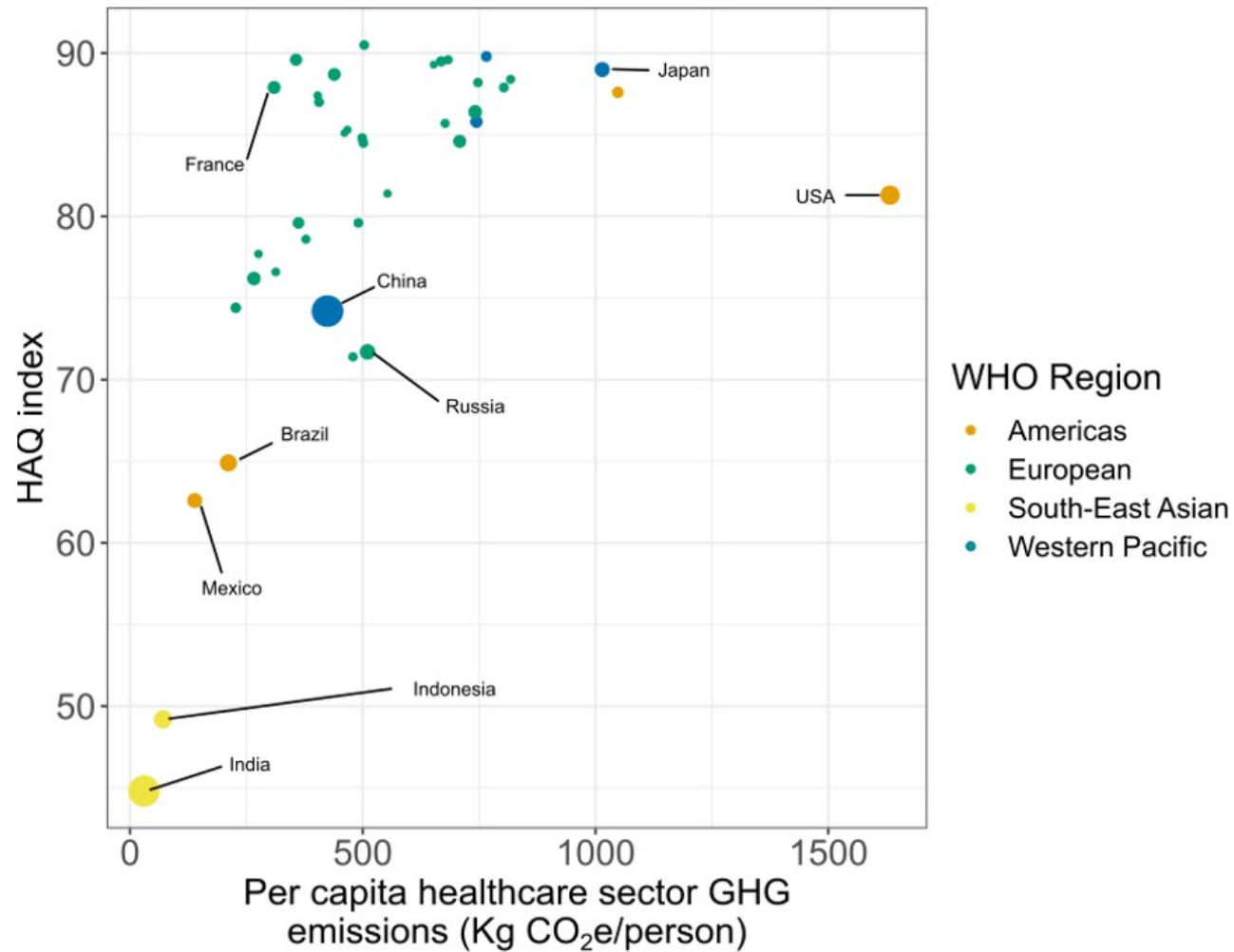


Figure 19: National per capita healthcare GHG emissions against the Healthcare Access and Quality Index for 2015.



 Sustainable Development Unit  
Working across the NHS, Public Health and Social Care system

[Image: National Health Service]

# NEW YORK STOCK EXCHANGE

POST 6

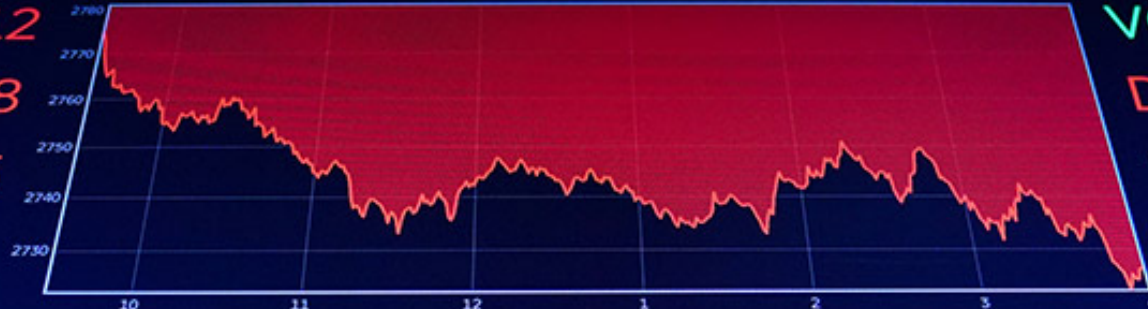


4:02:35

Monday, November 12, 2018



INDU -602.12  
INDP 25,387.18  
NYSE -194.05  
%A 12,343.48



VOLU 804,260,410  
DVOL 662,981,790  
UVOL 135,209,400  
TRAN 10,366.51 -150

733.16 -5.07  
97.57 0.66  
31.86 -0.03  
118.44 0.31

SPMi 2,731.00 -48.00  
SPX 2,726.21 -54.80  
SPZ 2,730.00 -48.90  
WTI 59.03 -1.16

VIX 20.17  
RUT 1,518.78  
XES 12.88

38.65 -66.15

BRNT 69.28 -0.90

XSD 65

[Image: Marketplace.org]

[74]



January 28, 2021

# Estimation of the Carbon Footprint Associated With Attendees of the American Psychiatric Association Annual Meeting

Joshua R. Wortzel, MD, MPhil<sup>1,2</sup>; Alec Stashevsky, BA<sup>1</sup>; Jeremy D. Wortzel, MPhil<sup>1,3</sup>; [et al](#)

[» Author Affiliations](#) | [Article Information](#)

*JAMA Netw Open.* 2021;4(1):e2035641. doi:10.1001/jamanetworkopen.2020.35641

## Introduction

The health care system produces 8% of US greenhouse gas emissions.<sup>1</sup> International medical conferences contribute to these emissions substantially; 1 conference alone can produce the carbon dioxide equivalent (CO<sub>2</sub>e) emissions of an entire city in a single week.<sup>2</sup> Virtual conferences necessitated by the coronavirus disease 2019 (COVID-19) pandemic have been associated with reduced emissions of up to 99.97%,<sup>3</sup> and it is estimated that holding conferences biennially in accessible locations and increasing virtual presentations may be associated with reductions in emissions of 90%.<sup>2</sup> The American Psychiatric Association (APA) has made addressing the effects of climate change on mental health one of its priorities,<sup>4</sup> yet it holds one of the largest annual psychiatric conferences in the world. We calculated the carbon footprint associated with the 2018 and 2019 APA annual meetings and assessed how it can be optimally reduced.

[Image: Easy Offices]  
[73. 74]

“IT IS ESSENTIAL THAT THE SOLUTION TO ONE ECONOMIC AND PUBLIC HEALTH CRISIS DOES NOT EXACERBATE ANOTHER, AND IN THE LONG-TERM, THE RESPONSE TO COVID-19 AND CLIMATE CHANGE WILL BE MOST SUCCESSFUL WHEN THEY ARE CLOSELY ALIGNED.”

# THE LANCET

2020 REPORT OF ‘THE LANCET COUNTDOWN’



“INDIVIDUALS’ PERSONAL  
CAPACITY TO WITHSTAND  
TRAUMA IS INCREASED WHEN  
THEY ARE CONNECTED TO THEIR  
NETWORKS OFF- AND ONLINE.”

**AMERICAN PSYCHOLOGICAL ASSOCIATION**

**2017 REPORT: MENTAL HEALTH AND OUR CHANGING  
CLIMATE: IMPACTS, IMPLICATIONS, AND GUIDANCE**

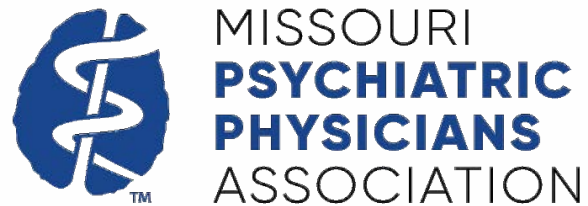
# POSITIVE MESSAGING

- Exposure to climate catastrophe promotes anxiety.
- Worse stress possible if media is scientifically inaccurate or discouraging.
- Can be mitigated.

# POLITICAL ACTION



# ORGANIZATIONAL ACTION



MISSOURI  
**PSYCHIATRIC  
PHYSICIANS**  
ASSOCIATION

AMERICAN ACADEMY OF  
CHILD & ADOLESCENT  
PSYCHIATRY  
WWW.AACAP.ORG



AMERICAN  
PSYCHOLOGICAL  
ASSOCIATION



WORLD  
PSYCHIATRIC  
ASSOCIATION

[Image with attribution from APA, AACAP, ApA, MPPA, WPA]



## Make A Plan

Make a plan today. Your family may not be together if a disaster strikes, so it is important to know which [types of disasters](#) could affect your area. Know how you'll contact one another and reconnect if separated. Establish a family meeting place that's familiar and easy to find.

**Step 1: Put a plan together by discussing the questions below with your family, friends or household to start your emergency plan.**

---

Disasters and  
Emergencies

---

**Make a Plan**

---

Plan Ahead

---

Financial Preparedness

---

# DISCUSS THE FOLLOWING:


- Emergency alerts
- Shelter plan
- Evacuation route
- Communication plan
- Emergency preparedness kit

# SAMHSA\* DISASTER TECHNICAL ASSISTANCE CENTER (DTAC)

\* SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION

For disaster technical assistance inquiries, contact SAMHSA DTAC at **800-308-3515** or **dtac@samhsa.hhs.gov** or download the **SAMHSA Disaster Mobile App**





What's climate  
got to do with it?

**ASSOCIATIONS BETWEEN  
CLIMATE CHANGE AND MENTAL HEALTH**  
JACOB LEE, MD



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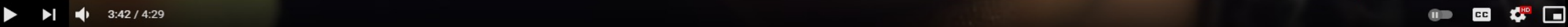


What are you  
going to do  
about it?

**ASSOCIATIONS BETWEEN**  
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