Climate anxiety in young people: Challenges and opportunities

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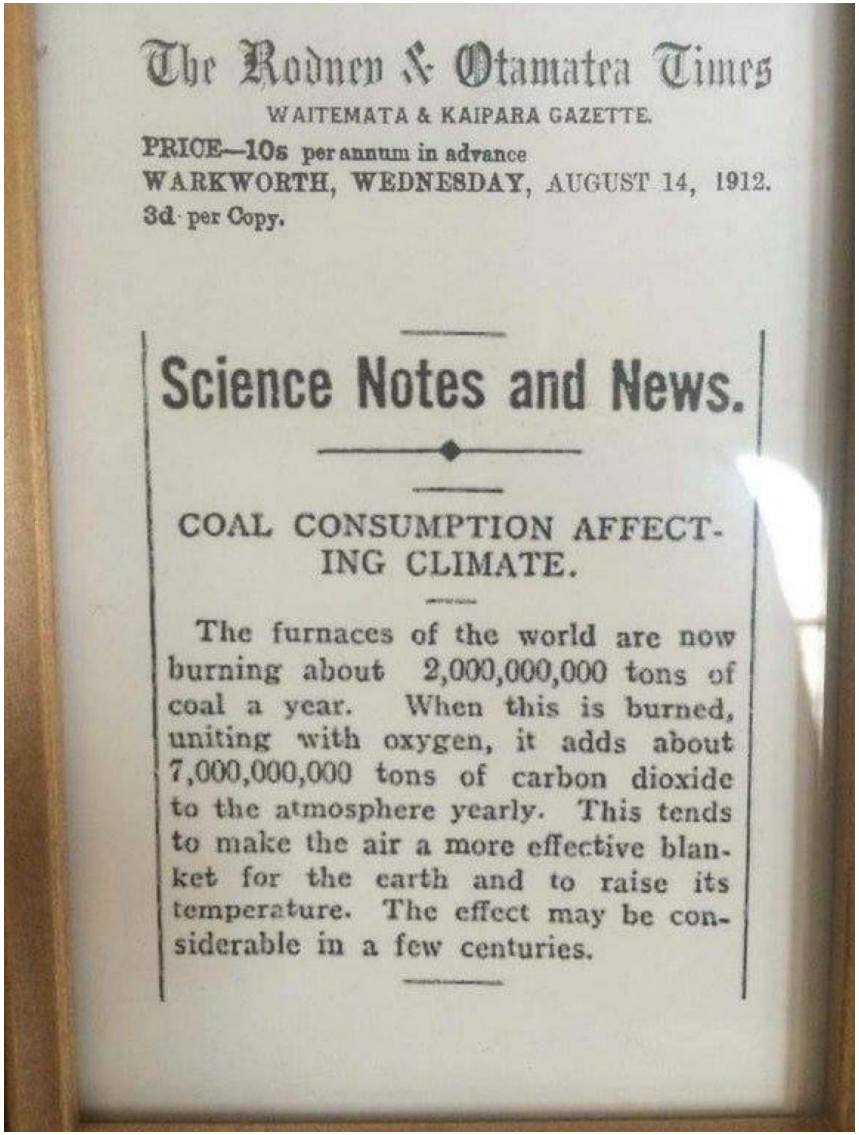

The Rodney & Otamatea Times

WAITEMATA & KAIPARA GAZETTE.

PRICE—10s per annum in advance
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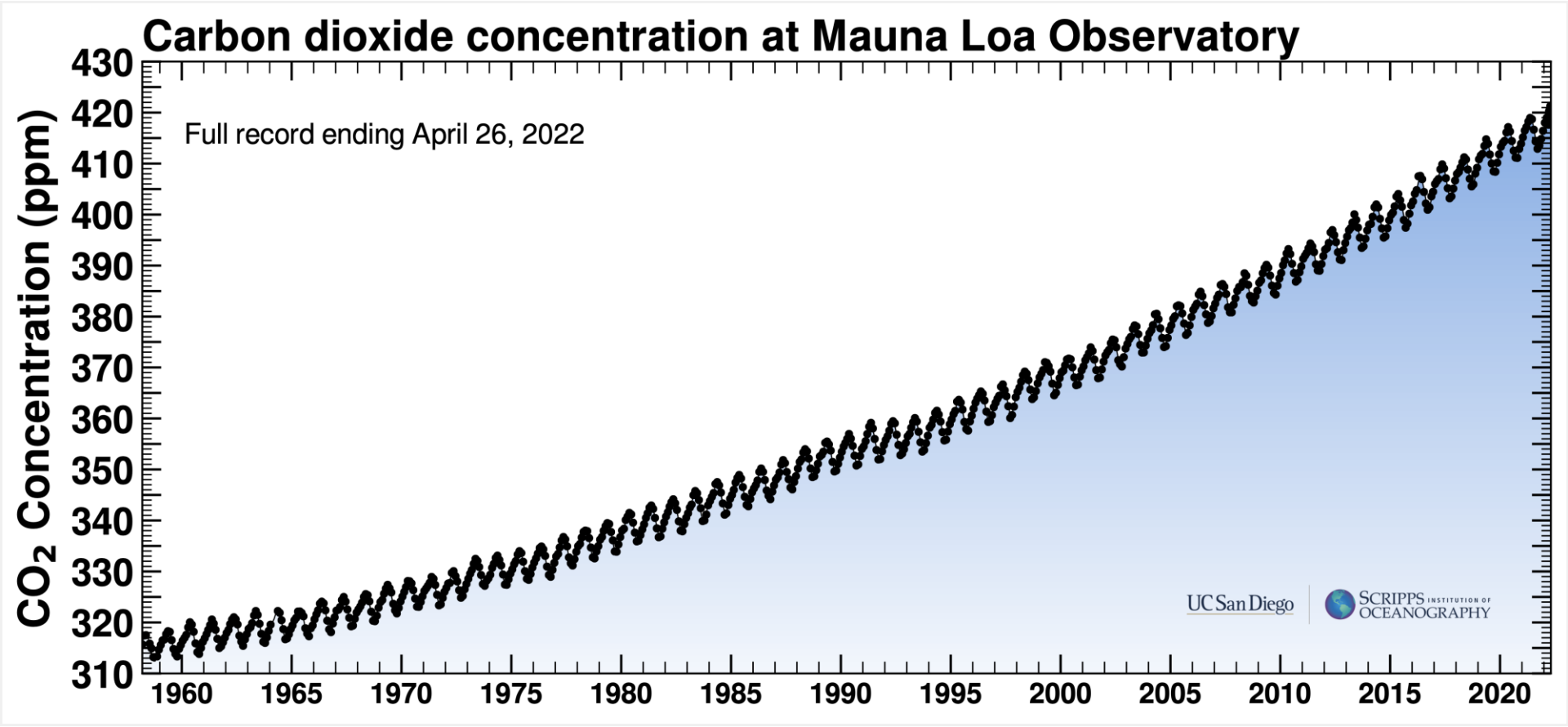
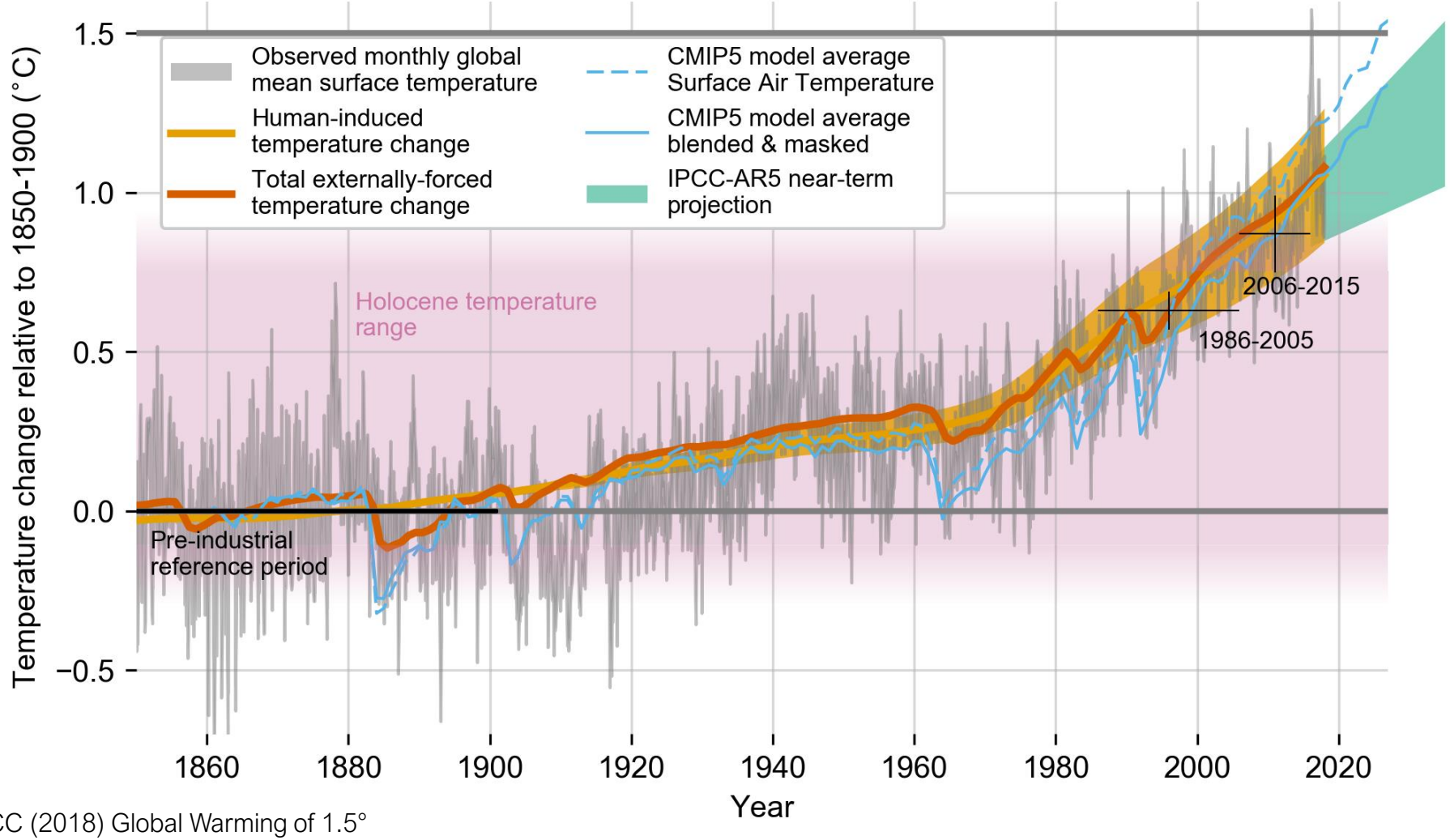
Science Notes and News.

COAL CONSUMPTION AFFECTING CLIMATE.

The furnaces of the world are now burning about 2,000,000,000 tons of coal a year. When this is burned, uniting with oxygen, it adds about 7,000,000,000 tons of carbon dioxide to the atmosphere yearly. This tends to make the air a more effective blanket for the earth and to raise its temperature. The effect may be considerable in a few centuries.

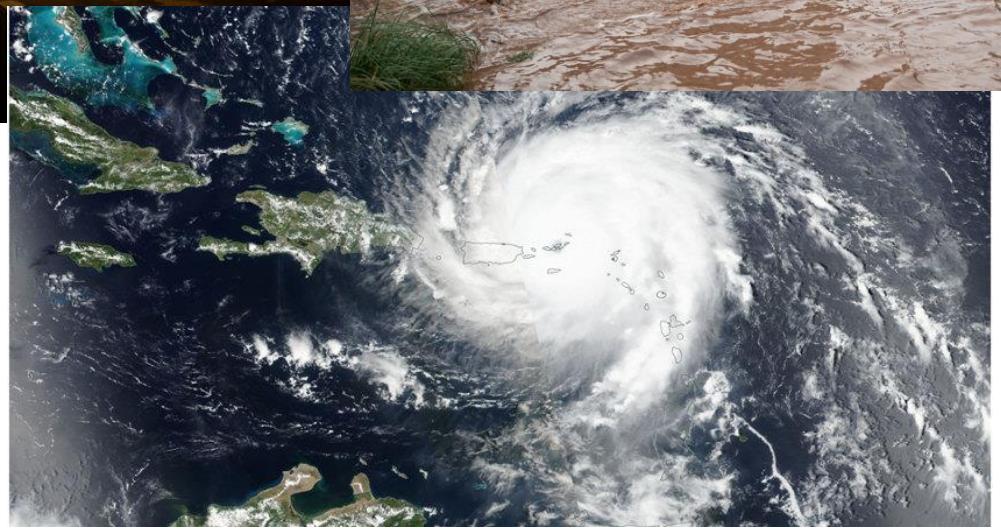

Carbon dioxide concentration at Mauna Loa Observatory
Full record ending April 26, 2022
CO_2 Concentration (ppm)
430
420
410
400
390
380
370
360
350
340
330
320
310
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
UC San Diego
SCRIPPS INSTITUTION OF OCEANOGRAPHY

Evolution of global mean surface temperature



IPCC (2018) Global Warming of 1.5°

Extreme weather events



Annual Review of Psychology

Projected Behavioral Impacts of Global Climate Change

Gary W. Evans

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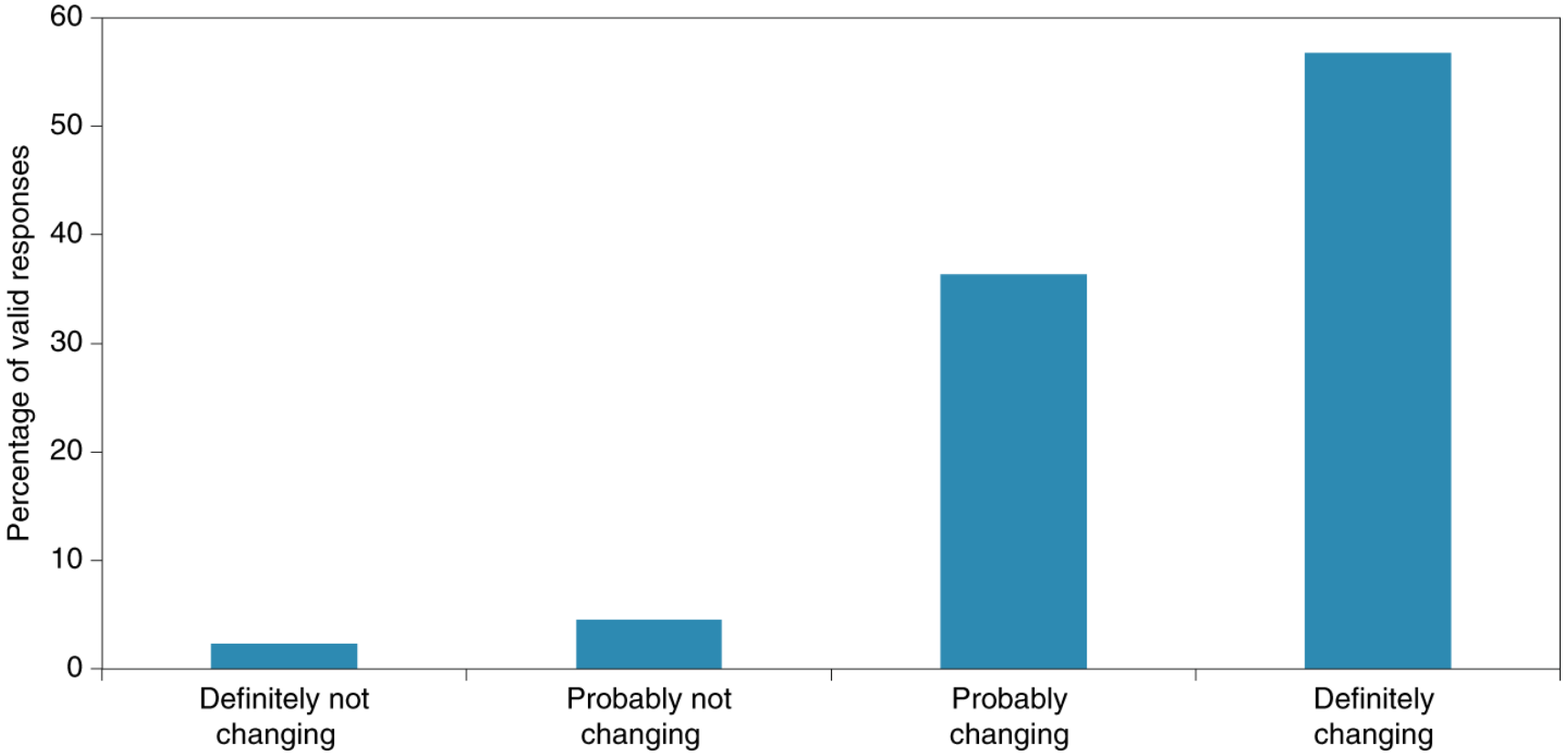
The projected behavioral impacts of global climate change emanate from environmental changes including temperature elevation, extreme weather events, and rising air pollution. Negative affect, interpersonal and intergroup conflict, and possibly psychological distress increase with rising temperature. Droughts, floods, and severe storms diminish quality of life, elevate stress, produce psychological distress, and may elevate interpersonal and intergroup conflict. Recreational opportunities are compromised by extreme weather, and children may suffer delayed cognitive development. Elevated pollutants concern citizens and may accentuate psychological distress. Outdoor recreational activity is curtailed by ambient pollutants.

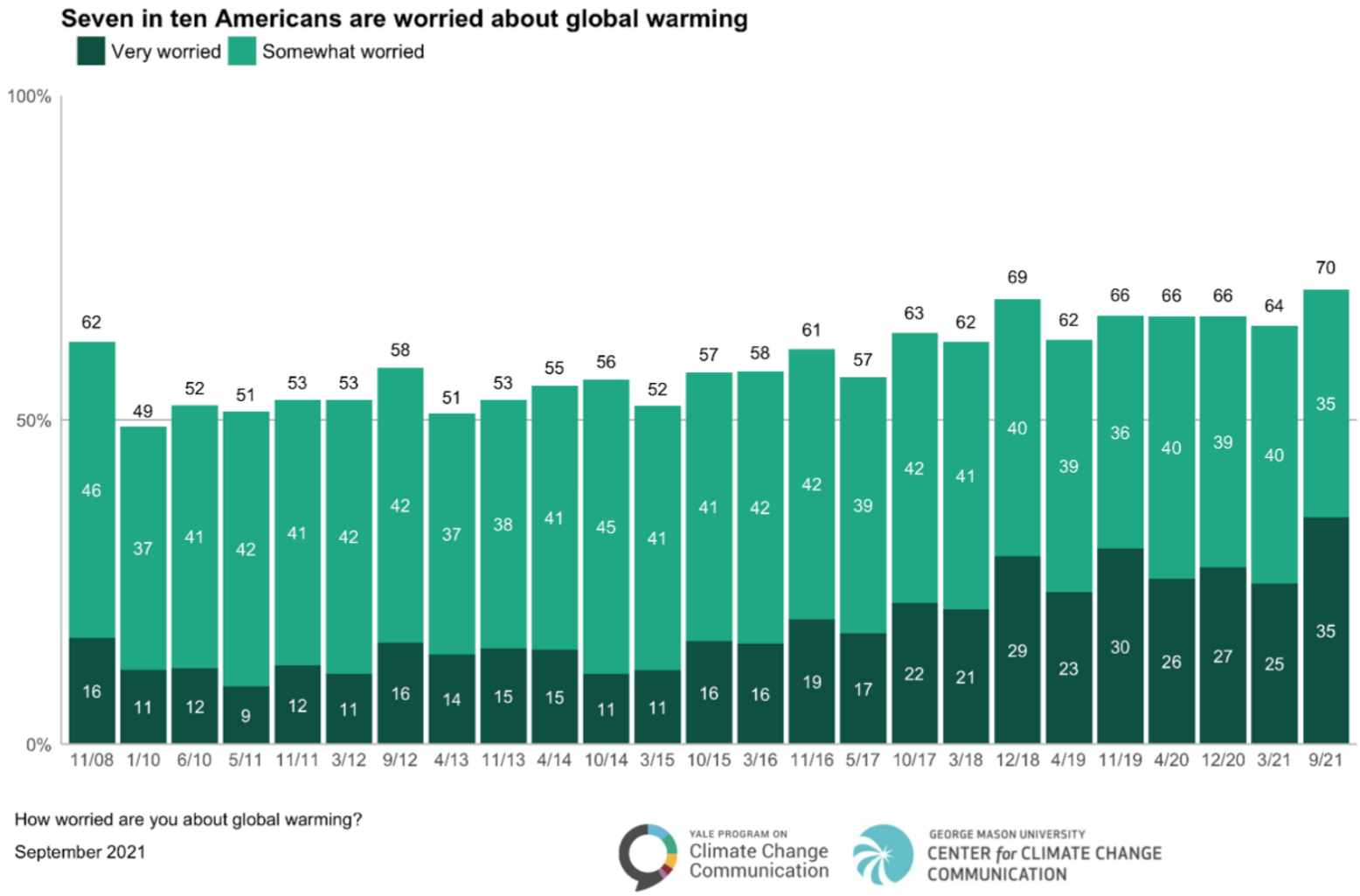
Do you think the world's climate is changing?



Survey conducted in Austria, Belgium, the Czech Republic, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, Italy, Lithuania, the Netherlands, Norway, Poland, Portugal, the Russian Federation, Slovenia, Spain, Sweden, Switzerland and the United Kingdom; N = 43,288

Steg (2018) *Nature Climate Change*

Worry about climate change (US)



Worry about climate change (Europe)

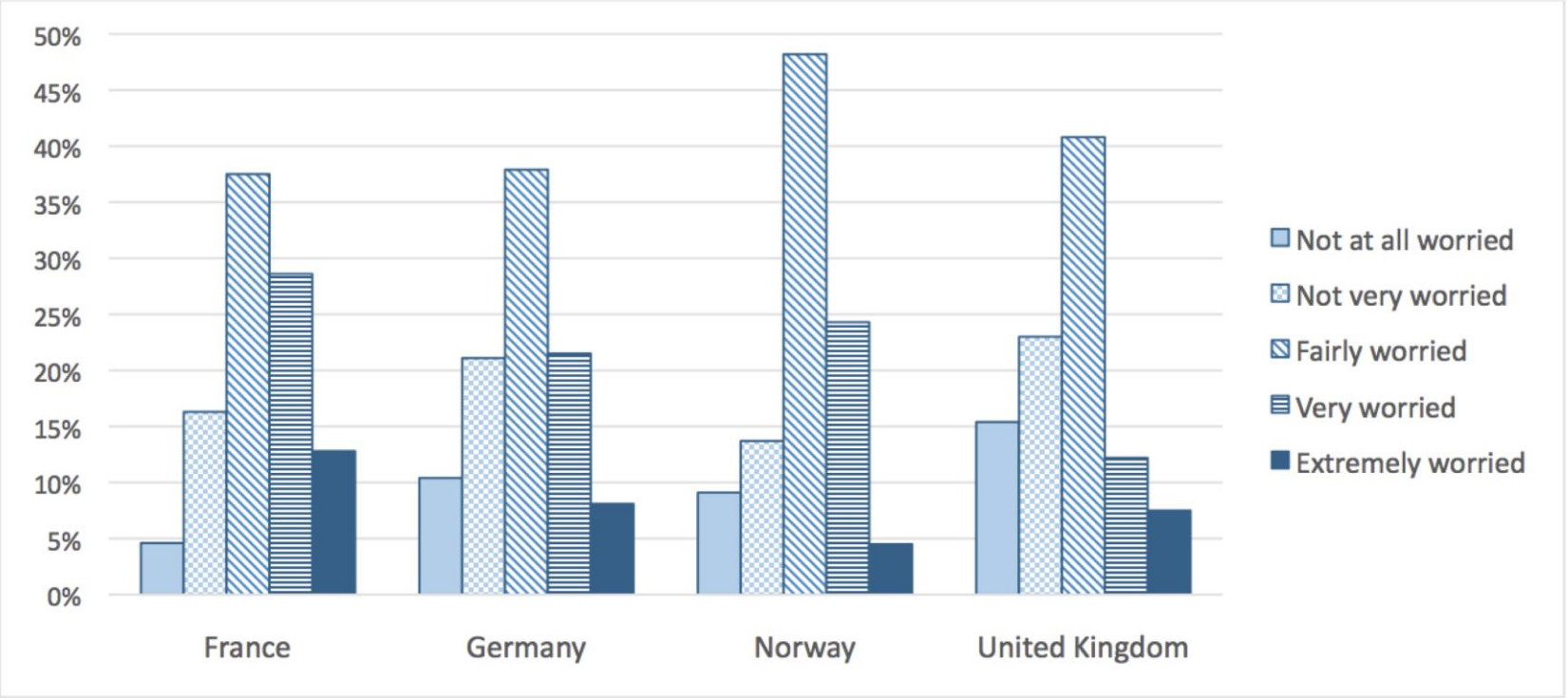
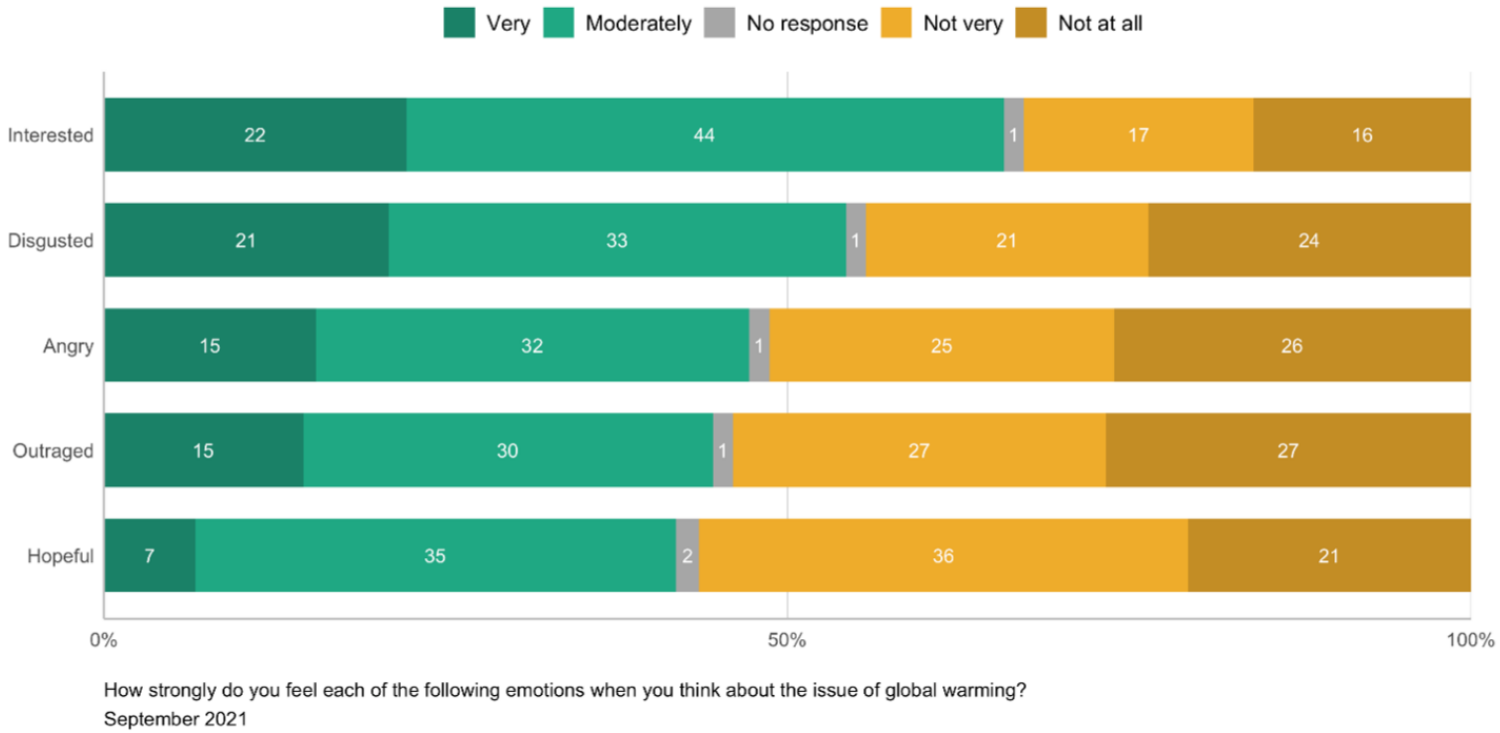


Figure 1. *How worried, if at all, are you about climate change? (Question 3)*

European Perceptions of Climate Change (EPCC)

Emotions toward climate change (US)



Yale Program on Climate Change Communication

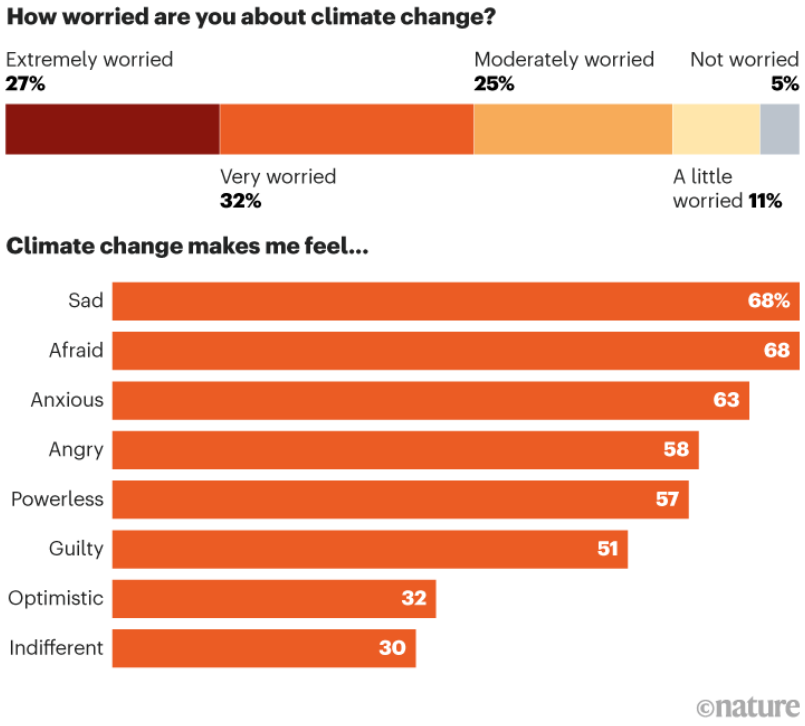
Emotions toward climate change (Europe)

Table 5. *Proportion of respondents indicating they feel the mentioned emotions "very much" or "quite a bit". (Question 12)*

	Hope	Fear	Outrage	Guilt
France	14%	27%	42%	15%
Germany	19%	25%	30%	14%
Norway	19%	12%	10%	8%
United Kingdom	20%	19%	20%	13%

European Perceptions of Climate Change (EPCC)

Climate worry and climate emotions in young people



Hickman et al. (2021) *The Lancet Planetary Health*

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MENTAL HEALTH

'Climate grief': The growing emotional toll of climate change

Extreme weather and dire climate reports are intensifying the mental health effects of global warming: depression and resignation about the future.

The Delta Fire rages in Shasta-Trinity National Forest in California on Sept. 6. Noah Berger / AP file

Climate. Justice. Solutions.

Fix Donate All Topics

Grist

2019's biggest pop-culture trend was climate anxiety

Billie Eilish, "Big Little Lies," Megan Thee Stallion's Instagram Live: The climate crisis kept popping up in unexpected places.

Grist / Walt Disney Studios / Michael Thomas / Dimitrios Kambouris / VMN19 / Getty Images for MTV

What is climate anxiety?

- **Climate anxiety:** Anxiety associated with perceptions of climate change, even among people who have not personally experienced any direct impacts
- **Anxiety:** Cognitive-affective state resulting from the detection of an anticipated threat to a future goal, composed of **worry** (repeated thoughts and vigilance towards the problem) and **physiological stress responses**

- **Climate change is a real and existential threat:**
  - **Physical threat** to the well-being and the future survival of humanity
  - **Moral threat** related to the question of whether it is right to live the way we do
  - **Spiritual threat** related to the question of whether there is any point in being an active citizen considering the seriousness and complexity of the problem

- **It is rational to be anxious about it:** Anxiety signals the approach of a threat and can motivate people to prepare accordingly

The functionality of emotions

- Emotions are **adaptive reactions** that are elicited when an event or an object is appraised as relevant to one's concerns.
- They result in changes in motivational action tendencies, physiological reactions, expressions, and subjective feeling.
- Emotions are **defined by the meaning pattern of the situation** (e.g., fear: an uncontrollable threat, sadness: an irrevocable loss, guilt: one's transgression of a moral standard).
- They **trigger motivational tendencies** that aim to facilitate coping with the situation (e.g., fear: defensive stances such as fight, flight, or freeze, sadness: changing one's goals and circumstances, guilt: reparation and social reintegration)

Brosch (2021) *Current Opinion in Behavioral Sciences*

Available online at www.sciencedirect.com

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Current Opinion in Behavioral Sciences

Affect and emotions as drivers of climate change perception and action: a review

Tobias Brosch

Recent findings and emerging trends concerning the role of affect and emotion in climate change perceptions and judgments as well as their potential as drivers of sustainable action are reviewed. The affective responses people experience toward climate change are consistently found to be among the strongest predictors of risk perceptions, mitigation behavior, adaptation behavior, policy support, and technology acceptance. As correlational results do not imply that inducing affective states will necessarily lead to the corresponding changes in a target population, research efforts now should focus on establishing the causal pathways from affect and emotion towards climate action. Communication and intervention studies show that inducing both positive and negative emotions may under certain conditions promote sustainable behavior, but the field would benefit from a stronger integration of concepts and findings from affective psychology. Explicitly considering the mechanisms by which emotions influence decisions and actions may help design more efficient affective interventions.

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Current Opinion in Behavioral Sciences 2021, **42**:15–21

This review comes from a themed issue on **Human response to climate change**

Edited by **Sander van der Linden** and **Elke Weber**

https://doi.org/10.1016/j.cobeha.2021.02.001

Introduction

Accumulating research in the affective sciences has revealed that human information processing, decision-making, and behavior are to a large extent influenced and guided by affect and emotions [1,2]. In contrast to the long-held view that the human mind is driven by the battle between rational, deliberate reason and impulsive, irrational emotions, this research highlights the importance of affective processes for a successful functioning of the mind [3]. Affect and emotions are strongly intertwined with cognitive and motivational processes, they provide important evaluative information and reorient information processing and behavior towards events that are relevant to overarching goals and concerns (see Box 1 for a glossary of important terms). Consistent with their major influence on human thinking and behavior, affect and emotions have been shown to play an important role in driving human responses toward climate change. In this review, recent findings and emerging trends concerning the role of affect and emotions in climate change perceptions and judgments as well as their potential as drivers of sustainable action are identified, with a focus on the literature published during the last five years (2015–2020).

Experienced affect and emotion as drivers of climate change perception and action

Recent empirical and meta-analytic research has consistently found affect and emotions experienced toward climate change to be among the most important predictors of climate change-related judgments and behaviors. In a comprehensive analysis of factors influencing climate change risk perception that combined cognitive, experiential, and socio-cultural determinants, negative affect toward climate change was the single largest predictor of all examined factors [10]. In a replication and extension of the model, negative affect was moreover the largest predictor of individual willingness to engage in climate change mitigation behaviors such as using public transport or saving electricity [11]. In a meta-analysis of 106 studies investigating motivators of climate change adaptation behaviors (such as purchasing insurance or seeking information about hazards), negative affect was identified as one of the largest predictors, together with descriptive norms, perceived self-efficacy and outcome efficacy [12]. Public support for climate policies was found to be strongly predicted by affect as well as by emotions such as worry, interest, and hope toward climate change [13,14•]. Comparing the influence of multiple predictors of climate policy support, worry about global warming was the most important predictor, closely followed by affect toward global warming, which together explained about 20% of the variance [15]. Similarly, affect toward energy technologies was shown to be the most important driver of technology acceptance [16,17]. Using data from the European Social Survey (N = 44 387), worry about climate change was identified as direct predictor of climate policy support and as indirect driver of personal energy-saving behaviors via increases in feelings of personal responsibility [18•]. Together, these findings illustrate that affect and emotions play an important role

Negative affect is one of the most important determinants of the willingness to engage in mitigation behaviors

Socio-demographics	
Age	0.77%
Gender	0.28%
Higher Education	1.17%
Party - conservative	0.66%
Party - liberal	0.89%
Total Variance Explained	**3.75%**
Cognitive Factors	
Cause Knowledge	0.39%
Impact Knowledge	0.45%
Response Knowledge	3.09%
Mitigation Response Inefficacy	7.55%
Total Variance Explained	**11.48%**
Experiential Processes	
Affect	7.66%
Personal Experience	1.46%
Total Variance Explained	**9.12%**
Socio-cultural Influences	
Descriptive Norms	5.61%
Prescriptive Norms	7.52%
Biospheric Values	5.77%
Altruistic Values	1.29%
Egoistic Values	0.09%
Free-market Ideology	6.27%
Total Variance Explained	**26.55%**
Overall Variance Explained	**50.91%**

Xie et al. (2019) *Journal of Environmental Psychology*

Negative affect is one of the most important determinants of the willingness to engage in adaptation behaviors

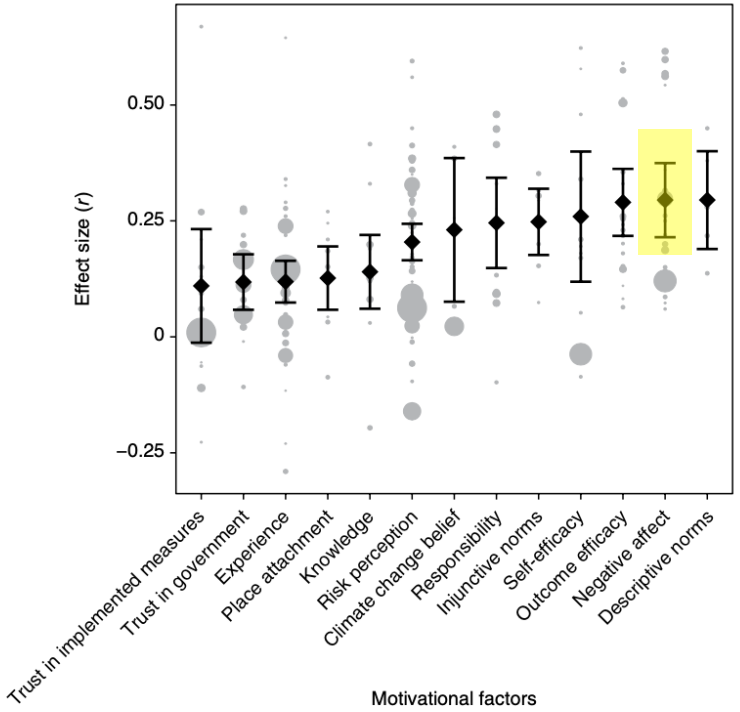


Fig. 1 | Mean meta-analytical effect sizes. Black diamonds show the meta-analytical effect size (*r*) for each factor. Error bars represent the 95% CI around the effect size. Grey circles represent the effect size for individual studies. The size of the circle indicates the study sample size. See Supplementary Fig. 3 for an alternative visualization of these data.

Van Valkengoed & Steg (2019) *Nature Climate Change*

Worry and negative affect are among the most important determinants of climate policy support

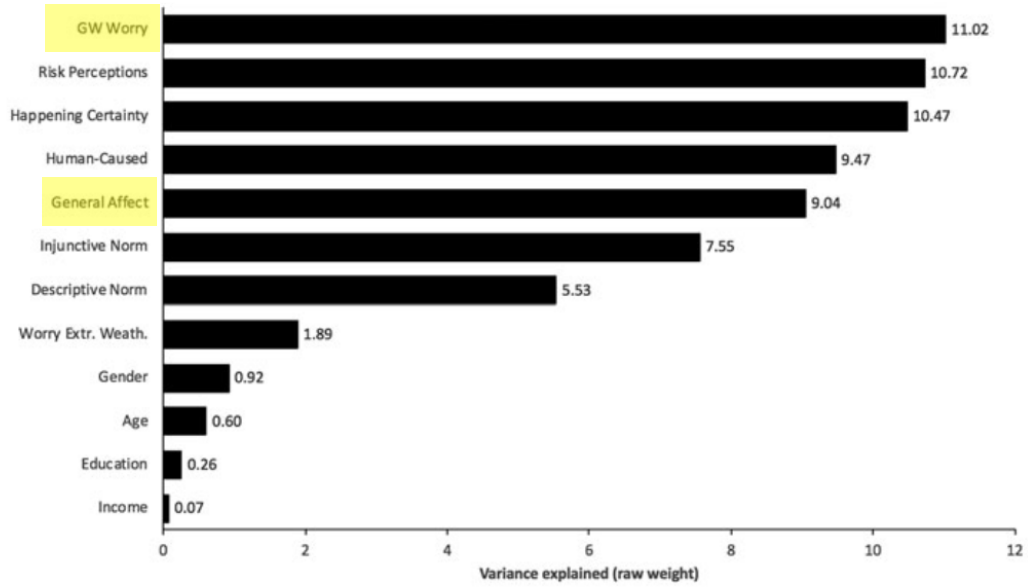


Figure 1. Relative importance of predictors of climate policy support.
Note: Values denote raw weight values from a relative weight analysis and sum to the model R^2 (variance explained) of 68%. GW = global warming; Extr. Weath. = extreme weather.

Goldberg et al. (2020) *Behavioral Public Policy*

The two sides of climate anxiety

- **Climate anxiety can serve an adaptive function:**
  - Negative affective reactions that people experience toward climate change are among the **strongest predictors** of **climate change risk perceptions**, **mitigation behavior**, **adaptation behavior**, **policy support**, and **technology acceptance**
  - It is important to **avoid pathologizing** the emotional response to climate change
  - A too strong focus on a ”mental health perspective” can imply that the emotional response is inappropriate

- **Climate anxiety can cause individual suffering:**
  - Like all types of anxiety, **climate anxiety can become maladaptive** and clinically significant when it is difficult to control and interferes with a person’s ability to sleep, work, or socialize
  - To appreciate the “two sides of climate anxiety”, it is important to **measure** and **quantify** maladaptive climate anxiety

Development of a climate anxiety scale

- **Cognitive-emotional impairment**
  - "Thinking about climate change makes it difficult for me to sleep"
  - "I find myself crying because of climate change"
- **Functional impairment**
  - "My concerns about climate change make it hard for me to have fun with my family and friends"
  - "My concerns about climate change undermine my ability to work to my potential"
- In a representative U.S. sample, about **10% of respondents** indicated that they 'often' or 'almost always' present clinically significant cognitive-emotional and functional impairments in their daily life because of intense climate change anxiety
- **Younger age groups report higher scores** than older adults

Clayton & Karazsia (2020) *Journal of Environmental Psychology*

Climate anxiety in young people

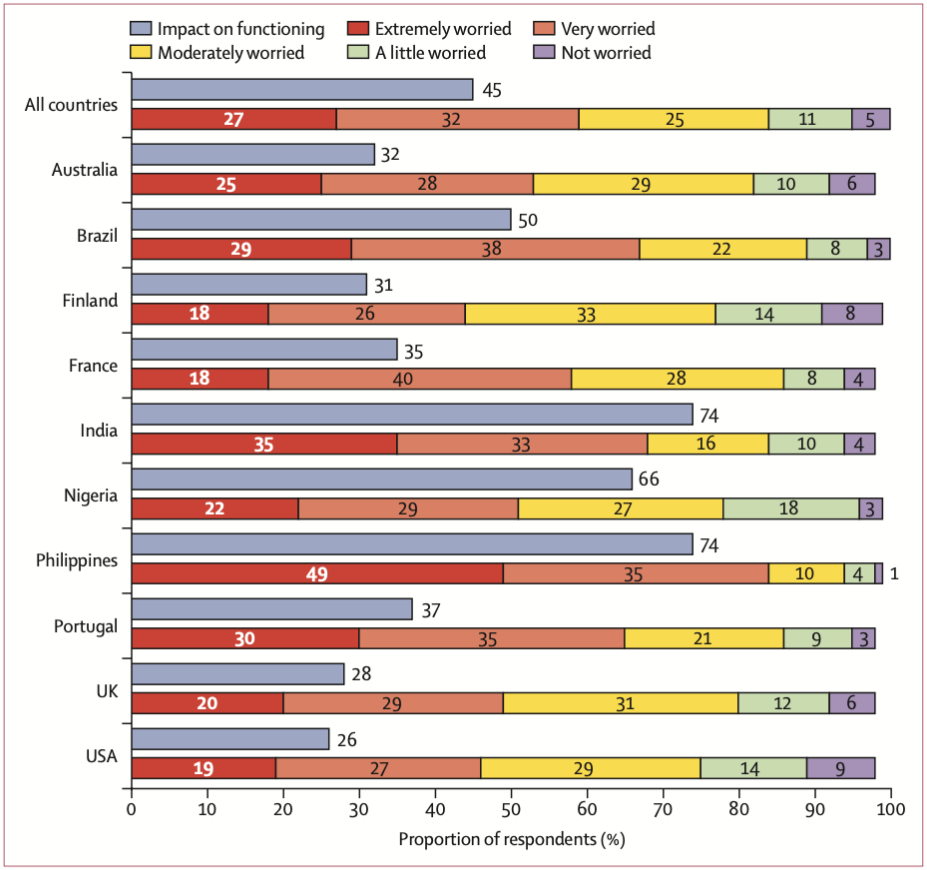


Figure 1: **Worry about climate change and impact on functioning**
The graph shows the proportion of the sample reporting a negative impact on functioning from their feelings about climate change and various levels of worry about climate change. Data are shown for the whole sample (n=10 000) and by country (n=1000 per country)

Hickman et al. (2021) *The Lancet Planetary Health*

Climate anxiety in young people

Potential reasons for higher climate anxiety among young people:

- More future-oriented thinking
- More time to think about societal issues
- Less control over their own behavior

Ojala (2012) *Journal of Environmental Psychology*

Responding to climate anxiety

Two "therapeutic" strategies to address anxiety:

- **Emotion-focused coping strategies**
  - Downregulate the emotional response
  - Reframe the situation to de-emphasize the threat
  - May reduce anxiety, does not resolve the actual problem
  - Focuses on individual well-being

"Passive hope"

- **Problem-focused coping strategies**
  - Tackling the problem
  - Promote efforts to mitigate climate change
  - Difficult at the individual level the context of climate change
  - Needs to focus on re-evaluating one's ability to contribute to collective mitigation efforts or promote societal change

"Active hope"

Passive hope: Deemphasize the threat

Message about **global progress in climate change mitigation**:

"Carbon emissions present a problem that needs to be addressed on a global scale, and this is reflected in policymaking around the world. For the first time, the rise in global carbon emissions slowed in 2012 - and that marked a sustainable trend. The needed reductions are finally happening."

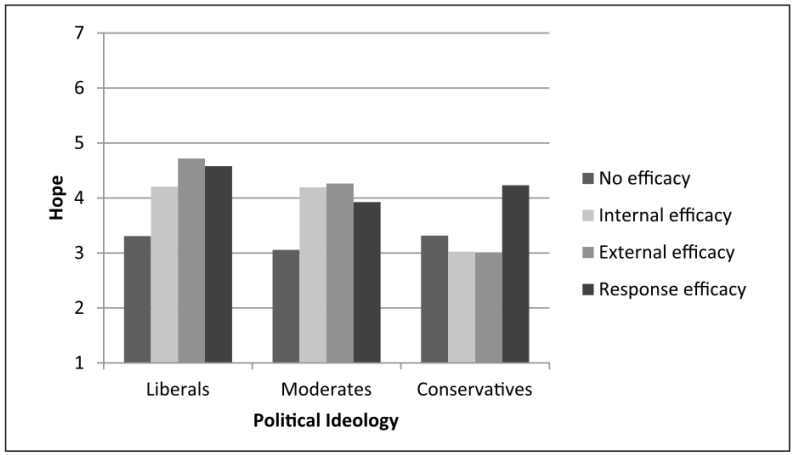
	Neutral ($n = 149$)	Optimistic ($n = 137$)
Mitigation motivation	3.51_a (1.35)	3.61_a (1.34)
Hope	3.08_b (1.38)	3.70_c (1.36)
Distress	2.71_a (1.29)	2.55_a (1.36)
Risk	4.43_b (1.16)	3.99_a (1.33)
Personal Efficacy	4.08 (1.11)	4.11 (1.20)
Collective Efficacy	4.66 (0.96)	4.62 (1.12)

Hornsey & Fielding (2016) *Global Environmental Change*

Active hope: Increase perceived efficacy to act

Message about **effective solutions for climate change mitigation**:

Messages targeting the effectiveness with which an individual can act, the likelihood that politicians will respond to public opinion, the effectiveness of proposed climate policies



Increases in experienced hope mediated message effects on climate action

Feldman & Hart (2015) *Science Communication*

Summary

- Feeling anxious towards climate change is **rational** and should be **validated, not pathologized**
- The **adaptive function** of climate anxiety signals the approach of a threat and can **motivate people to prepare accordingly**
- **Climate anxiety can become maladaptive** when it interferes with a person's ability to sleep, work, or socialize
- Strategies aiming to **increase one's perceived ability to contribute to mitigation efforts** may help reduce climate anxiety in an adaptive way
- This approach is however **more difficult for young people** who have less behavioral control
- In this context, **increasing perceived collective efficacy** (via parents, societal actors, governmental action) is especially important
- **Positive emotions** such as hope can play important and constructive roles in the context of climate change mitigation efforts

Thank you for your attention!

Climate anxiety in young people: Challenges and opportunities

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