

# Examining Contrasting Influences of Extreme Weather Experiences on Individual Climate Activism

Joshua Ettinger<sup>1,2</sup> , Peter Walton<sup>3</sup> , James Painter<sup>2,4</sup> , Kelly S. Fielding<sup>5</sup> ,  
Robyn Gulliver<sup>5,6</sup> , Friederike E. L. Otto<sup>7</sup> 

[1] School of Geography and the Environment, University of Oxford, Oxford, United Kingdom. [2] Environmental Change Institute, University of Oxford, Oxford, United Kingdom. [3] School of Earth and the Environment, University of Leeds, Leeds, United Kingdom. [4] Reuters Institute for the Study of Journalism, Department of Politics and International Relations, University of Oxford, Oxford, United Kingdom. [5] School of Communication and Arts, University of Queensland, Brisbane, Australia. [6] Crawford School of Public Policy, Australian National University. [7] Grantham Institute for Climate Change, Imperial College, London, United Kingdom.

Global Environmental Psychology, 2024, Vol. 2, Article e10829, <https://doi.org/10.5964/gep.10829>

Received: 2022-12-15 • Accepted: 2023-09-04 • Published (VoR): 2024-04-30

**Handling Editors:** Sara Vestergren, University of Keele, Keele, United Kingdom; Sebastian Bamberg, University of Applied Sciences and Arts, Bielefeld, Germany; Winnifred Louis, University of Queensland, St. Lucia, Australia

**Corresponding Author:** Joshua Ettinger, School of Geography and the Environment, University of Oxford, S Parks Rd, Oxford, OX1 3QY, United Kingdom. E-mail: [joshua.ettinger@ouce.ox.ac.uk](mailto:joshua.ettinger@ouce.ox.ac.uk)

**Related:** This article is part of the GEP Special Topic "Responding to the Socio-Ecological Crisis: Collective Action and Activism", Guest Editors: Sara Vestergren, Sebastian Bamberg, & Winnifred Louis. Global Environmental Psychology. <https://doi.org/10.5964/gep.arco2>

**Badges for Good Research Practices:**  Open Code.  Diversity Statement.

## Abstract

Researchers have examined how extreme weather experiences influence climate change attitudes, beliefs, and behaviors, with mixed results. However, limited research has explored how extreme weather experiences may affect climate-related perceptions and behaviors among climate activists. Given the significant role activism plays in climate action, as well as frequent dropout and burnout among activists, it is important to understand to what extent, how, and why extreme weather may influence individual climate activism. This study explores reported influences of extreme weather experiences on climate perceptions and activism through interviews with 33 Australian adults who directly experienced bushfires and previously engaged in climate activism. All participants felt more vulnerable to climate change after experiencing bushfires. Fifteen participants (45%) increased their activism; 13 (39%) maintained the same activism level; and 5 (15%) decreased their activism. Participants who increased their activism sought to share their bushfire stories with news



media, policymakers, and through artistic projects. Climate activism helped several participants cope with bushfire-related trauma, whereas several other participants reduced their activism because their experiences undermined self-efficacy (perception that one can act on climate change). These findings show the divergent ways individuals may respond to extreme weather experiences and have implications for climate action mobilization strategies.

## Keywords

extreme weather, climate activism, bushfire, climate change, trauma

### Non-Technical Summary

#### Background

There is significant debate among researchers about how personal experiences of extreme weather events influence the ways in which people perceive, and act upon, climate change. It is theorized that such experiences can build support for climate action by making climate change feel less abstract and more visual. However, existing results across dozens of studies provide mixed evidence on the effects of extreme weather events on climate change opinions and behaviors. There is a need for further research into how specific groups among the general population respond to extreme weather events and how these experiences influence individual climate activism.

#### Why was this study done?

This study explored how extreme weather experiences affect climate change perceptions and levels of engagement in climate activism among Australian adults who have experienced bushfires and previously participated in climate activism. It's important to understand drivers of climate activism as activists play an important role in pushing for societal action on climate change. Activist groups also face challenges maintaining member participation amid significant levels of dropout and emotional burnout. As climate change continues to alter the frequency and intensity of many kinds extreme weather events around the world, this topic is more relevant than ever.

#### What did the researchers do and find?

We conducted interviews with 33 Australian adults who had previously engaged in climate activism and had experienced bushfires firsthand, such as evacuating their homes and through firefighting. We found that 15/33 (45%) of the participants increased their activism after these experiences, especially to incorporate ways of sharing stories of their bushfire experiences with others. Some of these individuals felt that activism helped them cope with their bushfire-related trauma. Thirteen participants (39%) maintained the same level of activism as their experiences only reaffirmed their existing climate beliefs and activism motivations. Five participants (15%) decreased their activism due to a need to recover emotionally and/or physically from their experiences.

### What do these findings mean?

The findings show how individuals can respond differently to their extreme weather experiences. It also cautions that while further engagement in activism could provide mental health benefits for some activists after traumatic extreme weather experiences, others may distance themselves from climate activism. Those seeking to leverage extreme weather events as opportunities to mobilize others into climate activism should be mindful of these subjective psychological dynamics.

### Highlights

- Bushfire experiences reduced perceived psychological distance of climate change and heightened perceptions of vulnerability to climate change among Australian climate activists.
- Bushfire experiences had contrasting influences on individual participation in climate activism: 15/33 (45%) of participants increased their activism, 13/33 (39%) maintained the same level of activism, and 5/33 (15%) decreased their activism.
- Engaging in climate activism helped some participants cope with bushfire-related trauma, whereas trauma led others to decrease their climate activism.

As climate change continues to alter the frequency and intensity of many types of extreme weather events around the world, researchers are increasingly exploring how extreme weather experiences influence climate change attitudes, beliefs, and behaviors among the public. Extreme weather events are meteorological phenomena such as fires (or more precisely, fire weather conditions), floods, heatwaves, and tropical cyclones that are “rare at a particular place and time of year” (IPCC, 2018, p. 549). These events can cause loss of life and public health crises, destroy infrastructure, harm natural and cultural heritage, and spark a range of secondary social consequences and feedback loops. It is hypothesized that extreme weather events can counter the abstract qualities (i.e., ‘psychological distance’) of climate change and increase climate change beliefs, concerns, and behaviors (Keller et al., 2022). This perception in turn could alter attitudes about climate change, including heightening perceptions of vulnerability to climate impacts (likelihood that climate change could negatively impact them), and building stronger support for action on climate change (Zanocco et al., 2019).

However, minimal research has examined how extreme weather experiences influence individual participation in climate activism. This is an important area for research given the important role climate activism plays in climate action, significant dropout and burnout among activist groups, and growing interest in the relationship between trauma and pro-environmental behaviors. This study helps advance this body of literature through interviews with 33 Australian adults who have directly experienced bushfires and previously participated in climate activism. Using a qualitative approach, we explore

to what extent, how, and why bushfire experiences influence subsequent perceptions of climate change and engagement in climate activism. The findings have important implications for efforts to mobilize citizens into climate action in the wake of extreme weather events.

## Extreme Weather Experiences and Climate Change Perceptions

Dozens of studies have examined relationships between extreme events and how the public conceptualizes, and acts upon, climate change (Howe et al., 2019). Most studies measure personal experiences of extreme weather events through self-reports that one has been in close physical proximity to a specific weather event, which is sometimes triangulated with observational weather data. These studies are often grounded in Construal Level Theory (CLT), which proposes four dimensions of psychological distance, including proximity (how close an event feels in physical space), social aspects (to whom an event occurs), temporality (when an event occurs in time), and a hypothetical component (perceptions of whether something is likely to happen) (Trope & Liberman, 2010). According to CLT, by virtue of its tangible, visceral and local impacts, extreme weather could make the risks of climate change more visible, concrete, and psychologically close across these four dimensions, which in turn could prompt stronger climate-related beliefs, risk perceptions, and behaviors (Keller et al., 2022).

Results on this topic are mixed (Howe et al., 2019; Reser & Bradley, 2020; Sambrook et al., 2021; Sisco, 2021). Some researchers have found that extreme weather events increase climate change beliefs, risk perceptions, and pro-environmental behaviors, whereas others have found that increased concerns last for only a limited duration, or have no effects on climate attitudes or policy support (Howe et al., 2019). For instance, Demski et al. (2017) found that flooding experiences in the UK increased attention to climate change and behavioral intentions around personal climate change mitigation and adaptation actions. In contrast, Gärtner and Schoen (2021) concluded that extreme weather events in Germany were not associated with any changes in climate change attitudes or support for climate policies.

There is a growing recognition of the complexities and factors that can influence the effects of extreme weather experiences on individual climate change perceptions and behaviors. A key dynamic is whether individuals and communities subjectively attribute extreme weather events to climate change (Ogunbode et al., 2019; Sambrook et al., 2021; Thaker & Cook, 2021). Motivated reasoning, which leads individuals to interpret information in ways that support their existing beliefs, worldviews, and identities, can affect whether individuals perceive a connection between climate change and an extreme event (Reser et al., 2014). Characteristics of the weather event also matter—Marlon et al. (2021) found that Americans tend to associate only hot dry days with global warming.

## Extreme Weather Experiences, Trauma, and Climate Activism

While many studies have examined the topic of extreme weather and public perceptions, there has been significantly less research into potential interactions between individual climate activism and extreme weather. Activism (also known as collective action) refers to actions taken by individuals to advance the interests, status, power, or conditions of a group (van Zomeren et al., 2018). Although activism is often associated with protests, it can include participating in protests and strikes, signing petitions, blockades of fossil fuel infrastructure, acts of nonviolent civil disobedience, contacting elected officials, supporting environmental organizations, and other actions. Individuals may hold contrasting opinions on whether they identify themselves as activists, participate in forms of activism suited to their personal circumstances, and be mobilized into action through recruitment efforts of environmental groups (Fielding et al., 2008).

Researchers have proposed many theoretical models for understanding factors that predict individual participation in activism, including the value-belief-norm model, collective interest model, theory of planned behavior, and social identity model of collective action (Fielding et al., 2008; Lubell, 2002; Stern et al., 1999; van Zomeren et al., 2018). Less is known about what motivates individuals to engage in sustained collective action over longer periods of time (Gulliver et al., 2023). Of most relevance to this study, there is growing interest and empirical research into relationships between environmental trauma, climate-related anxiety (a.k.a., eco-anxiety or ‘solastalgia’), and pro-environmental behaviors, including activism (Clayton, 2020; Galway et al., 2019). There are many definitions and dimensions of trauma, but it generally refers to negative emotional responses to distressing events (whereas climate-related anxiety may not be associated with specific experiences) and can lead to longer-term psychological conditions such as Post-Traumatic Stress Disorder (Kleber, 2019). Considering how trauma and anxiety may interact with individual activism is highly relevant to extreme weather events and associated disasters as they can cause substantial negative mental health impacts (Cunsolo & Ellis, 2018).

For some individuals, engaging in activism can support individual coping with trauma, emotional well-being, and post-traumatic personal growth (Rabkin et al., 2018; Strauss Swanson & Szymanski, 2020). Pursuing individual action on climate change may help relieve climate-related anxiety by countering feelings of powerlessness to affect change on the issue (Godden et al., 2021; Innocenti et al., 2023; Schwartz et al., 2023). The perception of whether one can act on a challenge or respond to a situation is known as self-efficacy, which can support one’s ability to cope with hardship, stress, and trauma (Bandura, 1994). Climate researchers often narrow the theory of self-efficacy to one’s perceived ability to specifically pursue climate-related behaviors (Bostrom et al., 2019). This is distinct from response efficacy, which denotes a belief that these behaviors can make a difference, as well as collective efficacy, which focuses on a group’s ability to affect change (van Zomeren et al., 2018). Positive psychological outcomes associated with

activism may also relate to feelings of group belonging. Muldoon et al. (2021) describe how one's personal identification with a group (e.g., activist group) confers personal benefits including a sense of connection with others, solidarity, and support, which can aid post-traumatic recovery, personal growth, and well-being. This is part of a broader field known as the social cure approach, which examines how social identity affects health (Haslam et al., 2018).

On the other hand, researchers have found that engaging in activism can prompt feelings of burnout and other emotional challenges (Chen & Gorski, 2015; Vaccaro & Mena, 2011). Some individuals choose to distance themselves from the issue when climate-related anxiety becomes too distressing (i.e., eco-paralysis) (Albrecht, 2011). Perceptions of self-efficacy may mediate whether climate anxiety encourages pro-environmental behaviors or inhibits them (Innocenti et al., 2023). Similar mechanisms could be at work with climate-related trauma, about which there is less research compared to eco-anxiety.

To summarize, trauma associated with extreme weather events could spur further individual climate activism and participation in activist groups, or it could lead individuals to turn away from it. To the authors' knowledge, there have been no studies specifically examining the extent to which trauma associated with extreme weather events may relate to activists' intentions to continue engaging in climate activism. As Brügger et al. (2021) describe, further research is needed to examine how extreme weather experiences influence different climate change actions among distinct segments of the general population, as well as the potential role of trauma in relation to these behaviors.

## Case Study Background

Although researchers have started to examine how extreme weather events affect activism at the community level (Boudet et al., 2020), it is important to further investigate to what extent and in what ways extreme weather experiences influence individual engagement in climate activism. It is likewise pertinent to investigate how extreme weather may interact with sustained individual climate activism because activist groups struggle to persist over time and maintain continued participation among members (Han et al., 2017).

Australian bushfires offer a promising case study for analyzing how individual extreme weather experiences inform climate change perceptions and activism. Bushfires are a natural feature of the Australian environment, playing both destructive and regenerative roles in Australian ecosystems (Sharpley et al., 2016). Australian citizens, communities, and officials have long responded to and managed bushfires, and First Nations Indigenous Australian Peoples have practiced cultural fire management techniques for millennia. However, conditions associated with heightened bushfire risks have been increasing over the past 70 years in Australia (Abram et al., 2021). Climate change is making many parts of Australia hotter and drier, which makes bushfires more frequent and intense. A wide range of factors affect bushfire impacts, including disaster risk

reduction, community planning, and emergency responses (Chester, 2020; O'Neill & Handmer, 2012).

Bushfires threaten public health and safety, property, infrastructure, biodiversity, and natural and cultural heritage. They are also associated with significant psychological impacts, including post-traumatic stress disorder and depression (Bryant et al., 2014). Indigenous Australian Peoples may experience unique forms of bushfire trauma and grief associated with a strong sense of personal identity in connection with the landscape (Allam, 2020; Godden et al., 2021). Extreme events disproportionately impact children, elderly individuals, low-income groups, and people of color (Benevolenza & DeRigne, 2019).

The 2019–2020 Australian summer fires, known as the ‘Black Summer’, burnt about 19 million hectares of land; killed 33 people from direct exposure, and destroyed over 3,000 homes (Filkov et al., 2020). Climate change made the fires at least 30% more likely to have occurred (van Oldenborgh et al., 2021) and they were described as a teachable moment for climate action (e.g., Gleick, 2020). Given that the Black Summer bushfires recently prompted significant attention to links between climate change and extreme weather events, an analysis of these dynamics among Australian adults who have directly experienced bushfires and previously engaged in climate activism offers a timely and novel case for analysis.

## Study Aims and Method

This study explores to what extent, how, and why extreme weather experiences influence subsequent perceptions of climate change and engagement in climate activism among 33 Australian adults who have both directly experienced bushfires and previously participated in climate activism. Researchers have mostly used quantitative methods in efforts to establish statistically generalizable relationships between extreme weather events and climate-related attitudes, beliefs, and behaviors (Howe et al., 2019). We use a qualitative approach as it can help uncover how, under what circumstances, and why extreme weather experiences influence individual climate change perceptions and activism in different ways, including cognitive, emotional, and behavioral dimensions (Reser & Bradley, 2020). These exploratory findings can in turn inform future quantitative research. The following research questions guided this research:

RQ1. To what extent, how, and why can experiencing a bushfire event influence perceptions of climate change among adult Australian climate activists?

RQ2. To what extent, how, and why can experiencing a bushfire event influence subsequent levels of participation in climate activism among adult Australian climate activists?

Beginning in January 2021, participants were recruited via outreach to climate action groups across Australia identified by Google search, as well as snowball sampling. Interested individuals completed a survey which included demographic questions and two recruitment questions inquiring if respondents had, (1) directly experienced a bushfire, and (2) previously participated in climate activism activities. We used flexible definitions of bushfire experiences and activism, but some limiting criteria were imposed. Firsthand bushfire experiences denoted having personal property affected by fires (e.g., defending and/or evacuating one's home) or firefighting. This narrowed our focus to fire encounters in non-urban areas, although we recognize millions more Australians experienced bushfire smoke and people around the world experienced them vicariously. We defined climate activism as participating in activities such as signing climate-related petitions, contacting policymakers about climate change, and participating in climate groups, marches, and protests. Respondents who did not answer 'yes' to both questions were not invited to an interview. A total of 42 responses to the survey were received, 36 respondents met the study criteria, and 33 participated. The sample is not statistically generalizable to the Australian population; rather, it is a purposive sample designed to match the qualitative research questions. In May 2021, with frequent repetition of similar ideas and limited new information arising in the interviews, we determined that sufficient data saturation had been reached and recruitment concluded (Saunders et al., 2018). Table 1 shows participant demographic information.

We utilized a semi-structured narrative interview approach, which encouraged interview participants to tell stories about their experiences, with limited interviewer interruption beyond points of clarification (Anderson & Kirkpatrick, 2016). This approach empowers participants to decide which aspects of their experiences are most salient to include and tell their stories in a manner of their own choosing. Participants may not accurately describe, recall, or be fully aware of their own motivations. However, this is less of an issue for this study as we seek to uncover how individuals recollect and reflect on their experiences. Nonetheless, throughout this paper we remind the reader of this limitation by frequently writing 'reported' or 'perceived' motivations and behaviors.

Given potential discussions of trauma, special care was taken to ensure participants were comfortable speaking about the topic, reminded they could stop the interview at any time, and links to mental health resources were prepared should a participant experience emotional distress. Interviews ran between 30–60 minutes and were held over video chat due to the coronavirus pandemic. The interviews were transcribed and analyzed by the lead author in NVivo following reflexive thematic analysis to identify shared patterns of meaning (i.e., themes) across the data (Braun & Clarke, 2019). Co-authors provided feedback in reflective discussions during the coding process to support "a richer more nuanced reading of the data, rather than seeking a consensus on meaning" (Braun & Clarke, 2019, p. 594). Table 2 shows the themes and subthemes that resulted from the analysis and the research questions to which they relate.

**Table 1***Participant Demographics*

Characteristic	<i>n</i>	%
<b>Gender</b>		
Male	12	36
Female	21	64
Other	0	0
Prefer not to say	0	0
<b>Age group</b>		
18–29	5	15
30–49	8	24
50–69	18	55
70+	2	6
<b>Location (state/territory)</b>		
Australian Capital Territory	0	0
Jervis Bay Territory	0	0
New South Wales	15	45
Northern Territory	0	0
Queensland	1	3
South Australia	2	6
Tasmania	1	3
Victoria	14	42
Western Australia	0	0
<b>Highest level of education</b>		
Secondary school	2	6
TAFE (certificate)	3	9
TAFE (diploma)	5	15
Undergraduate degree	11	33
Post-graduate degree	12	36

It is important to acknowledge the role of researcher reflexivity in shaping all stages of qualitative research (Olmos-Vega et al., 2023). We note our own positionality as environmental researchers, individuals concerned about climate change, and, for some co-authors, as individuals who have participated in climate activism. In alignment with assumptions of reflexive thematic analysis, we view these and other personal aspects as playing a central role in our construction of themes across participant responses, rather than suggesting that themes emerge implicitly from our dataset (Braun & Clarke, 2023). Further details about the recruitment, interview, and analysis procedures are available in Ettinger et al. (2024).

**Table 2**

*Analysis Themes, Subthemes, and Associated Research Questions*

Theme	Subtheme(s)
Bushfire experiences alter perceptions of climate change ( <i>Research Question 1</i> ).	<ul style="list-style-type: none"> <li>• Heightening perceptions of vulnerability.</li> <li>• Decreasing psychological distance of climate change.</li> <li>• Increasing urgency to act on climate change.</li> <li>• Speaking with experts confirms perceptions of bushfire and climate change relationship.</li> </ul>
Increasing activism after bushfire experiences ( <i>Research Question 2</i> ).	<ul style="list-style-type: none"> <li>• Activism supports coping with bushfire-related trauma.</li> <li>• Sharing stories of bushfire experiences.</li> </ul>
Sustaining activism after bushfire experiences ( <i>Research Question 2</i> ).	<ul style="list-style-type: none"> <li>• Bushfire experiences reaffirm existing climate activism motivations.</li> </ul>
Decreasing activism after bushfire experiences ( <i>Research Question 2</i> ).	<ul style="list-style-type: none"> <li>• Distancing from activism to focus on emotional recovery.</li> <li>• Distancing from activism to focus on physical recovery.</li> </ul>

## Findings

Before examining key themes, it is helpful to briefly describe the context of our participants’ bushfire experiences. Some evacuated their homes prior to a fire; others stayed and defended their properties, and some of their homes were spared, partially affected, or destroyed. Others experienced bushfires in a firefighting capacity. Participants’ stories captured the danger and intensity of close-hand fire experiences. For example:

“I remember at one stage looking up and seeing fire up in the hills and thinking, that’s our house gone . . . [I saw] a car on fire and a whole lot of people watching and a couple of fire trucks trying to put the fire out . . . they thought there was someone in there and they hadn’t been able to get them out, and it turned out there was . . . He was going down to get fuel for the fire pump and on the way back, he’d come around the corner and he must’ve been panicked and didn’t take it very well and went off the corner. Then the car caught fire and of course he had a thing of fuel in the car with him so you [can imagine] how it happened . . . That image stayed with me. That’s one that would recur to me in dreams.”  
(Participant 12).

As shown above, participants’ bushfire experiences were often high stress situations in which individuals were forced to make difficult decisions with potential life-or-death consequences, including if/how long to defend one’s property against fires and if/when

to evacuate, as well as what belongings to save under limited time. 20/33 (61%) of participants felt their experiences were traumatic (by their own definition when asked if they found their bushfire experience traumatic). Beyond threats to their personal safety, their trauma was frequently connected with feelings of personal attachment to their properties, local flora and fauna, and communities.

## Altered Perceptions of Climate Change

All participants ( $N = 33$ ) perceived a link between their bushfire experiences and climate change. They described how they compared their experiences with their prior observations and understandings of bushfires, and spoke with others knowledgeable about climate change and bushfires. They felt that climate change had altered the bushfires (e.g., increased fire speed, extent, impacts, etc.) and frequently alluded to a broader trend of an altered, 'abnormal' Australian environment:

"I spoke to one of the experienced furies [firefighters] and he basically said, yeah, look that was dry lightning and that's just something that . . . never used to ever have happened, you know, over all his experience dealing with fire over whatever X number of years, so that reaffirmed it [climate change] for me." (Participant 6).

"Everyone who was used to fires said the same thing: these are not normal fires. This is a new kind of fire." (Participant 12).

These statements show how participants assigned importance to the opinions of peers and experts (often shared during community forums and climate action group events) in affirming their perception that climate change had altered bushfires and that they deviated from 'normal' environmental conditions.

Although all participants ( $N = 33$ ) already believed in, and were concerned about, climate change, a notable theme across all participants were statements suggesting a reduction in perceived psychological distance of climate change. Many described how their experiences changed their perception of climate change from a theoretical concept to a threat that now directly affected them:

"It's real for me, it's not just theoretical. I know what it feels like. I know what it looks like. . . it feels a lot more personal and yeah, I definitely am accessing that with a level of like lived fear and reality that I think maybe other people are not when they're talking theoretically about it." (Participant 14).

"When it starts hitting personally, it's hard not to go, right, you know there's this sort of concept of climate change and you're always seeing things in the news, you're always reading articles, but

when it's in your own backyard, yeah, it's hard not to go . . . this is real, this is really happening." (Participant 6).

These statements show how participants reflected deeply on how climate change now affects them in direct physical proximity, rather than happening somewhere else, to someone else, at some point in the future. This was often described as heightening their personal vulnerability to climate change. Nine participants (27%) discussed how their experiences affected views of their own vulnerability to climate impacts and perceived urgency of climate action:

"I can't keep away from the fires because they're everywhere. I can't get away from the smoke. . . knowing that there's nowhere safe, I think is a psychological stress that I had not counted on" (Participant 30).

"Obviously like the urgency [to act on climate change] was just, it felt like it was just tripled and so there was like a real reaction afterwards . . . for me it just became like I had no choice in it anymore" (Participant 33).

Such statements show how climate change was now viewed as an issue that threatened them directly, rather than being a distant threat—even though they previously considered it an important issue. These participants now viewed their personal risks from fires and climate change as unavoidable.

## Increasing Activism After Bushfire Experiences

Participants were asked whether their climate activism participation had decreased, increased, or remained the same after their bushfire experiences. Almost half of the participants (15/33, 45%) reported that their bushfire experiences led them to increase their climate activism. They felt that their bushfire experiences provided them with a unique and important perspective on climate change—a voice to which others, such as politicians and media, might be more receptive. This increase frequently entailed pursuing new types of actions to communicate stories of their bushfire experiences in media interviews, at environmental events and rallies, with policymakers, and through artwork and creative writing:

"I think there was an appetite for the media to hear firsthand from people that have been impacted . . . I found that voice that I hadn't had before." (Participant 8).

"I'm a 60-year-old grandmother, we evacuated six times during these fires . . . I would always start my letter to politicians with something like that. So I had that as ammunition, if you like, as

part of being able to try to explain you know how desperate things were.” (Participant 15).

“I think our ability to talk about that [climate action] from personal experiences, is going to continue to be valuable. And it certainly makes me feel more comfortable in my activism . . . our lives have been significantly affected.” (Participant 20).

These statements show how these participants felt their experiences conferred a sense of authority, legitimacy, and responsibility to speak to the risks of bushfires and climate change. Additionally, 9/33 (27%) of participants noted psychological benefits of participating in climate activism after their bushfire experiences. They felt activism helped them cope with the trauma of their experiences and climate-related emotions:

“I think actually, if I didn’t act on climate, I would actually despair. . . the only thing that gets you, keeps you putting one foot in front of the other is the fact that you’re acting and plus the fact that because I’m in a group acting with other people, and being connected with other people who are caring and acting on it.” (Participant 30).

“I learned how other people were feeling about it [climate change] and which made me realize that it wasn’t just me that could see the changes” (Participant 21).

“It’s not always easy to tell the story [of my bushfire experience] . . . but it is also cathartic.” (Participant 6).

Beyond offering a sense of empowerment in acting on climate change, these statements show how the psychological benefits of activism are linked to identification as part of a climate activism group. Acting with others countered a sense of alienation and loneliness, and offered a community of like-minded support. Sharing bushfire stories was also seen as a way of processing their experiences.

## Sustaining Activism After Bushfire Experiences

Thirteen participants (39%) reported that they maintained the same level of engagement in activism activities after experiencing bushfires. They were already active on climate change and simply felt their experiences only reinforced their existing behaviors. As Participant 2 stated, “*I didn’t really change [my activism] . . . I’ve got an environmental science degree and that was probably all the motivation I need to see the direction we’re heading in.*” These participants tended to discuss in more depth how they felt bushfires affected climate activism of others around them, and across Australia more generally.

## Distancing From Activism After Bushfire Experiences

In contrast to those who increased or sustained their levels of activism, several participants (5/33, 15%) decreased their climate activism after experiencing bushfires. Among these participants, we noted two distinct influences of bushfires. First, the drop in activism was associated with the traumatic nature of their experiences and a reported need to emotionally distance themselves from the topic of climate change:

“The last year, it’s been a juggling act in rebuilding our lives, and just trying to maintain our own mental well-being . . . we were in a pretty traumatized, fragile state early on. So we’re recovering our own emotional mental strength.” (Participant 23).

“We sort of have a bit of anxiety around it [activism] . . . like sometimes I’ll do stuff, but it’s dropped off, because I’m like, okay, well, I need to get a bit of a break from it.” (Participant 29).

Such responses suggest that some individuals felt that engaging further on the issue would be too emotionally triggering while they sought to emotionally recover from their experiences. However, other participants described how physical, rather than emotional, recovery aspects played a role in why they decreased their activism:

“None of us could actually handle anything more than just making our own home secure.” (Participant 30).

“We’re trying to rebuild . . . so I have to focus my attention on that. And, yeah, I do what I can, but I’ve lost a lot of energy since the fire.” (Participant 4).

These statements do not indicate that these participants reduced their climate activism due to a sense of emotional burnout about the issue. Rather, their primary focus at the time was on rebuilding their homes and/or returning to a stable living situation, with activism being perceived as secondary to their immediate needs. Responses from these five participants show how emotional and/or physical recovery aspects can play a role decreasing individual activism.

## Discussion

For *Research Question 1* we sought to examine how Australian bushfire experiences influenced subsequent perceptions of climate change. Participants overall viewed their experiences as further confirmation of their prior beliefs that human-driven climate change is occurring. This is indicative of a motivated reasoning process in which individuals process information in ways that support their existing views (Ogunbode et al., 2019; Reser et al., 2014). Nonetheless, participants’ statements suggest their experiences

reduced perceived psychological distance of climate change, reflecting the four characteristic dimensions of Construal-Level Theory (Trope & Liberman, 2010—see *Extreme Weather Experiences and Climate Change Perceptions* section). Participants felt that their perception of climate change was altered from a hypothetical issue to a problem that now directly threatened them in time and space, and about which they expressed a high degree of certainty. Their experiences also made them feel more directly vulnerable to climate impacts and demonstrated the urgency of acting on climate change. This finding is not particularly surprising as prior studies have noted similar relationship between extreme weather experiences and climate perceptions. For example, Shepard et al. (2018) found that flooding experiences in Colorado in 2013 did not change fundamental beliefs in climate change but increased feelings of vulnerability.

*Research Question 2* sought to examine to what extent, how, and why bushfire experiences influence subsequent levels of participation in climate activism. Whereas bushfire experiences generally had the same influences on climate change perceptions across participants, reported subsequent activism participation diverged. For some individuals, engaging in climate activism and sharing bushfire stories helped them cope with, and make sense of, the trauma of their bushfire experiences. This parallels findings from climate change and broader disaster research on the importance of meaning-making processes for supporting individual well-being and coping (Park, 2016). Likewise, belonging to an activist group provided feelings of solidarity and empowerment (Muldoon et al., 2021). Participants' statements suggest that these groups helped heighten perceptions of self-efficacy (one's perceived capability to act on climate change) (Bostrom et al., 2019). This highlights the significant climate activism mobilization role of environmental groups (Han et al., 2017).

In contrast, 13/33 (39%) did not change their level of activism and 5/33 (15%) of participants decreased their activism. Statements from participants who decreased their activism suggest that reduced perceptions of self-efficacy played a role. Some participants distanced themselves from climate activism because they needed time to recover emotionally from their experiences and felt activism would further exacerbate their bushfire-related trauma. Others expressed an intention to continue participating in activism, but were unable to do so given the amount of time and energy required to rebuild their homes and return to stable living conditions. In both cases, extreme weather experiences undermined feelings of self-efficacy to act on climate change, albeit for different reasons. Prior studies have examined the role of self-efficacy in mediating whether eco-anxiety can cause eco-paralysis and distancing from climate action (Innocenti et al., 2023). Our findings suggest a similar mechanism could be at work in the case of climate-related traumatic experiences as well.

These findings contribute to literature on extreme weather experiences by showing how potential climate activism participation after extreme weather experiences can diverge. Similar to research showing that eco-anxiety can motivate or inhibit individual

climate action for different people (Verplanken et al., 2020), our research shows how traumatic extreme weather experiences can lead some individuals to further mobilize on climate change and others to distance themselves from it. The findings thus underscore the multifaceted ways in which individuals respond to their extreme weather experiences (Brügger et al., 2021). The term ‘extreme weather experience’ itself is broad and vague—it encapsulates a wide variety of different kinds of exposures and personal impacts (e.g., losing one’s home to a fire versus firefighting). An important lesson from our analysis is the need for greater specificity in describing and examining the ways in which different people experience extreme weather and climate change. Put simply, extreme weather experiences and subjective responses to them can differ.

## Implications for Climate Change Communication and Mobilization

These findings have important implications for efforts to mobilize citizens into climate action after extreme weather events. The occurrence of extreme weather events offers opportunities to engage the citizens on if/how these events relate to climate change and encourage actions to reduce future risks from these events (McAdam, 2017). Addressing these risks requires action on climate change, as well as actions to reduce vulnerability to extreme weather and other natural hazards. Participants’ understanding of climate change and bushfire links was (in part) informed by opportunities to speak with climate change and fire experts. This provides further evidence supporting the value of empowering weathercasters, journalists, and other communicators to engage audiences about connections between climate change and local weather while such events remain matters of public attention (Maibach et al., 2022). The occurrence of extreme weather events is not only an opportunity for experts to educate citizens about climate change—citizen perspectives can also inform strategies to build stronger resilience to such events in the future by revealing local dynamics of emergency responses and community vulnerabilities.

Our findings highlight the importance of considering divergent individual trauma coping mechanisms when engaging with those affected by extreme weather events and associated disasters. Some individuals may find further engagement in climate action helpful for coping with extreme weather-related trauma and group participation can offer a sense of solidarity. Likewise, encouraging individuals to share their stories could be a meaningful and empowering form of climate action. As personal stories about climate change can effectively engage audiences about climate change in ways that scientific information alone may not accomplish (Gustafson et al., 2020), they offer valuable climate change communication materials. Others may distance themselves from climate activism either because they find the topic too distressing and/or to focus on their physical recovery. Environmental advocates seeking to engage individuals who have recently experienced extreme weather should maintain an awareness and sensitivity to

these subjective dynamics. Advocates should respectfully gauge individual willingness to participate and offer ways of participating suited to unique personal circumstances (Ettinger et al., 2023).

## Study Limitations and Directions for Future Research

Our research focused on one geographical area which frequently experiences bushfires, and our study population is not representative of communities in other geographical regions experiencing other types of extreme weather. To build on our findings, future research could examine experiences of other types of extreme weather events. Similarly, future research could consider more closely the effects of different kinds of experiences and different levels of engagement in climate activism (e.g., relatively low effort tasks, such as signing petitions versus more demanding tasks, such as organizing campaigns). Our sample also consisted of activists who had participated in activism prior to bushfire experiences—researchers could also measure the extent to which such experiences may inspire new climate activism among individuals who have never previously participated.

Researchers could track more longitudinal aspects of climate activism after extreme weather events. A question that remains unexplored is whether individuals who reduce their participation in climate activism after extreme weather experiences later return to it after a recovery period. Several participants also experienced bushfires in firefighting capacities, drawing upon their firefighting experiences in their activism. It was beyond the scope of this paper to explore climate perceptions and activism specifically in relation to firefighting, but as emergency first-responders have been found to be trusted climate change messengers (Sleeth-Keppler, 2017), this would be a promising area of research.

## Conclusion

This case study of Australian adults who have experienced bushfires and previously engaged in climate activism provides new insights on to what extent, how, and why extreme weather experiences can influence individual climate activism in different ways. Participant statements suggest that their experiences reduced perceived psychological distance of climate change and increased perceived vulnerability to climate change. They felt that climate change was now more directly affecting them, transforming the issue from a theoretical problem to a lived experience. Findings on how bushfire experiences influenced individual engagement in climate activism were mixed. Fifteen participants (45%) reported increasing their engagement in climate activism; 13 (39%) did not change their level of participation, and 5 (15%) decreased their activism. These divergent individual responses to bushfire experiences capture nuances of how individuals experience, make sense of, and respond to extreme weather experiences. As climate change continues to affect many kinds of extreme weather events around the world, these events offer important opportunities for climate change reflection, dialogue, and action.

---

## Openness and Transparency Statements

The present article has been checked by its handling editor(s) for compliance with the journal's open science and transparency policies. The completed *Transparency Checklist* is publicly available at:

<https://doi.org/10.23668/psycharchives.14470>

---

### Author Contributions.

JOSHUA ETINGER: Conceptualization. Formal analysis. Investigation. Methodology. Writing – original draft.

PETER WALTON: Conceptualization. Funding acquisition. Methodology. Supervision. Writing – review & editing.

JAMES PAINTER: Conceptualization. Methodology. Supervision. Writing – review & editing.

KELLY S. FIELDING: Conceptualization. Methodology. Writing – review & editing.

ROBYN GULLIVER: Conceptualization. Methodology. Writing – review & editing.

FRIEDERIKE E. L. OTTO: Supervision. Project administration. Funding acquisition. Writing – review & editing.

---

**Acknowledgments.** We express our gratitude to this study's participants for their willingness to share their personal experiences and perspectives. We thank the organization Bushfire Survivors for Climate Action for helping recruit several participants. We also thank Dr. Kate Lonsdale, University of Leeds, for comments on an earlier draft of this manuscript.

---

**Funding.** The lead author was supported by a grant from the Royal Bank of Canada.

---

**Competing Interests.** The authors report there are no conflict of interests to declare.

---

**Ethics Statement.** The study was approved by the University of Oxford's Central University Research Ethics Committee (Reference: SOGE1A2020-197). Participants provided written and verbal informed consent. The study adhered to guidelines of the American Association of Geographers' Statement of Professional Ethics.

---

**Diversity Statement.** In the list below, the check mark (☑) indicates which steps were taken to increase diversity within the context of this paper. Steps that were not taken or did not apply are unmarked (☐).

- Ethnically or otherwise diverse sample(s)
  - Gender balanced sample(s)
  - Inclusive gender measure
  - Inclusive materials
  - Sampling justification
  - Extensive sample description
  - Discussion of generalizability
  - Diverse reference list
  - Underprivileged / minority author(s)
  - Early career author(s)
  - Degree of privilege/marginalization considered in authorship order
  - Author(s) from sampled population (avoiding 'helicopter science')
- 

**Supplementary Materials.** The following table provides an overview of the accessibility of supplementary materials (if any) for this paper.

Type of supplementary materials	Availability/Access
<b>Data</b> Interview transcriptions.	Data are not made publicly available due to the risk of revealing participant identities. Despite having anonymized identifying participant information in the transcripts, it is conceivable that participants could nevertheless be identified through triangulation of information/online searches based on statements made by participants. In order to request access to the data and materials, interested individuals can contact the study's lead author (joshua.ettinger@ouce.ox.ac.uk).
<b>Code</b> Themes generated via reflexive thematic analysis.	The themes generated via reflexive thematic analysis are available in the main text and supplementary materials (Ettinger et al., 2024).
<b>Material</b> There were no stimuli or test materials used in this study.	—
<b>Study/Analysis preregistration</b> The study was not preregistered.	—

**Badges for Good Research Practices.**

Open data: NO.

Open code: YES.

Open materials: NO.

Preregistration: NO.

Diversity statement: YES.

Note: YES = the present article meets the criteria for awarding the badge. NO = the present article does not meet the criteria for awarding the badge or the criteria are not applicable.

## References

- Abram, N. J., Henley, B. J., Sen Gupta, A., Lippmann, T. J. R., Clarke, H., Dowdy, A. J., Sharples, J. J., Nolan, R. H., Zhang, T., Wooster, M. J., Wurtzel, J. B., Meissner, K. J., Pitman, A. J., Ukkola, A. M., Murphy, B. P., Tapper, N. J., & Boer, M. M. (2021). Connections of climate change and variability to large and extreme forest fires in southeast Australia. *Communications Earth & Environment*, 2(1), Article 8. <https://doi.org/10.1038/s43247-020-00065-8>

- Albrecht, G. (2011). Chronic environmental change: Emerging 'psychoterratic' syndromes. In I. Weissbecker (Ed.), *Climate change and human well-being: Global challenges and opportunities* (pp. 43–56). Springer. [https://doi.org/10.1007/978-1-4419-9742-5\\_3](https://doi.org/10.1007/978-1-4419-9742-5_3)
- Allam, L. (2020). For First Nations people the bushfires bring a particular grief, burning what makes us who we are. *Guardian*.  
<https://www.theguardian.com/commentisfree/2020/jan/06/for-first-nations-people-the-bushfires-bring-a-particular-grief-burning-what-makes-us-who-we-are>
- Anderson, C., & Kirkpatrick, S. (2016). Narrative interviewing. *International Journal of Clinical Pharmacy*, 38(3), 631–634. <https://doi.org/10.1007/s11096-015-0222-0>
- Bandura, A. (1994). Self-Efficacy. In V.S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71–81). Academic Press.
- Benevolenza, M. A., & DeRigne, L. (2019). The impact of climate change and natural disasters on vulnerable populations: A systematic review of literature. *Journal of Human Behavior in the Social Environment*, 29(2), 266–281. <https://doi.org/10.1080/10911359.2018.1527739>
- Bostrom, A., Hayes, A. L., & Crosman, K. M. (2019). Efficacy, action, and support for reducing climate change risks. *Risk Analysis*, 39(4), 805–828. <https://doi.org/10.1111/risa.13210>
- Boudet, H., Giordano, L., Zanicco, C., Satein, H., & Whitley, H. (2020). Event attribution and partisanship shape local discussion of climate change after extreme weather. *Nature Climate Change*, 10(1), 69–76. <https://doi.org/10.1038/s41558-019-0641-3>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589–597. <https://doi.org/10.1080/2159676X.2019.1628806>
- Braun, V., & Clarke, V. (2023). Toward good practice in thematic analysis: Avoiding common problems and be(com)ing a knowing researcher. *International Journal of Transgender Health*, 24(1), 1–6. <https://doi.org/10.1080/26895269.2022.2129597>
- Brügger, A., Demski, C., & Capstick, S. (2021). How personal experience affects perception of and decisions related to climate change: A psychological view. *Weather, Climate, and Society*, 13(3), 397–408. <https://doi.org/10.1175/WCAS-D-20-0100.1>
- Bryant, R. A., Waters, E., Gibbs, L., Gallagher, H. C., Pattison, P., Lusher, D., MacDougall, C., Harms, L., Block, K., Snowdon, E., Sinnott, V., Ireton, G., Richardson, J., & Forbes, D. (2014). Psychological outcomes following the Victorian Black Saturday bushfires. *Australian and New Zealand Journal of Psychiatry*, 48(7), 634–643. <https://doi.org/10.1177/0004867414534476>
- Chen, C. W., & Gorski, P. C. (2015). Burnout in social justice and human rights activists: Symptoms, causes and implications. *Journal of Human Rights Practice*, 7(3), 366–390.  
<https://doi.org/10.1093/jhuman/huv011>
- Chester, L. (2020). The 2019–2020 Australian bushfires: A potent mix of climate change, problematisation, indigenous disregard, a fractured federation, volunteerism, social media, and more. *Review of Evolutionary Political Economy*, 1(2), 245–264.  
<https://doi.org/10.1007/s43253-020-00019-y>
- Clayton, S. (2020). Climate anxiety: Psychological responses to climate change. *Journal of Anxiety Disorders*, 74, Article 102263. <https://doi.org/10.1016/j.janxdis.2020.102263>

- Cunsolo, A., & Ellis, N. R. (2018). Ecological grief as a mental health response to climate change-related loss. *Nature Climate Change*, 8(4), 275–281. <https://doi.org/10.1038/s41558-018-0092-2>
- Demski, C., Capstick, S., Pidgeon, N., Sposato, R. G., & Spence, A. (2017). Experience of extreme weather affects climate change mitigation and adaptation responses. *Climatic Change*, 140(2), 149–164. <https://doi.org/10.1007/s10584-016-1837-4>
- Ettinger, J., Walton, P., Painter, J., Flocke, S. A., & Otto, F. E. L. (2023). Extreme weather events as teachable moments: Catalyzing climate change learning and action through conversation. *Environmental Communication*, 17(7), 828–843. <https://doi.org/10.1080/17524032.2023.2259623>
- Ettinger, J., Walton, P., Painter, J., Fielding, K. S., Gulliver, R., & Otto, F. E. L. (2024). *Supplementary materials to "Examining contrasting influences of extreme weather experiences on individual climate activism"* [Study procedures, additional tables]. PsychOpen GOLD. <https://doi.org/10.23668/psycharchives.14469>
- Fielding, K. S., McDonald, R., & Louis, W. R. (2008). Theory of planned behaviour, identity and intentions to engage in environmental activism. *Journal of Environmental Psychology*, 28(4), 318–326. <https://doi.org/10.1016/j.jenvp.2008.03.003>
- Filkov, A. I., Ngo, T., Matthews, S., Telfer, S., & Penman, T. D. (2020). Impact of Australia's catastrophic 2019/20 bushfire season on communities and environment. Retrospective analysis and current trends. *Journal of Safety Science and Resilience*, 1(1), 44–56. <https://doi.org/10.1016/j.jnlssr.2020.06.009>
- Galway, L. P., Beery, T., Jones-Casey, K., & Tasala, K. (2019). Mapping the solastalgia literature: A scoping review study. *International Journal of Environmental Research and Public Health*, 16(15), Article 2662. <https://doi.org/10.3390/ijerph16152662>
- Gärtner, L., & Schoen, H. (2021). Experiencing climate change: Revisiting the role of local weather in affecting climate change awareness and related policy preferences. *Climatic Change*, 167, Article 31. <https://doi.org/10.1007/s10584-021-03176-z>
- Gleick, P. (2020). The future has arrived. These explosive fires are our climate change wakeup call. *Guardian*. <https://www.theguardian.com/environment/2020/sep/11/the-future-has-arrived-these-explosive-fires-are-our-climate-change-wakeup-call>
- Godden, N. J., Farrant, B. M., Yallup Farrant, J., Heyink, E., Carot Collins, E., Burgemeister, B., Tabeshfar, M., Barrow, J., West, M., Kieft, J., Rothwell, M., Leviston, Z., Bailey, S., Blaise, M., & Cooper, T. (2021). Climate change, activism, and supporting the mental health of children and young people: Perspectives from Western Australia. *Journal of Paediatrics and Child Health*, 57(11), 1759–1764. <https://doi.org/10.1111/jpc.15649>
- Gulliver, R., Fielding, K. S., & Louis, W. R. (2023). An investigation of factors influencing environmental volunteering leadership and participation behaviors. *Nonprofit and Voluntary Sector Quarterly*, 52(2), 397–420. <https://doi.org/10.1177/08997640221093799>
- Gustafson, A., Ballew, M. T., Goldberg, M. H., Cutler, M. J., Rosenthal, S. A., & Leiserowitz, A. (2020). Personal stories can shift climate change beliefs and risk perceptions: The mediating

- role of emotion. *Communication Reports*, 33(3), 121–135.  
<https://doi.org/10.1080/08934215.2020.1799049>
- Han, H., Sparks, A. C., & Towery, N. D. (2017). Opening up the black box: Citizen group strategies for engaging grassroots activism in the twenty-first century. *Interest Groups & Advocacy*, 6(1), 22–43. <https://doi.org/10.1057/s41309-017-0010-4>
- Haslam, C., Jetten, J., Cruwys, T., Dingle, G., & Haslam, S. A. (2018). *The new psychology of health: Unlocking the social cure*. Routledge.
- Howe, P. D., Marlon, J. R., Mildenerger, M., & Shield, B. S. (2019). How will climate change shape climate opinion? *Environmental Research Letters*, 14(11), Article 113001.  
<https://doi.org/10.1088/1748-9326/ab466a>
- Innocenti, M., Santarelli, G., Lombardi, G. S., Ciabini, L., Zjalic, D., Di Russo, M., & Cadeddu, C. (2023). How can climate change anxiety induce both pro-environmental behaviours and eco-paralysis? The mediating role of general self-efficacy. *International Journal of Environmental Research and Public Health*, 20(4), Article 3085. Advance online publication.  
<https://doi.org/10.3390/ijerph20043085>
- IPCC. (2018). *Global Warming of 1.5° C*. Intergovernmental Panel on Climate Change.  
<https://www.ipcc.ch/sr15/>
- Keller, A., Marsh, J. E., Richardson, B. H., & Ball, L. J. (2022). A systematic review of the psychological distance of climate change: Towards the development of an evidence-based construct. *Journal of Environmental Psychology*, 81, Article 101822.  
<https://doi.org/10.1016/j.jenvp.2022.101822>
- Kleber, R. J. (2019). Trauma and public mental health: A focused review. *Frontiers in Psychiatry*, 10, Article 451. <https://doi.org/10.3389/fpsy.2019.00451>
- Lubell, M. (2002). Environmental Activism as collective action. *Environment and Behavior*, 34(4), 431–454. <https://doi.org/10.1177/00116502034004002>
- Maibach, E., Cullen, H., Placky, B., Witte, J., & Gandy, J. (2022). Improving public understanding of climate change by supporting weathercasters. *Nature Climate Change*, 12(8), Article 8.  
<https://doi.org/10.1038/s41558-022-01433-2>
- Marlon, J. R., Wang, X., Mildenerger, M., Bergquist, P., Swain, S., Hayhoe, K., Howe, P. D., Maibach, E., & Leiserowitz, A. (2021). Hot dry days increase perceived experience with global warming. *Global Environmental Change*, 68, Article 102247.  
<https://doi.org/10.1016/j.gloenvcha.2021.102247>
- McAdam, D. (2017). Social movement theory and the prospects for climate change activism in the United States. *Annual Review of Political Science*, 20(1), 189–208.  
<https://doi.org/10.1146/annurev-polisci-052615-025801>
- Muldoon, O. T., Lowe, R. D., Jetten, J., Cruwys, T., & Haslam, S. A. (2021). Personal and political: Post-traumatic stress through the lens of social identity, power, and politics. *Political Psychology*, 42(3), 501–533. <https://doi.org/10.1111/pops.12709>
- Ogunbode, C. A., Demski, C., Capstick, S. B., & Sposato, R. G. (2019). Attribution matters: Revisiting the link between extreme weather experience and climate change mitigation

- responses. *Global Environmental Change*, 54, 31–39.  
<https://doi.org/10.1016/j.gloenvcha.2018.11.005>
- Olmos-Vega, F. M., Stalmeijer, R. E., Varpio, L., & Kahlke, R. (2023). A practical guide to reflexivity in qualitative research: AMEE Guide No. 149. *Medical Teacher*, 45(3), 241–251.  
<https://doi.org/10.1080/0142159X.2022.2057287>
- O'Neill, S. J., & Handmer, J. (2012). Responding to bushfire risk: The need for transformative adaptation. *Environmental Research Letters*, 7(1), Article 014018.  
<https://doi.org/10.1088/1748-9326/7/1/014018>
- Park, C. L. (2016). Meaning making in the context of disasters. *Journal of Clinical Psychology*, 72(12), 1234–1246. <https://doi.org/10.1002/jclp.22270>
- Rabkin, J. G., McElhiney, M. C., Harrington, M., & Horn, T. (2018). Trauma and growth: Impact of AIDS activism. *AIDS Research and Treatment*, 2018, Article 9696725.  
<https://doi.org/10.1155/2018/9696725>
- Reser, J. P., & Bradley, G. L. (2020). The nature, significance, and influence of perceived personal experience of climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 11(5), Article e668. <https://doi.org/10.1002/wcc.668>
- Reser, J. P., Bradley, G. L., & Ellul, M. C. (2014). Encountering climate change: 'Seeing' is more than 'believing'. *Wiley Interdisciplinary Reviews: Climate Change*, 5(4), 521–537.  
<https://doi.org/10.1002/wcc.286>
- Sambrook, K., Konstantinidis, E., Russell, S., & Okan, Y. (2021). The role of personal experience and prior beliefs in shaping climate change perceptions: A narrative review. *Frontiers in Psychology*, 12, Article 669911. <https://doi.org/10.3389/fpsyg.2021.669911>
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, 52(4), 1893–1907.  
<https://doi.org/10.1007/s11135-017-0574-8>
- Schwartz, S. E. O., Benoit, L., Clayton, S., Parnes, M. F., Swenson, L., & Lowe, S. R. (2023). Climate change anxiety and mental health: Environmental activism as buffer. *Current Psychology*, 42, 16708–16721. <https://doi.org/10.1007/s12144-022-02735-6>
- Sharples, J. J., Cary, G. J., Fox-Hughes, P., Mooney, S., Evans, J. P., Fletcher, M.-S., Fromm, M., Grierson, P. F., McRae, R., & Baker, P. (2016). Natural hazards in Australia: Extreme bushfire. *Climatic Change*, 139(1), 85–99. <https://doi.org/10.1007/s10584-016-1811-1>
- Shepard, S., Boudet, H., Zanocco, C. M., Cramer, L. A., & Tilt, B. (2018). Community climate change beliefs, awareness, and actions in the wake of the September 2013 flooding in Boulder County, Colorado. *Journal of Environmental Studies and Sciences*, 8(3), 312–325.  
<https://doi.org/10.1007/s13412-018-0479-4>
- Sisco, M. R. (2021). The effects of weather experiences on climate change attitudes and behaviors. *Current Opinion in Environmental Sustainability*, 52, 111–117.  
<https://doi.org/10.1016/j.cosust.2021.09.001>

- Sleeth-Keppler, D., Perkowitz, R., & Speiser, M. (2017). It's a matter of trust: American judgments of the credibility of informal communicators on solutions to climate change. *Environmental Communication, 11*(1), 17–40. <https://doi.org/10.1080/17524032.2015.1062790>
- Stern, P., Dietz, T., Abel, T., Guagnano, G., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review, 6*(2), 81–97.
- Strauss Swanson, C., & Szymanski, D. M. (2020). From pain to power: An exploration of activism, the #Metoo movement, and healing from sexual assault trauma. *Journal of Counseling Psychology, 67*(6), 653–668. <https://doi.org/10.1037/cou0000429>
- Thaker, J., & Cook, C. (2021). Experience or attribution? Exploring the relationship between personal experience, political affiliation, and subjective attributions with mitigation behavioural intentions and COVID-19 recovery policy support. *Journal of Environmental Psychology, 77*, Article 101685. <https://doi.org/10.1016/j.jenvp.2021.101685>
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*(2), 440–463. <https://doi.org/10.1037/a0018963>
- Vaccaro, A., & Mena, J. A. (2011). It's not burnout, it's more: Queer college activists of color and mental health. *Journal of Gay & Lesbian Mental Health, 15*(4), 339–367. <https://doi.org/10.1080/19359705.2011.600656>
- van Oldenborgh, G. J., Krikken, F., Lewis, S., Leach, N. J., Lehner, F., Saunders, K. R., van Weele, M., Hausteijn, K., Li, S., Wallom, D., Sparrow, S., Arrighi, J., Singh, R. P., van Aalst, M. K., Philip, S. Y., Vautard, R., & Otto, F. E. L. (2021). Attribution of the Australian bushfire risk to anthropogenic climate change. *Natural Hazards and Earth System Sciences Discussions, 21*(3), 941–960. <https://doi.org/10.5194/nhess-21-941-2021>
- van Zomeren, M., Kutlaca, M., & Turner-Zwinkels, F. (2018). Integrating who “we” are with what “we” (will not) stand for: A further extension of the Social Identity Model of Collective Action. *European Review of Social Psychology, 29*(1), 122–160. <https://doi.org/10.1080/10463283.2018.1479347>
- Verplanken, B., Marks, E., & Dobromir, A. I. (2020). On the nature of eco-anxiety: How constructive or unconstructive is habitual worry about global warming? *Journal of Environmental Psychology, 72*, Article 101528. <https://doi.org/10.1016/j.jenvp.2020.101528>
- Zanocco, C., Boudet, H., Nilson, R., & Flora, J. (2019). Personal harm and support for climate change mitigation policies: Evidence from 10 U.S. communities impacted by extreme weather. *Global Environmental Change, 59*, Article 101984. <https://doi.org/10.1016/j.gloenvcha.2019.101984>