



Thinking about the future: Examining the exacerbating and attenuating factors of despair-induced climate burnout[☆]

Lucy H. Bird^{a,*}, Emma F. Thomas^a, Michael Wenzel^a, Morgana Lizzio-Wilson^b

^a Flinders University, Australia

^b University of Exeter, United Kingdom

“There’s no place for burnout in a burning world” (Wood, 2022)

Bringing about action on the climate crisis takes time and the continued, concerted efforts of supporters. Social change movements, including the climate justice movement, often face opposition, setbacks, and failures (Lizzio-Wilson et al., 2021; Louis et al., 2022). As such, for the movement to be sustained through hard times, we need people to maintain their commitment to the cause. However, often people cannot maintain their commitment due to experiencing intense, negative emotions like eco-anxiety (Stanley et al., 2021), or a lack of efficacy (van Zomeren et al., 2008). Burnout is another relevant factor in explaining why people disengage from social change movements (e.g., Chen & Gorski, 2015; Vandermeulen et al., 2023). Conceptually, *burnout* is defined by two distinct components (Demerouti et al., 2003). The first is *exhaustion*, capturing experiences of feeling drained and weary. The second component relates to *disengagement*, which involves distancing oneself from the stressor (in this case, action to combat climate change; Demerouti et al., 2003). Burnout can have adverse impacts for mental health (i.e., detrimental to individuals; Maslach & Leiter, 2016) but may also lead to disengagement from social change movements (i.e., detrimental for society; Chen & Gorski, 2015). Accordingly, applying the concept of burnout to climate change suggests that one feels emotionally worn out due to the immense challenges posed by climate change (exhaustion); and have a desire to withdraw from the movement due to the overwhelming challenges the movement faces (disengagement).

One complexity is that people may engage in the climate movement for a myriad of motives and thus feel climate burnout for different reasons. Some people are predominantly focused on the impact climate change may have on the natural environment and may centre their efforts on technological and market-driven climate action (Fine, 2023).

Other people recognise that vulnerable communities are most impacted by climate change and instead focus on the social justice impacts of climate change. Consequently, a justice-orientated approach addresses equitable redistribution of climate burdens and systemic change to help provide just solutions to the climate crisis (Fine, 2023; Martiskainen et al., 2020; Swim & Bloodhart, 2018). Of course, many climate movement supporters are focused on both climate action and climate justice. Therefore, in this paper we use the terms interchangeably to reflect the diverse elements of the movement and inclusively consider the impact that diverse motivations may have on peoples experience of climate burnout.

What are the factors that predict or explain climate burnout (exhaustion and disengagement)? We suggest that people are more likely to experience burnout when they feel despair about climate change and the lack of action being taken to address it. That is, climate despair is likely to be an exacerbating factor of burnout (see Bird et al., 2024). Given the urgent need to address the climate crisis, it is important to protect people from experiencing despair induced burnout and disengaging from the climate movement: because as stated above, “there’s no place for burnout in a burning world” (Wood, 2022). In the current research we examine whether despair about the climate crisis is associated with experiencing burnout.

Moreover, part of the solution to continued engagement in the climate movement may lie in mitigating the association between feeling despair and exhaustion, and/or despair and disengagement. Therefore, we also consider ways to attenuate those links so that people can continue to engage in action for climate justice. We take an experimental approach to investigate the conditions under which people who are high in despair may report lower burnout, as this should lead to better

[☆] Note. Address correspondence to Lucy H. Bird, College of Education, Psychology and Social Work, Flinders University, Bedford Park, Australia. Email: lucy.bird@flinders.edu.au. This paper was supported by an Australian Research Council Discovery Award (DP200101921). Datasets are available at https://osf.io/e5w7n/?view_only=9dae036497e64b96aa4362f8eedb2b28. The authors confirm they have no conflict of interest to declare. Authors also confirm that this article adheres to ethical guidelines specified in the APA Code of Conduct as well as the authors’ national ethics guidelines. Additionally, the authors confirm that all persons gave their informed consent prior to their inclusion in the study.

* Corresponding author.

E-mail address: lucy.bird@flinders.edu.au (L.H. Bird).

outcomes for individuals and society. Our pre-registered approach is underpinned by the propositions that imagining a positive future (utopian thinking) and the steps necessary (pragmatism) to achieve this future may buffer against burnout for those who support the climate movement. Namely, people should feel better in themselves (lower exhaustion) but should also maintain their willingness to support the climate movement (lower disengagement) when they imagine a positive future regarding climate change, and the practical steps that are needed to achieve climate justice. To test these propositions, it was necessary to develop a reliable and valid measure of climate burnout. Therefore, as a secondary contribution, we develop a novel climate burnout measure by adapting The Oldenburg Burnout Inventory (OLBI, Demerouti et al., 2003) to the climate context.

1. Conceptualising the dimensions of climate-oriented burnout

Burnout refers to the prolonged exposure to enduring, unjust and stressful situations that diminishes people's well-being (Maslach & Leiter, 2016). Specifically, climate burnout may be experienced as fatigue, frustration, and withdrawal/avoidance by individuals who desire change, but perceive that collective efforts to address the long-term and emotionally taxing challenge of climate change are ineffectual. A line of research led by Gorski and Chen has linked activism and burnout (e.g., Chen & Gorski, 2015; Gorski, 2019; Gorski & Chen, 2015; Gorski et al., 2019). They found that activists experience burnout which depletes their ability to continue engaging in the movement, leading to periods of disengagement with the cause. Their primarily qualitative research focuses on racial justice (e.g., Gorski, 2019), human rights (e.g., Chen & Gorski, 2015) and animal welfare activists (e.g., Gorski et al., 2019). Moreover, there is little research that examines the burnout experienced by those in the climate justice movement (but see Arenz, 2023; von Hellermann, 2021).

According to Demerouti et al. (2003), burnout is comprised of two key dimensions: exhaustion and disengagement. The first component, *exhaustion*, captures the experience of feeling drained and weary. Conceptually, exhaustion focuses on consequences of the stressors experienced and is linked with diminished personal well-being (Demerouti et al., 2003). There are various aspects of exhaustion including physical, emotional, and psychological/cognitive. In the climate context, exhaustion reflects a sense of weariness and emotional depletion by the climate crisis and its effects. Burnout also has a *disengagement* dimension that reflects a distancing of oneself from the stressor (Demerouti et al., 2003). In context of this research, disengagement would reflect people stepping away from the climate justice movement and reducing their engagement in collective actions to promote climate action (either temporarily or permanently; Chen & Gorski, 2015).

Whereas the exhaustion dimension reflects people's subjective sense of poor well-being as individuals, the disengagement dimension is associated with diminished efforts to bring about change at the societal level (i.e., via collective action, e.g., Bührle & Kimmerle, 2021; Fritsche et al., 2018). As such, disengagement is tied to the societal impacts of burnout in that it can lead people to disengage from the climate movement, thus having implications for efforts to achieve climate justice at the systemic level (see also Bingley et al., 2022).

Well-being is often conceptualised as linked to intra-individual (psychopathology) or interpersonal factors (relationships) but there is growing recognition that well-being is also linked to the social world (e.g., social identities, Haslam et al., 2021). That is, well-being is not experienced in a social vacuum, and indeed societal level issues can also affect different aspects of our well-being (Dahlgren & Whitehead, 1991, 2021). Engaging in social movements can provide social connections and support, empowerment and meaning, which are all associated with bolstering people's well-being (Greenaway et al., 2015; Vestergren et al., 2017, 2019). However, as we suggest, when a social movement is not seen to have the desired impact, this can be frustrating, disempowering and strip meaning and purpose from one's life. Therefore,

supporting a social movement may impact individual level well-being, conceptualised here as the exhaustion facet of burnout.

It stands to reason that those who are deeply psychologically and behaviourally committed to the climate movement – activists – may be more likely to report feelings of despair and burnout (e.g., Chen & Gorski, 2015; Gorski, 2019; Gould, 2012). Nevertheless, our approach takes a different, but complementary tack to suggest that it is not only those at the pinnacle of the climate movement – the activists – who can report feeling despair and burnout. Indeed, many people who engage in actions to promote social change do not consider themselves activists (e.g., Bobel, 2007; Stuart et al., 2013, 2018) and climate action can range from small, “everyday” behaviours (e.g., re-wearing clothes/second-hand shopping, riding a bike, composting and recycling; Navne & Skovdal, 2021) to more effortful and concerted actions (e.g., attending protests, buying an electric vehicle, civil disobedience). That is, people who believe in human caused climate change may not be active in the movement, but they are sympathetic to its cause, share concern about the problem, engage in everyday small-scale actions and sacrifices, and are part of the broader mobilization potential that is key for any social movement to achieve and maintain momentum/critical mass (Klandermans, 1984). Accordingly, we consider the effects on people who believe humans are responsible for the climate crisis, to study the exacerbating and attenuating effects of burnout in the population more broadly.

2. Climate despair as an exacerbating factor of burnout

Bird et al. (2024) show that political despair has a positive relationship with burnout (as measured and conceptualised by Malach-Pines, 2005). The Malach-Pines (2005) burnout measure reflects the exhaustion dimension of the current conceptualisation of burnout. As such, we suggest that feeling despair about the climate crisis may be a contributing factor to people's levels of exhaustion. Gould (2012) suggests that political despair may be associated with experiencing burnout, decreased resilience, and vitality because it causes both physical and emotional exhaustion. Despair about the nuclear war in the 70's and 80's was also found to be associated with poor mental health (Diamond & Bachman, 1986). Additionally, negative emotions (e.g., Larsen, 2009) and more specifically, climate focused emotion, have been associated with lower well-being (e.g., Clayton, 2020; Ojala, 2012; Schwartz et al., 2023; Stanley et al., 2021). As such, we anticipate that climate despair will be positively associated with the exhaustion dimension of burnout.

We also argue that climate despair will be related to the disengagement dimension of burnout. Diamond and Bachman (1986) found ‘nuclear despair’ was related to withdrawal and a diminished interest in political participation. Gould (2012) also proposed that political despair could lead to decreased energy to act, in turn leading to political withdrawal, but that it can also flatten political possibilities due to an increased sense of inefficacy. Unexpectedly, Bird et al. (2024) found that political despair was positively related to engagement in collective action (both conventional and radical). However, active disengagement from social movements is different to a lack of engagement in collective action (see Stroebe et al., 2019; Stuart et al., 2018). Reporting the intention to actively distance from the climate movement may be different to a lack of action per se, in the same way that disidentification from a group has been shown to be conceptually distinct from a lack of identification (see Becker & Tausch, 2014). There is a difference between people never deciding to engage in collective actions (reflected in low collective actions), and people who decide to disengage from those actions due to experiencing burnout. As such, we expect climate despair will be positively related to the disengagement aspect of burnout. Overall, we argue that the people most likely to experience burnout, are those who are high in climate despair. That is, if people feel despair about the climate crisis, they are more likely to feel exhausted and seek to disengage from the climate movement.

3. Attenuating the link between climate despair and burnout

One solution to buffering against despair-induced burnout may rest in people imagining the future in positive terms and/or envisaging ways of achieving that future. Yet, how these methods work in practice may differ for the two dimensions of burnout. First, one possibility is that imagining a positive future society, where the climate crisis has been addressed (i.e., utopian thinking; Badaan et al., 2020; Daysh et al., 2024; Fernando et al., 2018; Kashima & Fernando, 2020) might buffer against exhaustion. There are three functions of utopias: criticism, change, and compensation. That is, utopias – as representations of ideals of how things could or should be – provide a standard against which the status-quo can be compared and its shortcomings *criticised*, which can lead to commitment to *change* as people strive for improvement (Fernando et al., 2018; Kashima & Fernando, 2020; Levitas, 1990). Utopian thinking may allow people to regard the status-quo as avoidable, rather than inevitable because there is an alternative future they can now imagine. That is, utopian thinking may encourage people to reappraise the situation as changeable, not intractable (Badaan et al., 2020). Additionally, such positive, future-oriented thinking may allow people to escape reality to *compensate* for the harsh present-day reality (Fernando et al., 2018; Kashima & Fernando, 2020; Levitas, 1990). Indeed, Daysh et al. (2024) showed that utopian thinking simultaneously elicits greater hope and diminishes fear about climate change.

Based on this reasoning, we anticipate that the compensation function of utopian thinking may attenuate the despair-exhaustion link, primarily because the utopias are positive and future-oriented. Thus, utopian thinking may provide a “feel good” response that one can “escape” to, which in turn makes people feel accomplished, satisfied and better about the current situation (e.g., Kashima & Fernando, 2020; Oettingen & Sevincer, 2018). As such, we argue that utopian thinking may buffer against despair-induced exhaustion.

Yet utopian thinking on its own may be insufficient to reduce the disengagement facet of burnout. Given that utopian thinking can lead to escapism, people may be less motivated to put in the effort to achieve the desired future, as the future they ‘escape’ to provides a sense of accomplishment and satisfaction (e.g., Kashima & Fernando, 2020; Oettingen & Mayer, 2002; Oettingen & Sevincer, 2018). Furthermore, ‘escaping’ to a utopian future may allow people to engage in emotion-focussed coping (i.e., reducing negative feelings) but limits problem-focussed coping (i.e., engaging in actions to ameliorate the problem itself, e.g., Ford & Feinberg, 2020; Ford et al., 2023; Goldenberg et al., 2016). Rather, people may also need to consider the pragmatic steps needed to overcome the barriers preventing their utopian climate future. *Pragmatism* refers to the consideration of the obstacles to attaining the desired future and planning the steps necessary to get there (e.g., Baumeister et al., 2016; Eubanks et al., 2023). There is research to suggest that planning and focusing on the necessary pragmatic steps required to achieve a goal can be beneficial for motivation and success in attaining the goal (e.g., Locke & Latham, 1990, 2013; Wieber et al., 2012; Zwickael et al., 2014). Therefore, we expect that engaging in pragmatism may mitigate against despair-induced burnout, and particularly the disengagement facet of burnout.

Importantly, the pragmatic prospection literature has found that first imagining the desired outcome (utopian thinking) before the pragmatic element can more meaningfully shape motivation to attain the desired outcome (i.e., climate justice, Baumeister et al., 2016; Eubanks et al., 2023; Oettingen et al., 2001). That is, first imagining a utopian climate future can anchor cognitions and behaviours, thus providing a benchmark for action. Utopias, however, need to be linked with a means of attaining that future, otherwise that future is just fantasy, linked with an escapist dream rather than a concrete possibility (e.g., Kappes & Oettingen, 2011; Oettingen & Mayer, 2002). Therefore, thinking of pragmatic steps to attain the utopian future may provide motivation to take the necessary steps (Fernando et al., 2018). As such, we suggest that a combined intervention involving utopian thinking *and* pragmatism

(what we term pragmatic utopian thinking) will buffer against despair-induced disengagement, perhaps more so than engaging in pragmatism alone (Baumeister et al., 2016; Eubanks et al., 2023; Oettingen et al., 2001).

4. The current research

Recent work conducted by Vandermeulen et al. (2023) highlighted the importance of identifying the factors that predict burnout, as well as strategies to combat burnout. In the current research we attempt to address these calls. We suggest that climate despair may be an exacerbating factor of burnout. However, currently there is scant research investigating the links between climate despair and the two aspects of burnout: exhaustion and disengagement. Moreover, we also examine potential ways to mitigate against climate-induced burnout. Specifically, we will test the role of utopian thinking and pragmatism, separately and in combination, in reducing exhaustion and disengagement. Given the evidence that reflective writing can improve well-being, including reducing burnout (e.g., Narayan et al., 2018; Wald et al., 2016), our manipulations give participants instructions to reflect upon and generate their own utopian future and/or pragmatic steps, rather than providing them with the utopia or pragmatic instructions per-se.

Two pre-registered experimental studies tested whether the relationships between climate despair and burnout (exhaustion and disengagement) can be attenuated. Using experimental methods, we experimentally induce a focus on a positive future (via utopian thinking; Daysh et al., 2024), either alone or in combination with pragmatic solutions in attempt to mitigate climate despair induced burnout. In the experiments, participants completed a pre-measure of climate despair and then were randomly allocated into one of four experimental conditions (utopian thinking, pragmatism, pragmatic utopian thinking, passive control), followed by measures of the dependent variables. However, before it was possible to experimentally examine the effects of utopian thinking and pragmatism on burnout, it was first necessary to develop a measure of climate-related burnout.

4.1. Openness and transparency

In Studies 1 and 2, the analyses addressing the three-way interaction between climate despair, utopian thinking and pragmatism on the outcome variables were pre-registered (<https://osf.io/e5w7n/>). There were also pre-registered predictions regarding the additional measures of conventional and radical collective action engagement. However, to focus the scope of our investigation, we only report these analyses in the supplementary materials. During the review process it was raised that social identification as a supporter of climate action and intentions to engage in collective action may also be important for how people experience despair and the manipulations. Therefore, supplementary analyses indicated that identification and action intentions played a negligible role in this context.

5. Pilot study

The pilot study focused on developing and validating a short-form, adapted climate action version of the Oldenburg Burnout Inventory (Climate-OLBI; Demerouti et al., 2003). The Oldenburg Burnout Inventory (OLBI, Demerouti et al., 2003) is a validated measure in the context of burnout in the workplace (e.g., Maslach Burnout Inventory; Maslach & Jackson, 1981). It has good reliability as well as convergent and discriminant validity with other burnout measures (Demerouti et al., 2003). However, the current measure is not well equipped to assess burnout for climate action supporters as it was developed to measure occupational burnout and therefore many of the items were not applicable to the climate movement. We therefore adapted the items from the OLBI to the climate context by re-wording them to applicable scenarios and excluding items that could not be adapted. Having

developed the scale, we then tested it to see if it had the same factor structure as the OLBI, that is, whether the items load onto the two separate exhaustion and disengagement factors. In this pilot study we also test the convergent and discriminant validity of the Climate-OLBI dimensions: exhaustion and disengagement.

The convergent validity of the exhaustion subscale was assessed via a positive correlation with other measures of emotional burnout (Malach-Pines, 2005) and stress (DASS-21, Lovibond & Lovibond, 1995). The convergent validity of the disengagement subscale will be assessed via a negative correlation with (conventional and radical) collective action. The discriminant validity between exhaustion and disengagement, will be assessed by a non-significant (or weak) relationship between exhaustion and collective action engagement, and a non-significant (or weak) association between disengagement and burnout/stress.

5.1. Method

Ninety-eight permanent residents or citizens from the United States of America were recruited via Amazon Mechanical Turk in September 2022. To be eligible to participate, participants had to self-select that they a) believe in climate change; and b) that this is the result of human activity. Table 1 shows that, on average, participants reported moderate levels of commitment to action. We therefore concluded that the sample were on average moderately invested in the climate action movement. To ensure data quality, participants were removed if two of the Qualtrics metrics for fraudulent responders indicated the response was duplicated or provided by a bot (i.e., duplicate geolocation, Recapture score, Relevant ID duplicate score, Relevant ID fraud score). As a result, 7 participants were excluded, and the final sample consisted of $n = 91$. Participants were primarily male (64.8%), aged 21 or older ($M = 37.82$) and identified as a Democrat (59.3%, compared to 14.3% Republican, 24.2% independent, and 2.2% uncertain/swing voter).

5.1.1. Measures

Participants responded to the questionnaire items on a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*) unless otherwise indicated. Internal consistency of the items in the measures are reported in Table 1.

Climate adapted Oldenburg Burnout Inventory scale development (Climate-OLBI). We adapted the 16 items from the OLBI to the context of support for climate action and pilot tested the items for face validity, comprehension and to check that the items loaded onto the exhaustion and disengagement factors. Nine items from the OLBI could not be adequately adapted to the climate context. Example items that were removed were: “I always find new and interesting aspects in my efforts to promote climate action” (disengagement, reverse scored) and “After a day of working toward climate justice, I tend to need more time than in the past in order to relax and feel better” (exhaustion). To keep the number of items constant across the two subscales, we included an additional purpose-built item in the disengagement subscale, “If things do not change soon, I will have to give up my efforts to promote climate

justice”. Therefore, we used eight items, four for each subscale (see Table 2 for the items).

Malach-Pines Burnout Scale. We also measured burnout with seven items that were adapted from Malach-Pines (2005), to test the validity of the Climate-OLBI. Items included: “When you think about your efforts to improve climate change, to what extent do you feel the following: tired, disappointed with people, worthless/like a failure” (measured on a 7-point Likert scale, 1 = Never, 7 = Always).

Stress. Three items from the Depression Anxiety and Stress Scale (DASS-21, Lovibond & Lovibond, 1995) were used to measure stress, for example: “In the past month, I found it hard to wind down”.

Conventional Action Intentions. Seven items were used to measure participants’ intention to engage in conventional actions. For example, “I intend to attend a rally demanding that climate change is addressed” and “I intend to reduce my own carbon footprint (i.e., ride a

Table 2
Pilot Study Principal Components Analysis Varimax Rotated Item Loadings for Climate-OLBI, $n = 91$.

Dimension	Item	Factor 1 loadings	Factor 2 loadings	Retained items
Exhaustion 1	When I think about efforts to promote climate justice, I feel energized. (Reverse scored)	0.778	0.223	
Exhaustion 2	I can tolerate the pressure of my continued support for climate justice very well. (Reverse scored)	0.637	0.269	
Exhaustion 3	When I think about the fight for climate justice, I feel worn out and weary.	0.157	0.770	✓
Exhaustion 4	I find my efforts to promote action on climate change emotionally draining.	-0.076	0.846	✓
Disengagement 1	I feel disconnected from the goal of action to combat climate change.	0.771	0.122	✓
Disengagement 2	I feel more and more engaged in my support for climate justice. (Reverse scored)	0.786	-0.002	✓
Disengagement 3	I think about efforts to promote climate justice in a negative way.	0.161	0.457	
Disengagement 4	If things do not change soon, I will have to give up my efforts to promote climate justice.	0.273	0.501	

Note. **Bold** denotes significant effects.

Table 1
Pilot study descriptive statistics and correlations of all variables.

	Mean (SD)	Exhaustion	Disengagement	Burnout	Stress	Conventional actions	Radical actions
Exhaustion	3.44 (1.53)	$r = 0.66^b$					
Disengagement	3.73 (1.56)	0.10	$r = 0.61^b$				
Burnout	2.76 (1.36)	0.66 ^b	0.06	$\alpha = 0.90$			
Stress	3.26 (1.77)	0.55 ^b	-0.09	0.59 ^b	$\alpha = 0.92$		
Conventional actions	4.02 (1.55)	0.12	-0.60 ^b	0.33 ^a	0.27 ^a	$\alpha = 0.92$	
Radical actions	2.62 (1.51)	0.31 ^a	-0.46 ^b	0.28 ^a	0.29 ^a	0.71 ^b	$\alpha = 0.91$

Note. $n = 91$, r and α along the diagonal report the internal consistency of the items in the measure.

^a denotes $p \leq .05$.
^b denotes $p \leq .001$.

bike more, reduce meat intake, use less plastics)".

Radical Action Intentions. Five items assessed participants' intentions to engage in radical actions. For example, "I intend to participate in protests that involve taking control of/obstructing public places to demand more climate action."

5.2. Results

5.2.1. Exploratory factor analysis of the climate adapted OLBI (Climate-OLBI)

We conducted an Exploratory Factor Analysis (EFA) to examine whether the Climate-OLBI items loaded onto two separate exhaustion and disengagement factors, respectively. We included all eight items from the Climate-OLBI and conducted a Maximum Likelihood Extraction with Varimax Rotation. The results indicated that there were two factors, with eigenvalues greater than 1, which together accounted for 64.30% of the variance. However, the items did not load onto the exhaustion and disengagement factors in a way that was consistent with the original OLBI scale. The item loadings and factors are displayed in Table 2. The first factor, which accounted for 41.81% of the variance, was defined by exhaustion 1 and 2, disengagement 1 and 2. The second factor (accounting for 22.49% variance) was defined by exhaustion 3 and 4, disengagement 3 and 4 (see Table 2 for item loadings). Importantly, there were no cross-loading items, indicating that these factors were empirically distinct facets of burnout. Given this pattern of results, we opted to retain the two items that factored together with the highest loadings, that were also consistent with the original dimension. Both subscales had adequate internal consistency such that the two items for each scale were highly correlated (see Table 1). The final items are indicated with a tick in Table 2.

5.2.2. Convergent and discriminant validity of the Climate-OLBI

We next assessed the discriminant and convergent validity of the exhaustion and disengagement subscales by examining how they correlated with related measures assessing well-being and collective action intentions (see Table 1 for correlation coefficients and descriptive statistics).

To demonstrate convergent validity, we expected exhaustion to be positively correlated with burnout and stress, as exhaustion reflects weariness and being emotionally drained. However, we expected disengagement would be unrelated to stress and burnout. As expected, exhaustion was positively related to both burnout and stress, supporting the convergent validity of the exhaustion dimension with other well-being measures (see Table 1 for correlation coefficients). Providing good discriminant validity for the scale, disengagement did not relate to stress or burnout. This pattern of association suggested that the two factors of the Climate-OLBI were conceptually distinct.

As expected, disengagement was negatively associated with conventional and radical collective action intentions (see Table 1 for correlation coefficients), thus providing good convergent validity. Exhaustion was unrelated to conventional actions but was, unexpectedly, positively associated with radical action intentions. The differing pattern of correlations of exhaustion and disengagement with collective actions provided discriminant validity for the subscales.

5.3. Discussion

Overall, the exhaustion and disengagement facets of the Climate-OLBI are distinct, reliable constructs. Exhaustion showed good convergent validity with the well-being measures (burnout and stress), whilst disengagement demonstrated convergent validity with low intentions to engage in actions to promote climate justice. Moreover, exhaustion and disengagement demonstrated good discriminant validity because exhaustion did not correlate with conventional action and disengagement did not correlate with the measures of burnout and stress.

6. Study 1

Having created a valid and reliable measure of climate-related burnout, Study 1 examined whether despair about climate change impacts the two dimensions of burnout, as well as the conditions under which people high in climate despair may report reduced exhaustion and disengagement. Specifically, we consider the moderating effect utopian thinking, pragmatism, and the combination that both utopian thinking and pragmatism (i.e., pragmatic utopian thinking) may have for the relationship between climate despair and burnout. As such, we test two predictions about the role of utopian thinking and pragmatism on the relationship between despair and both dimensions of burnout (exhaustion and disengagement). We hypothesised.

H1. a two-way interaction whereby people high in climate despair will report lower *exhaustion* if they complete the utopian thinking task, compared to if they do not.

H2. a three-way interaction, such that people high in climate despair will report lower *disengagement* in the pragmatic utopian thinking condition (compared to the other conditions).

6.1. Method

6.1.1. Participants and design

Study 1 was conducted as an online questionnaire, sampling United States of America citizens/permanent residents ($n = 656$), recruited via Amazon's Mechanical Turk in November 2022. A-priori sample size was calculated using G*Power from power analyses that accounted for the moderator and included the parameters of a small effect size, Cohens $f^2 = 0.02$, at 80%, $\alpha = 0.05$, and numerator $df = 4$. The power analyses determined a sample of $n = 612$, ($n = 153$ per condition) would be sufficient to detect small effects (we added an additional 20 participants due to the exclusion criteria and potential missing data, thus aimed for a sample of $n = 632$).

As in the pilot study, to be eligible to participate, respondents had to self-select that they believe in climate change and that it is the result of human activity. To ensure data quality, participants were removed if they used a duplicate WorkerID ($n = 14$), the geolocation and IP address were duplicated ($n = 2$), if Qualtrics data quality metric Recapture score is below 0.8 ($n = 9$), or they did not respond attentively ($n = 8$). We were left with a final sample of $n = 623$. Participants were equally male (49.6%) and female (49.3%; non-binary 0.2%, other 0.2%, prefer not to say 0.8%), aged 21 or older ($M = 43.86$, $SD = 12.49$), majority identified as white (72.6%), the majority identified as at least somewhat liberal (60%, compared to moderate 17.6%, at least somewhat conservative 22.4%), and most supported the Democratic party (54.6%, Republican 18.1%, independent 22.6%, uncertain/swing voter 4.7%). Table S1 (supplementary file) highlights that respondents had moderate levels of identification with the climate action movement and moderate intentions to engage in the movement.

Participants first responded to pre-measures of emotions, specifically climate despair. They were then randomly allocated to one of four experimental conditions. Participants then completed the rest of the study including measures of the dependent variables. As such, this study had a 2(utopian thinking: present, absent) x 2(pragmatism: present, absent) between groups experimental design whereby the independent variable was climate despair, and the dependent variables were exhaustion and disengagement.

6.1.2. Experimental manipulations

Participants were allocated to one of four experimental conditions: utopian thinking, pragmatism, combination of utopian thinking and pragmatism, or a passive control.

In the *utopian thinking condition*, participants were asked to imagine a positive future where climate change has been significantly addressed

and then select three images of 10 that reflect their imagined ideal future regarding climate change (following the procedure developed by Daysh et al., 2024). Participants then spent 3 min writing about their desired future; on average, participants wrote 73.87 words ($SD = 34.83$).

In the *pragmatism condition*, participants were asked to think of obstacles to the desired future of achieving climate justice and the necessary concrete steps required to achieve said future. Respondents then selected three images out of 10 that reflect the climate initiatives they would be most interested in promoting (i.e., nature restoration and protection, renewable energy and energy storage, political and social change initiatives) and then spent 3 min writing about the obstacles to their desired climate future and the actions they could take to achieve this future; on average, participants wrote 87.72 words ($SD = 49.89$).

People allocated to the combined *pragmatic utopian thinking condition*, were asked to complete both tasks detailed above. On average, participants wrote 77.08 words ($SD = 35.49$) in the utopian thinking section and 79.66 words ($SD = 38.80$) for the pragmatic section.

Participants in the *control condition* only completed the dependent measures.

6.1.3. Measures

Climate despair. We used three items to measure the feeling of despair about the climate crisis (Bird et al., 2024). The items were: “Considering the current state of affairs regarding climate change, I feel: despair, depressed, hopeless”.

Climate-OLBI exhaustion. We measured the exhaustion dimension of the Climate-OLBI based on the findings of the Pilot Study, with two items. The items were: “When I think about the fight for climate justice, I feel worn out and weary” and “I find my efforts to promote action on climate change emotionally draining”.

Climate-OLBI disengagement. The disengagement dimension of Climate-OLBI was measured with two items, based on the Pilot Study. The items were: “I feel disconnected from the goal of action to combat climate change” and “I feel more and more engaged in my support for climate justice”.

6.2. Results

A very small amount of data (0.4%) was not missing completely at random, Littles MCAR χ^2 (85) 170.758, $p < 0.001$, and was addressed using Expectation Maximisation in SPSS. Table 3 presents the demographics and measures for the individual conditions. There were no significant differences in demographics a priori (all $ps > 0.054$) and so we assumed that randomisation had functioned as intended. The means (standard deviations), correlations and internal consistency for the key variables are presented in Table 4. Table 4 shows that the sample mean for climate despair evidenced moderate agreement that they felt despair. Levels of exhaustion were around the mid-point and disengagement was just below the mid-point.

We used a Principal Components Analysis (PCA) with Varimax Rotation to examine whether exhaustion and disengagement loaded onto the anticipated discrete factors (see Table 5). Consistent with the Pilot Study results, Factor 1 was defined by the two exhaustion items, accounting for 45.67% of the variance. Factor 2 was defined by the two disengagement items and accounted for 39.45% of the variance. Moreover, the correlations in Table 4 show that exhaustion and disengagement were only moderately associated. This correlation along with the PCA results suggest exhaustion and disengagement appear to be distinct facets of burnout.

6.2.1. Testing the exacerbating and attenuating factors driving climate exhaustion

The correlations displayed in Table 4 suggest that climate despair had a moderately strong, positive association with exhaustion, which suggests that despair may exacerbate the exhaustion dimension of burnout. To test the effect of climate despair on exhaustion as well as the

Table 3
Study 1 demographics and measures for the experimental conditions.

Demographic	Utopian thinking $n = 161$	Pragmatism $n = 147$	Utopian thinking + pragmatism $n = 142$	Control $n = 173$
Age	$M = 43.8$, $SD = 12.92$	$M = 44.98$, $SD = 13.51$	$M = 43.24$, $SD = 11.72$	$M = 43.47$, $SD = 11.84$
Gender	47.2% male 52.8% female 0% other/ non-binary/ prefer not to say	53.7% male 45.6% female 0.7% other/ non-binary/ prefer not to say	48.6% male 50% female 1.4% other/ non-binary/ prefer not to say	49.1% male 48.6% female 2.4% other/ non-binary/ prefer not to say
Ancestry	68.9% White/ Caucasian	80.3% White/ Caucasian	73.9% White/ Caucasian	68.2% White/ Caucasian
Education	95.1% engaged in further education after grade school	93.8% engaged in further education after grade school	89.3% engaged in further education after grade school	87.3% engaged in further education after grade school
Political Party	52.8% Democrat 15.5% Republican 3.1% uncertain/ swing 28.6% independent	54.4% Democrat 24.5% Republican 4.1% uncertain/ swing 17% independent	57.7% Democrat 17.6% Republican 7.7% uncertain/ swing 16.9% independent	53.8% Democrat 15.6% Republican 4% uncertain/ swing 26.6% independent
Baseline climate despair	4.08 (1.54)	3.95 (1.64)	4.13 (1.61)	4.15 (1.49)
Post-measure climate despair	3.80 (1.70)	3.55 (1.69)	3.78 (1.72)	3.90 (1.65)
Exhaustion	3.61 (1.50)	3.53 (1.62)	3.51 (1.70)	3.63 (1.60)
Disengagement	3.35 (1.31)	3.17 (1.49)	3.08 (1.42)	3.62 (1.51)

Table 4
Study 1 Descriptive Statistics and Correlations of All Variables, $n = 623$.

	M (SD)	Climate despair	Climate-OLBI exhaustion	Climate-OLBI disengagement
Climate despair	4.08 (1.56)	$\alpha = 0.88$		
Climate-OLBI Exhaustion	3.58 (1.60)	0.44 ^a	$r = 0.77^a$	
Climate-OLBI disengagement	3.32 (1.45)	-0.03	0.34 ^a	$r = 0.58^a$

Note.

r and α along the diagonal report the internal consistency of the items in the measure.

^a denotes $p < .001$.

prediction that people high in despair will report lower exhaustion if they complete the utopian thinking task, compared to if they did not (H1), we conducted a moderated regression using Hayes’ PROCESS macro (Model 3). The independent variable (X) was climate despair (continuous), the moderator 1 (W) was utopian thinking (coded 1 = utopian thinking, -1 = no utopian thinking), moderator 2 (Z) was pragmatism (coded 1 = pragmatism, -1 = no pragmatism), and the outcome variable (Y) was exhaustion. In all analyses, continuous predictor variables (i.e. climate despair) were mean-centred allowing for interpretation, such that the main effects of the experimental manipulations were assessed at the average level of despair (not at lower levels) and therefore are true main effects.

Table 6 displays the results of the analyses. There was a significant main effect of climate despair on exhaustion, such that both constructs

Table 5
Principal component analysis with varimax rotation for the four-item Climate-OLBI in studies 1 and 2.

Dimension	Item	Study 1		Study 2	
		Factor 1	Factor 2	Factor 1	Factor 2
Exhaustion	When I think about the fight for climate justice, I feel worn out and weary.	0.910	0.219	0.909	0.162
Exhaustion	I find my efforts to promote action on climate change emotionally draining.	0.941	0.070	0.931	0.091
Disengagement	I feel disconnected from the goal of action to combat climate change.	0.335	0.821	0.381	0.782
Disengagement	I feel more and more engaged in my support for climate justice. (Reverse scored)	-0.002	0.923	-0.031	0.922

Note. **Bold** denotes significant effects.

were positively associated. However, there was no main effect of utopian thinking or pragmatism. There was also no support for the hypothesised two-way interaction (H1) as the interaction between despair and utopian thinking was not significant. Moreover, the interaction between despair and pragmatism was also non-significant. Unexpectedly, a significant three-way interaction emerged. The strength of the despair-exhaustion relationship was attenuated in the utopian thinking, and pragmatism conditions when considered separately. Table 7 displays the simple slopes. Whilst the relationship between climate despair and exhaustion was significant in each condition, it was significantly weaker when participants engaged in either utopian thinking or pragmatism, respectively. Conversely, the combination of utopian thinking and pragmatism strengthened the relationship between climate despair and exhaustion relative to the other conditions (see Table 7). These results suggest that, whilst utopian thinking and pragmatism separately reduced the strength of the association between climate despair and exhaustion, the combination of both utopian thinking and pragmatism made people more exhausted. In the supplementary materials we also show that identifying as a supporter of climate action was not correlated with exhaustion (Table S2).

6.2.2. Testing the exacerbating and attenuating factors driving climate disengagement

We adopted a similar analytical strategy to test the relationship between climate despair and disengagement, as well as the independent and joint effects of utopian thinking and pragmatism on the climate despair-disengagement relationship (Model 3, see Table 6 for analysis results). Unexpectedly, climate despair was unrelated to disengagement (consistent also with the zero-order correlations in Table 4), indicating

Table 6
Study 1 unstandardised regression weights - main effects and interactions.

		Exhaustion				Disengagement			
		B	SE	p	95% CI	B	SE	p	95% CI
Main Effect	Climate Despair	0.448	0.037	<0.001	0.376, 0.521	-0.032	0.037	0.381	-0.105, 0.040
Main Effect	Utopian Thinking	-0.021	0.058	0.713	-0.135, 0.092	-0.091	0.058	0.118	-0.204, 0.023
Main Effect	Pragmatism	-0.034	0.058	0.555	-0.148, 0.079	-0.183	0.058	0.002	-0.297, -0.070
Two-way interaction	Despair x Utopian Thinking	0.029	0.037	0.436	-0.044, 0.101	0.047	0.037	0.201	-0.025, 0.120
Two-way interaction	Despair x Pragmatism	0.037	0.037	0.320	-0.036, 0.109	0.054	0.037	0.142	-0.018, 0.127
Two-way interaction	Utopian Thinking x Pragmatism	-0.028	0.058	0.625	-0.142, 0.085	0.045	0.058	0.438	-0.069, 0.158
Three-way interaction	Despair x Utopian Thinking x Pragmatism	0.076	0.037	0.039	0.004, 0.149	0.014	0.037	0.715	-0.059, 0.086

Note. **Bold** denotes significant effects.

that despair was not related to this facet of burnout. There was also no main effect of utopian thinking on disengagement. However, we found a main effect of pragmatism, such that participants reported lower disengagement in the pragmatism (vs. no pragmatism) condition (see Table 6). No two-way interactions were observed. Contrary to H2, there was no evidence of the predicted three-way interaction between despair, utopian thinking, and pragmatism (see Table 6). Therefore, neither utopian thinking on its own, or in combination with pragmatism attenuated the link between climate despair and disengagement.

6.3. Discussion

Study 1 showed that, separately, utopian thinking and pragmatism may attenuate the link between climate despair and exhaustion. However, only pragmatism was beneficial for disengagement, independent of level of climate despair. Unexpectedly, we found that the combination of the two tasks (i.e., pragmatic utopian thinking) had no effect on burnout. Rather, when combined, utopian thinking and pragmatism strengthened the link between climate despair and exhaustion but did not affect the relationship between despair and disengagement.

Study 2 seeks to replicate and extend the methods of Study 1. One potential methodological reason for these unexpected results may be due to the way the task was administered. That is, in the pragmatic utopian thinking condition, participants completed two tasks (for a total of 6 min) whereas the participants in the utopian thinking or pragmatism tasks only completed one task (3 min). As such, perhaps engaging in a longer task may be more taxing and requires more concentration which, in turn, is more exhausting. Thus, Study 2 addressed this alternative explanation and sought to replicate the effects observed in Study 1.

7. Study 2

To address the methodological limitation from Study 1, participants in the pragmatic utopian thinking condition completed a single a 3-min task that integrated the utopian thinking and pragmatism tasks (rather than completing two separate tasks). As pre-registered, we are particularly interested in examining whether the revised utopian thinking + pragmatism condition has the hypothesised effect of attenuating the despair-burnout link. We also sought to replicate the findings from Study 1. Thus, we also pre-registered that we would test whether the combination of utopian thinking and pragmatism again exacerbates the link

Table 7
Study 1 Simple Slopes of the Three-Way Interaction.

Condition	B	SE	P	95% CI
Utopian Thinking	0.364	0.074	<0.001	0.219, 0.509
Pragmatism	0.380	0.073	<0.001	0.237, 0.523
Control	0.459	0.073	<0.001	0.315, 0.603
Pragmatic Utopian Thinking	0.590	0.075	<0.001	0.442, 0.738

Note. 1 = present, -1 = absent.

between climate despair and exhaustion; and whether pragmatism again reduces disengagement.

7.1. Method

7.1.1. Participants and design

As per Study 1, we used a 2 (utopian thinking: present, absent) x 2 (pragmatism: present, absent) between groups experimental design with climate despair as a measured independent variable and exhaustion and disengagement as the dependent measures.

Participants were again removed if they used a duplicate WorkerID ($n = 4$), if Qualtrics data quality metric Recapture score is below 0.8 ($n = 5$), or they did not respond attentively ($n = 12$). We were left with a final sample of $n = 610$. As per Study 1, a power analysis conducted in G*Power determined a sample size of $n = 612$, $n = 153$ per condition (we again added a buffer of 20 participants and aimed to collect $n = 632$). The power analyses accounted for the moderator and included the parameters of a small effect size, Cohens $f^2 = 0.02$, at 80%, $\alpha = 0.05$, and numerator $df = 4$. There were more male participants (52.1%) compared to female (46.9%; non-binary 0.5%, other 0.2%, prefer not to say 0.3%), aged 21 or older ($M = 42.72$, $SD = 11.99$), majority identified as white (71%), the majority identified as at least somewhat liberal (59.1%, compared to moderate 16.9%, at least somewhat conservative 24%), and most supported the Democratic party (51.6%, Republican 19.2%, independent 24.3%, uncertain/swing voter 4.9%). Table S7 (supplementary file) shows that participants were moderately identified with and active in the climate movement.

7.1.2. Design, measures, and procedure

Study 2 was conducted in February 2023 with identical materials and procedure to Study 1, unless otherwise stated. After completing the pre-measure of climate despair, participants were randomly allocated to one of four experimental conditions and then completed the remainder of the questionnaire. Participants in the utopian thinking condition wrote an average of 72.48 words ($SD = 37.54$), the pragmatism condition averaged 87.77 words ($SD = 45.05$), whilst in the pragmatic utopian thinking condition, participants wrote 92.61 words on average ($SD = 49.05$). To address the methodological concern from Study 1 that time may have been a confound for the pragmatic utopian thinking condition, the two tasks were integrated in Study 2. Participants engaged in both utopian thinking and pragmatism in the one task, rather than completing them as two separate tasks as done in Study 1. That is, participants were asked to imagine a positive future where climate change has been significantly addressed and the concrete steps necessary to achieve this desired future. By integrating utopian thinking and pragmatism into the one task, participants only spent 3 min on the task (same as the separate tasks), thus removing time as a confound. The measures of climate despair, exhaustion, disengagement, were identical to the previous studies.

7.2. Results

There was no missing data. Table 8 displays the demographics and measures for the four conditions. There were no significant differences in demographics a priori (all $ps > 0.153$) and so we assumed that randomisation had functioned as intended. Descriptive statistics and correlations are presented in Table 9. As in Study 1, participants reported experiencing a moderate level of climate despair, with exhaustion and disengagement levels around the mid-point (see Table 9). We used the same analytical approach and coding procedure as Study 1.

A PCA using Varimax Rotation showed that the Climate-OLBI consists of two factors (see Table 5). Factor 1 was defined by the two exhaustion items, accounting for 45.96% of the variance. Factor 2 was defined by the two disengagement items and accounted for 37.40% of the variance. The correlations in Table 9 are consistent with Study 1 such that exhaustion and disengagement were moderately correlated

Table 8
Study 2 demographics and measures for the experimental conditions.

Demographic	Utopian thinking $n = 148$	Pragmatism $n = 150$	Utopian thinking + pragmatism $n = 149$	Control $n = 163$
Age	$M = 43.62$, $SD = 12.53$	$M = 41.61$, $SD = 11.57$	$M = 44.12$, $SD = 11.90$	$M = 41.73$, $SD = 11.85$
Gender	48% male 50.7% female 1.4% other/ non-binary/ prefer not to say	49.3% male 49.3% female 1.4% other/ non-binary/ prefer not to say	52.3% male 47.7% female 0% other/ non-binary/ prefer not to say	58.3% male 40.5% female 1.2% other/ non-binary/ prefer not to say
Ancestry	72.3% White/ Caucasian	71.3% White/ Caucasian	70.5% White/ Caucasian	69.9% White/ Caucasian
Education	89.2% engaged in further education after grade school	94.7% engaged in further education after grade school	93.2% engaged in further education after grade school	90.9% engaged in further education after grade school
Political Party	48% Democrat 22.3% Republican 3.4% uncertain/ swing 26.4% independent	58% Democrat 17.3% Republican 5.3% uncertain/ swing 19.3% independent	49.7% Democrat 19.5% Republican 6% uncertain/ swing 24.8% independent	50.9% Democrat 17.8% Republican 4.9% uncertain/ swing 26.4% independent
Baseline climate despair	4.05 (1.50)	4.10 (1.58)	3.97 (1.56)	3.96 (1.47)
Post-measure climate despair	3.85 (1.71)	3.84 (1.73)	3.71 (1.76)	3.80 (1.76)
Exhaustion	3.53 (1.66)	3.82 (1.68)	3.47 (1.57)	3.57 (1.64)
Disengagement	3.42 (1.45)	3.56 (1.43)	3.07 (1.17)	3.76 (1.57)

Table 9
Study 2 Descriptive Statistics and Correlations of All Variables, $n = 610$.

	M (SD)	Climate despair	Climate-OLBI exhaustion	Climate-OLBI disengagement
Climate despair	4.02 (1.53)	$\alpha = 0.86$		
Climate-OLBI exhaustion	3.60 (1.64)	0.44 ^a	$r = 0.75^a$	
Climate-OLBI disengagement	3.46 (1.44)	-0.08 ^b	0.33 ^a	$r = 0.52^a$

Note.

r and α along the diagonal report the internal consistency of the items in the measure.

^a denotes $p < .001$.

^b denotes $p = .049$.

with each other. As per the previous studies, exhaustion and disengagement appear to be distinct aspects of climate-oriented burnout.

7.2.1. Testing the exacerbating and attenuating factors driving climate exhaustion

As in Study 1, there was a main effect of climate despair, such that those who felt more despair also felt more exhaustion (see Table 10). We again found no evidence of main effects or two-way interactions, thus replicating Study 1's null effects. Unexpectedly, and contrary to Study 1, the three-way interaction was not significant (see Table 10). Thus, there was no evidence that utopian thinking or pragmatism separately or in combination, attenuated exhaustion. As such, none of the tasks affected people's levels of exhaustion.

Table 10
Study 2 unstandardised regression weights - main effects and interactions.

		Exhaustion				Disengagement			
		B	SE	p	CI	B	SE	p	CI
Main Effect	Climate Despair	0.467	0.039	<0.001	0.390, 0.544	-0.075	0.038	0.046	-0.149, -0.001
Main Effect	Utopian Thinking	-0.096	0.060	0.111	-0.213, 0.022	-0.207	0.057	0.003	-0.319, -0.094
Main Effect	Pragmatism	-0.041	0.060	0.498	-0.077, 0.158	-0.133	0.057	0.021	-0.246, -0.021
Two-way interaction	Despair x Utopian Thinking	-0.004	0.039	0.921	-0.081, 0.073	0.026	0.038	0.488	-0.048, 0.100
Two-way interaction	Despair x Pragmatism	-0.027	0.039	0.496	-0.104, 0.050	0.005	0.038	0.898	-0.069, 0.079
Two-way interaction	Utopian Thinking x Pragmatism	-0.055	0.060	0.359	-0.173, 0.063	-0.043	0.057	0.455	-0.156, 0.070
Three-way interaction	Despair x Utopian Thinking x Pragmatism	0.019	0.039	0.627	-0.058, 0.096	0.017	0.038	0.657	-0.057, 0.091

Note. **Bold** denotes significant effects.

7.2.2. Testing the exacerbating and attenuating factors driving climate disengagement

Unlike Study 1, climate despair had a weak, negative relationship with disengagement (see Table 9). Thus, unexpectedly, as despair increases, disengagement decreases. As in Study 1, people who completed the pragmatism task reported lower levels of disengagement, regardless of despair. Contrary to Study 1, there was a main effect of utopian thinking, such that engaging in utopian thinking reduced disengagement. Per Study 1, there were no significant two- or three-way interactions (see Table 10), indicating that the climate despair-disengagement relationship was not moderated by engaging in the pragmatic utopian thinking task.

7.3. Discussion

Study 2 sought to replicate the method from Study 1 with a refined pragmatic utopian thinking condition to address time spent on the task as a potential confound. This adjustment resulted in the combination task having no effect on the relationship between climate despair and exhaustion, contrary to the positive effect found in Study 1. The refined combination task of utopian thinking and pragmatism did also not attenuate the link between despair and exhaustion. Similarly, the combined task did not attenuate the despair-disengagement relationship (replicating Study 1).

Mixed effects aside, notably, there were some key points of consistency between Studies 1 and 2. Specifically, climate despair led to increased exhaustion in both studies. Across the studies, pragmatism (alone) reduced people’s desire to disengage. In Study 2 (unlike Study 1) utopian thinking also reduced disengagement. Thus, both utopian thinking and pragmatism separately and regardless of despair, were found to decrease people’s desire to disengage from the climate movement. See Table 11 for an overview of the findings across both studies.

8. General discussion

Burnout appears to be an increasingly prevalent response to the climate crisis (e.g., Heglar, 2022; Wood, 2022). If people continue to feel burnt out and exhausted by the climate justice movement, then they are

likely to disengage from the actions that are essential to stopping the climate crisis (e.g., Chen & Gorski, 2015; Gorski, 2019; Gorski & Chen, 2015; Gorski et al., 2019). Given the need to keep as many people as possible actively involved in the movement for climate action, we need to consider means for mitigating climate-related burnout (see also Vandermeulen et al., 2023). Accordingly, in this research we examined intervention methods for attenuating the link between despair about the climate crisis and the two facets of burnout (exhaustion and disengagement). Specifically, two pre-registered experiments considered the impact of engaging in utopian thinking, pragmatic thinking, and a combination of the two, on the relationships between climate despair and exhaustion, as well as between despair and disengagement.

Overall, the pattern of results across the two studies is mixed (see Table 11). We found that climate despair consistently exacerbates exhaustion. That is, in both studies, climate despair was positively associated with the exhaustion facet of burnout. However, climate despair was not associated with disengagement in Study 1, and had a weak, negative association with disengagement in Study 2, such that feeling despair unexpectedly decreased participants’ desire to disengage from the climate movement (contrary to the qualitative work of Chen & Gorski, 2015).

The results also consistently suggested that pragmatism (alone) decreased disengagement, regardless of level of despair (main effect). In Study 1 there was evidence that pragmatism buffered the despair-exhaustion relationship, however this effect was not replicated in Study 2. These results suggest that pragmatism has the potential to reduce both facets of climate burnout. The effects of utopian thinking on both facets of climate burnout were mixed. In Study 1 the results indicated that utopian thinking attenuated the despair-exhaustion link, but Study 2 did not replicate this finding. Moreover, utopian thinking (alone) decreased disengagement, regardless of climate despair levels in Study 2 (main effect), but not in Study 1. Accordingly, utopian thinking does not consistently buffer against despair-induced burnout.

The effects of pragmatic utopian thinking were of particular interest in this research. In Study 1, the combined utopian thinking and pragmatism task unexpectedly increased the strength of the relationship between climate despair and exhaustion. That is, when both the utopian thinking and the pragmatic tasks were completed, the relationship

Table 11
Overview of the findings across studies 1 and 2.

	Exhaustion				Disengagement				
	Main Effect Despair	Main Effect Utopian Thinking	Main Effect Pragmatism	3-way Interaction	Main Effect Despair	Main Effect Utopian Thinking	Main Effect Pragmatism	3-way Interaction	
Study 1 n = 623	✓	X	X	✓	X	X	✓	X	
			Utopian Thinking reduced exhaustion (relative to control) Pragmatism reduced exhaustion (relative to control) Combined task increased exhaustion (relative to control)						
Study 2 n = 610	✓	X	X	X	✓	✓	✓	X	

between participants' despair and exhaustion was strengthened, suggesting that participants in this condition felt *more* exhausted as a function of despair (disconfirming H1). However, when the methodological confound of time was addressed in Study 2, the combination task no longer impacted the despair-exhaustion link. Moreover, the combination task unexpectedly did not attenuate the despair-disengagement relationship in either study (disconfirming H2). As such, there was no evidence that the combined utopian thinking and pragmatism task – pragmatic prospection (Baumeister et al., 2016) – attenuates climate despair-induced burnout.

8.1. Mixed effects of pragmatism and utopian thinking on climate burnout

In this research we expected that asking people to imagine a positive future where the climate crisis has been addressed and/or envisaging the pragmatic steps required to achieve this future, would be beneficial methods to reduce the effects of climate burnout. Yet, we theorized that, based on prior work, these interventions would differ for the two dimensions of burnout. The results from this research partially support this proposition, in that the different methods affect exhaustion and disengagement in different ways, but not necessarily in the way that we expected.

8.2. Utopian thinking has mixed effects on the facets of climate burnout

Utopian thinking may reduce people's levels of exhaustion because positive visions of the future can feel good (i.e., compensation, e.g., Kashima & Fernando, 2020; Oettingen & Mayer, 2002; Oettingen & Sevincer, 2018). Consistent with this proposition, utopian thinking (in isolation) had an attenuating effect on the despair-exhaustion relationship in Study 1, although we did not observe the same pattern in Study 2. As such, utopias can (but may not uniformly) provide a "feel good" response that people can "escape" to (Fernando et al., 2018; Kashima & Fernando, 2020; Levitas, 1990). Based on the work by Fernando et al. (2018), there are two potential reasons why utopian thinking may not consistently reduce exhaustion as expected.

First, utopian thinking may automatically compel people to mentally contrast reality with their imagined utopia (Oettingen, 2012). Noticing discrepancies between the desired future and reality could mean the participants did not get the satisfaction that utopian thinking can be associated with (Fernando et al., 2018). Moreover, people may 'escape' to their utopias more when the utopia is considered distant, that is, when it appears very different to, and far removed from, reality. However, people may recognise that their climate focused utopia does not necessarily need to be distant given that the technologies already exist, and the ability to attain the utopian future is possible (though difficult). That is, the utopia does not appear distant and instead appears to be 'within-grasp'. As such, people do not escape to the utopia and instead feel exhausted about the immense amount of work that is required to reach their utopia that they see as within their grasp (Fernando et al., 2018).

However, another explanation may be that utopian thinking does indeed lead to escapism, but that escapism can be considered both a form of avoidance (e.g., Aldwin & Revenson, 1987; Rohde et al., 1990) and a form of emotional regulation (e.g., Goldenberg et al., 2016; Strutton & Lumpkin, 1994). Avoidance has been found to be related to poorer well-being (e.g., Aldwin & Revenson, 1987; Rohde et al., 1990), whereas emotion-focused coping can be beneficial (e.g., Ryan, 2013; Strutton & Lumpkin, 1994). As such, the emotion-focused coping and avoidance tendencies that utopian thinking can promote, may be counteracting each other. Furthermore, utopias may distract people and act as a form of emotional regulation and coping, but without actually improving emotional regulation or promoting engagement per se (e.g., Ford et al., 2023; Ford & Feinberg, 2020; Goldenberg et al., 2016). Therefore, future research could further investigate the mixed and potentially counteracting effects of utopian thinking on climate despair induced exhaustion (Fernando et al., 2018). Moreover, there is some

literature that indicates that only imagining positive futures may sap energy (e.g., Baumeister et al., 2016; Kappes & Oettingen, 2011). Given that utopian thinking appears to be a limited and conditional means of reducing climate burnout, we also considered the direct and combined effects of pragmatism.

8.3. Pragmatism can attenuate the facets of climate burnout

There was consistent evidence that pragmatism on its own reduces disengagement, suggesting that perhaps it is the focus on specific steps and goals, and the planning of what to do, that is particularly motivating and engaging (as per Goal Setting Theory, e.g., Locke & Latham, 1990; 2013, see also Wieber et al., 2012; Zwickel et al., 2014). Setting and planning out steps to attain goals has previously been found to be motivating and make people more likely to take actions to achieve their goals (e.g., Wieber et al., 2012; Zwickel et al., 2014). However, pragmatically planning goals can also be beneficial for well-being, which may be why pragmatism (separate from utopian thinking) was also found to attenuate the relationship between climate despair and exhaustion in Study 1 (e.g., Gamble et al., 2021). One reason why pragmatism alone (compared to when it is paired with utopian thinking) is better at buffering against both facets of climate burnout is because having attainable, controllable goals is especially beneficial for well-being (Gamble et al., 2021). However, if time is spent imagining a utopian future, the goals may become more elaborate, 'other-worldly' and seem less achievable, compared to if time is not spent imagining the future and rather just focuses on accepting the idea of the climate crisis being averted (as was done in the pragmatic task).

Moreover, recent findings suggest that engaging in small adaptations to climate change (e.g., recycling or riding bike) can help reduce climate anxiety and improve well-being. Engaging in these behaviours can provide feelings of efficacy which in turn leads to engaging in even more adaptive behaviours (Fyke & Weaver, 2023; Mortreux et al., 2023). The current results may support those other findings, such that, just planning to take steps towards climate justice, whether it be personal adaptations, or collective actions, may also increase efficacy and improve some aspects of well-being (i.e., the disengagement facet of burnout).

8.4. Pragmatic utopian thinking does not attenuate climate burnout

The concept of pragmatic prospection suggests that encouraging people to contemplate ways of achieving their desired change, after utopian thinking, may be more motivating and therefore have benefits for well-being (e.g., Baumeister et al., 2016; Eubanks et al., 2023; Kappes et al., 2013; Oettingen et al., 2001). Unexpectedly however, we found that when people first engaged in utopian thinking and then a pragmatic task (Study 1), they evidenced higher levels of climate exhaustion. However, in Study 2, when participants engaged in an integrated pragmatic utopian thinking task there were no effects on climate exhaustion. These results suggest that perhaps merely engaging in more work, as they did in Study 1, was the exhausting element, but that the tasks themselves had minimal impact on exhaustion.

Moreover, we anticipated that pragmatic utopian thinking would have a particularly beneficial effect on disengagement given its potential to provide a benchmark for action that anchors and orientates cognitions and behaviours (e.g., Baumeister et al., 2016; Kappes et al., 2013; Oettingen et al., 2001). But again, there was no evidence that pragmatic utopian thinking attenuated the despair-disengagement link. Perhaps, as discussed earlier, engaging in in-depth visualisation of a utopian future, and then thinking about all the necessary steps needed, highlights the large discrepancy. Emphasis on the discrepancy may not only be exhausting, but also demotivating, which overrides the potentially beneficial aspects of engaging in pragmatic utopian thinking (Fernando et al., 2018).

When utopian thinking and pragmatism are combined, they appear to work differently compared to when they are completed separately. It

may be that utopian thinking and pragmatism work through different psychological mechanisms and as such, counteract each other. That is, engaging in both tasks which separately may have some beneficial implications, may cancel each other out when completed in combination.

8.5. Recommendations for practitioners

There is increasing recognition that climate change is affecting people's mental health (e.g., Cunsolo & Ellis, 2018; Hayes et al., 2018). As such, it is important that mental health clinicians have the tools to address their clients' concerns (Monsell et al., 2021). Seeing climate change as an existential threat and thus responding with despair and burnout is not necessarily a distorted or psycho-pathological response (e.g., Pihkala, 2020). Moreover, as we have theorised in this research, there are two facets of burnout, and different therapeutic methods may affect them in distinct ways. Accordingly, the typical clinical therapies such as Cognitive Behavioural Therapy (CBT) may not be as relevant in the context of climate despair induced burnout.

Although individually focused therapies (e.g., CBT) have the potential to improve people's exhaustion, it is likely that they will also lead to increased disengagement due to their focus on improving the regulation of people at the individual level, but without critical engagement of the social level (e.g., climate change). Given that continued engagement in the climate movement is vital for climate justice, utilising interventions that increase disengagement would be detrimental (e.g., Bingley et al., 2022; Mah et al., 2020).

Based on the current findings, we do not recommend pragmatic utopian thinking as an intervention to practitioners who are seeking to support the well-being of people engaged in the ongoing struggle for climate justice. Pragmatism alone consistently reduced disengagement and sometimes diminished the despair-exhaustion link. Utopian thinking also sometimes reduced despair-induced exhaustion and disengagement. As such, the data provided mixed evidence on the effectiveness of utopian thinking and pragmatism as separate tasks, and more research is required. However, considering the more consistent results of pragmatism on disengagement, we suggest that encouraging clients to engage in pragmatism may be beneficial as it appears to be a more reliable intervention method (although there is no evidence pragmatism affects climate despair). Moreover, getting people to continue engaging in actions that promote social change has also been found to have positive outcomes for well-being, such that it provides social connections and support, a sense of purpose, power, and efficacy (e.g., Fyke & Weaver, 2023; Mortreux et al., 2023; Vestergren et al., 2017, 2019). As such, it may be that using pragmatism as an intervention allows people to continue engaging in actions to bring about positive change, which could have flow on effects of also reducing the exhaustion element of burnout.

8.6. Limitations and future research

Some of the patterns of results in this research were mixed. One reason may be the relatively small sample sizes in each experimental condition, which can limit the statistical power necessary to reliably detect effects. Moreover, the sample sizes may also explain why the largest effect size (relationship between despair and exhaustion) was reliable across the studies. However, much can still be learnt from mixed findings and null effects (Alrababa'h et al., 2023; Baxter & Burwell, 2017; Munafò & Neill, 2016). As planned tests of theoretically grounded, pre-registered hypotheses, the results contribute to the cumulative process of advancing our understanding of the relations between climate despair and burnout, and importantly, of keeping people engaged in the climate movement. The findings offer insight into what may be beneficial for reducing climate burnout, what may not, and where to direct future research efforts.

The development of a climate-related burnout measure is another means of understanding how to advance the climate justice movement.

That is, considering the potential effects of climate-related burnout, it is important to have measures that can reliably capture climate burnout. The Climate-OLBI is a short measure that adapts traditional measures of burnout (e.g., The Oldenburg Burnout Inventory; OLBI, Demerouti et al., 2003) to the climate context. We found the two burnout dimensions of exhaustion and disengagement were relevant to the climate context and that the Climate-OLBI facets demonstrated good construct validity (convergent and discriminant validity). The Climate-OLBI measure will enable future research on climate burnout.

One further limitation of this research is that the order of tasks in the combination task was not counterbalanced. The current literature on pragmatic prospection and mental contrasting suggests it is important to first engage in utopian thinking before the pragmatic element (e.g., Baumeister et al., 2016; Kappes et al., 2013; Oettingen et al., 2001). As such, participants were first asked to engage in the utopian thinking task, followed by the pragmatic task. However, it may be the case that people burn out when they are left with an overwhelming "to-do" list by finishing with the pragmatism task. Perhaps thinking of all the necessary steps and then considering the future they desire will leave people feeling more positive and energized at the end of the task. As such, future research should counterbalance the order of the tasks to test if the reverse order is more beneficial for attenuating climate burnout. Furthermore, in this research we looked at exhaustion and disengagement separately, however, these facets of burnout may be inter-related, sequential and/or take time to mature. As such future research should investigate the relationship between exhaustion and disengagement over time.

Additionally, although we sampled only people who believed in human-made climate change, this is not necessarily the same as people who are concerned about or engaged in the movement. Indeed, Goldberg et al. (2021) show that most people who believe in climate change are not engaged in the climate movement. However, we found that mean level of conventional action intentions was above the scale midpoint indicating that on average people are engaging in the climate movement. Given that a key aspect of climate burnout is disengagement from the climate movement, future research should utilise a sample of those who self-report a commitment to the climate movement to test whether the facets of burnout are consistent with our more generalised sample.

Moreover, future research could consider an inductive qualitative analysis of people's experience of climate-orientated burnout to further consider other exacerbating and attenuating factors we have not considered.

9. Conclusion

Climate change is considered our generations critical challenge. To prevent catastrophic outcomes, we need widespread commitment to enact change. If people are burning out from the climate movement however, then their continued engagement is at risk. This research confirms that despair about the climate crisis appears to be an exacerbating factor of the exhaustion facet of climate burnout, although not the disengagement facet. These findings suggest that the link between climate despair and exhaustion needs to be addressed. Furthermore, we found that asking people to consider the necessary steps required to bring about climate action (pragmatism alone), consistently reduced people's disengagement from the movement. This message is reflected in street artist Banksy's mural near London's Hyde Park in support of Extinction Rebellion protests in 2019, "From this moment despair ends and tactics begin".

CRediT authorship contribution statement

Lucy H. Bird: Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Emma F. Thomas:** Writing – review & editing, Supervision, Resources, Conceptualization. **Michael Wenzel:** Writing – review &

editing, Supervision, Resources, Conceptualization. **Morgana Lizzio-Wilson:** Writing – review & editing, Conceptualization.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jenvp.2024.102382>.

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