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# Why Do Longtermists Care about Protecting the Environment? An Investigation on the Underlying Mechanisms of Pro-Climate Policy Support

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**Abstract:** Amid the pressing threat of climate collapse, longtermists emerge as a critical group poised to undertake collective action for the planet's future. This pre-registered, highly powered study ($N$ = 784 U.S. subjects recruited through Prolific) reinforces the association between longtermism and pro-climate attitudes, revealing that longtermists markedly support diverse pro-environmental policies, including those focusing on climate justice for minoritized groups in present-day and future generations. Notably, these associations are consistent after controlling for various demographic indicators, emphasizing their widespread relevance in the US context. Going beyond existing literature, this research delves into the underpinnings of longtermists' pro-environmental proclivities. Critically, while longtermists exhibit heightened future-oriented concern for themselves and others, it is their capacity to imagine a brighter, more sustainable future and their broadened prosocial reach that elevates their environmental concern above and beyond the influence of demographic differences or other mediating factors. These insights present a promising foundation for cultivating broader pro-environmental engagement, highlighting the role of imagination and prosociality in shaping sustainable action.

**Keywords:** climate change; longtermism; climate justice; public policy



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## 1. Introduction

Our planet is currently teetering on the brink of a cataclysmic climate crisis. Swiss glaciers lost an excess of 10 percent of their volume over the past two summers [1] and the Arctic lost enough sea ice to cover the entire continental United States between March and September of 2023 [2]—a year which boasts the hottest summer on record [3]. These dire conditions are not isolated events. The IPCC's recent AR6 Synthesis Report [4] details the pervasive and anthropogenic nature of these phenomena, offering a grim outlook for the future barring drastic individual and collective measures to avert the damage being done to our global ecosystem. Indeed, scholars across disciplines agree that while it is not too late to save our planet, time may be running out [3,5–8]. The urgency of these warnings underscores the critical necessity to take stock of the people who are not only aware of the severity of climate threats but also willing to take actions towards mitigating them for the sake of current and future generations.

One sizable subset of the population that shows promise towards this end comprises those who endorse the key tenants of the increasingly popular longtermism philosophy and social movement [6,7]. Longtermists, who tend to represent approximately 25% of individuals across large US samples [9–11], show a heightened tendency towards pro-environmental beliefs, actions and attitudes [12,13]. However, the distinct characteristics inherent in these individuals that drive their elevated sustainability preferences require further exploration.

Nonetheless, insight from the literature on environmental psychology suggests numerous candidate mechanisms that may underpin the potential pro-environmental consequences of longtermism. Ultimately, developing a nuanced understanding of these underlying characteristics may prove crucial in informing targeted interventions and policies, fostering a more widespread and impactful commitment to climate action within the broader population.

### *1.1. Longtermism and Pronvironmental Engagement*

Longtermism as a philosophical approach has its roots in the closely associated ethical philosophy and social movement known as effective altruism, which emphasizes the importance of using evidence-based methods to maximize global welfare through philanthropic activities [5,14,15]. Whereas effective altruism primarily places emphasis on mitigating pressing present-day challenges, such as global poverty, widespread hunger, and preventable disease, longtermism places emphasis on mitigating threats which have the potential to cause harm to future generations [6,7,16]. Specifically, longtermism is grounded in three foundational principles: (1) future people matter, (2) there could be a vast number of future people, and (3) the actions we take in the present day can positively influence the lives of future generations [5–7]. Longtermism encourages collective efforts to diminish existential risks, including those associated with climate change, as extensively argued in prevailing philosophical discourse. However, uncertainty lingers regarding the extent to which the majority concurs with the principles of longtermism. Pivotal findings from behavioral economics [17–21] and burgeoning investigations into moral future thinking [11] in the psychological literature illustrate a prevalent inclination to undervalue the welfare and moral rights of future generations. Mirroring this inclination, the social movement advocating for longtermism remains notably modest in scale [22]. However, emerging research employing the Longtermism Beliefs Scale (LBS) to measure alignment with the philosophy's principles is beginning to reveal that approximately 25% of individuals consistently express strong ideological alignment with longtermist ideals across numerous, well-powered studies [9–12]. This research implies a discrepancy between explicit support for the longtermism movement and the wider acceptance of its principles within the general population.

Nonetheless, longtermism is not without criticisms, many of which may have considerable philosophical and pragmatic merit. Principal among criticisms of longtermism is that its adherents may prioritize future well-being at the expense of undervaluing challenges which are already putting strain on people who are presently living [23,24]. Indeed, some adherents of longtermism, recognizing the potential for humanity to endure for millennia, and consequently the possibility of a future population exceeding that of today's, might prioritize addressing challenges that pose existential risks over those that mitigate present-day harm [16]. Yet, research on support for longtermist principles among the general populace shows that proponents of the philosophy's fundamental tenets do not necessarily exhibit a bias towards future generations at the expense of those currently suffering. On the contrary, they often show increased moral consideration for those who are socially distant and marginalized in today's society, more so than what is observed in non-longtermist controls [10]. However, it should be noted that it is currently unknown whether formal adherents of the longtermism movement share this view.

Another significant critique of longtermism lies in the unpredictability of future challenges and their potential solutions [4,25]. Consequently, allocating resources to address these uncertainties carries an inherent risk. This criticism is certainly not entirely unfounded. The longtermism movement places considerable emphasis on preventing risks associated with emerging technologies, such as artificial intelligence, which come along with tremendous predictive volatility [26,27]. Notwithstanding, the challenges posed by climate change are not only a threat to the well-being of future generations; they are already adversely affecting the current population [4,28–30]. Moreover, climate-related risks are likely more foreseeable and manageable compared to the emerging risks of artificial intelligence, which are only beginning to reach a level that presents significant challenges

to humanity. Additionally, solutions to climate change have been the subject of extensive research, further refining our approach to mitigating these risks in a tractable manner [31,32]. Thus, despite criticisms of longtermism as promoting neglect of present challenges and focusing its efforts on indeterminant challenges with tenuous solutions, of particular importance to the present investigation is that individuals who align strongly with longtermism show a robust pattern of heightened beliefs regarding the existence and importance of climate change, attitudes towards pro-environmental public policies, and pro-environmental behaviors (e.g., donations) [12,13]. Currently, the psychological mechanisms that could fuel the support for pro-climate attitudes and policies observed in longtermists remain elusive. However, existing psychological inquiry probing environmental attitudes and behaviors suggest several potential pathways through which longtermists may experience enhancements in these areas.

### *1.2. Potential Mechanisms Bridging Longtermism and Pro-Environmentalism*

#### 1.2.1. Concern for Others' and One's Own Future: Legacy Concerns and Future Self-Continuity

To begin with, it is conceivable that longtermists display elevated pro-environmental thinking and behavior owing to their intensified concerns about their own futures and those of others. Indeed, climate change is poised to have a devastating impact on the well-being of both future and current generations [4], and, in principle, longtermists afford equal concern to individuals of the present and the future [6,7,12]. Empirically, those identified as longtermists based on their scores on the LBS exhibit heightened legacy motives [12]. Legacy motives capture concern about leaving a positive imprint on the world specifically for the sake of others who will exist in future generations [11,12]. Prior research has documented a robust pattern whereby people with greater legacy concerns possess stronger pro-environmental attitudes and engage in greater pro-environmental actions [33–39]. Notably, legacy concern can be cultivated through various interventions, predicting increased donations to environmental charities, perceptions of responsibility to address issues of climate change, and actual reported pro-environmental engagement in-vivo, suggesting a causal link. Consequently, it might be plausible that the heightened concern longtermists have for the future of others underpins their observed commitment to mitigating climate threats capable of unleashing havoc on future generations.

In addition to showing greater concern for the futures of others, longtermists identified through empirical means display an increased concern for their own futures as well. This is evidenced by their enhanced sense of future self-continuity [9]. Future self-continuity reflects a capacity to not only vividly imagine one's future self, but perceive it with substantial overlap with one's current self-concept [40]. There are two possibilities for why future self-continuity may play a mediating role in the relationship between longtermism and pro-environmental attitudes. First, this propensity is linked with a host of protective actions to secure one's own future, such as making prudent financial decisions [41] and adopting health-conscious [42] behaviors. Additionally, it forecasts various positive outcomes [43–46] for one's future well-being. Thus, longtermists, who exhibit a more cohesive connection between their present and future selves, may consequently show enhanced concern for environmental threats, recognizing that the repercussions of today's ecological decisions will directly impact their own future well-being.

Second, it is worth noting that future self-continuity might impact pro-environmental outcomes through shared mechanisms between envisioning one's own future and those of others. While direct evidence linking future self-continuity to pro-environmental engagement is limited, recent studies suggest heightened future self-continuity may broaden one's responsibility for others' futures [10]. The connection between forms of self-oriented prospection, such as future self-continuity, and forms of other-oriented prospection, such as responsibility for future generations, may arise from a common underlying foundation. That is, both self- and other-oriented prospection require an ability to represent temporally distal entities in one's imagination. Despite little research investigating a connection between self-oriented prospection and pro-environmental attitudes, beliefs

and behaviors, connections between responsibility for protecting future generations and pro-environmentalism have been addressed in the published literature. These studies reveal that feeling more responsible for the well-being of future generations predicts diverse pro-environmental actions in large U.S. samples (see [47,48]). In sum, longtermists, with a deeper connection to their future selves, might show elevated support for pro-environmental initiatives owing to either heightened concerns for their own future well-being, that of others, or a combination of both.

#### 1.2.2. Expansive Prosociality: Expansive Altruism and Impartial Beneficence

Aside from longtermists showing increased concern for their own and others' futures, a second possibility is that longtermists' expansive altruistic tendencies underlie their pro-environmental inclinations. Individuals within the general population typically engage in prosocial behavior more frequently with those who share social proximity and bear greater similarity to themselves [49–56]. Conversely, longtermists manifest propensities to perform altruistic actions toward others which surpass the conventional boundaries of social and temporal distance that usually limit altruism within the general population [10–12].

Building on this, for instance, longtermists consistently score higher than the general population on measures of impartial beneficence [57] and expansive altruism [58], which assess altruistic tendencies towards socially distant others in severe need. More specifically, expansive altruism, a facet of the effective altruism philosophy and social movement [5,14], represents a willingness to allocate resources to others without regard to whether or not they are distant or emotionally non-salient [58]. Impartial beneficence is conceptually very similar, representing the facet of utilitarianism which advocates impartial regard for the welfare of all [57]. Expansive altruism and impartial beneficence have not been explored in relation to outcomes assessing pro-environmentalism directly, but both variables, which correlate strongly and positively with each other, predict numerous prosocial tendencies directed towards others who are socially (e.g., outgroups, minoritized groups) and temporally (e.g., future generations) distant [11,12,57,58]. Because climate change exerts disproportionate negative impacts on minoritized groups throughout the world [28,48] and on future generations who have no agency over the state of the planet they will inherit [6,59], it is plausible that longtermists may factor this inequality into their pro-environmental attitudes and behaviors, in part due to their expansive altruistic tendencies. Nevertheless, this question remains open and unaddressed, primarily because of a lack of evidence linking expansive prosociality with pro-environmentalism.

#### 1.2.3. Envisioning a Better and Greener Future: Utopian Thinking and Environmental Cognitive Alternatives

Finally, a third potential explanation for the heightened levels of pro-environmental concern observed in longtermists may relate to fundamental differences in their perceptions and envisioning of the future. Inherent to the longtermism philosophy is a sense of efficacy in being able to positively impact the state of the world beyond the present [6]. Accordingly, longtermists, compared to non-longtermists, have been shown to engage in greater utopian thinking about the future of society [10]. Utopian thinking, the tendency to envision an ideal society, predicts greater societal engagement [60], hope for society's future, perceptions of efficacy to positively impact the future, and engagement in collective action for social justice [61]. No research has yet been conducted examining whether the tendency to imagine utopian future societies influences outcomes related to sustainability in particular. Yet, work connecting one's perceived efficacy to engender a brighter future with sustainable attitudes and action [12,62,63] suggests that it could. Specifically, it may be the case that imagining an ideal future society can cultivate a sense of confidence that an idyllic future is more likely or attainable. Indeed, seminal research suggests that the act of merely imagining a future event can increase the perceived likelihood that it will occur [64–66].

Similarly, emerging research has explored the ability to cognitively formulate hypothetical alternatives to the existing environmental status quo. This research has uncovered

that individuals who can imagine a more harmonious relationship between humans and the environment—compared to the current state of this relationship—tend to identify more strongly with pro-environmental activism and report a higher involvement in collective pro-environmental actions [67,68]. In summary, as longtermists often envision a utopian future society in which humans harmoniously coexist with the environment, they may actively strive for this ideal by embodying heightened pro-environmental attitudes and engaging in greater pro-environmental actions. However, this too at present remains critically unaddressed.

### *1.3. The Present Studies*

In our current research, we methodically examine potential mechanisms linking longtermism beliefs to pro-environmental outcomes. Specifically, we explore whether longtermists' (1) intensified concern for their own futures and those of others, (2) broadened altruistic inclinations towards distant others, and (3) enhanced capacity to conceptualize a more favorable future marked by a symbiotic relationship between humanity and the global ecosystem serve to elucidate the connection between ideological alignment with longtermism and pro-environmental policy support. Moreover, we investigate the relationships between longtermism beliefs, the three categories of mediators, and support for pro-climate policies. We assess this support in both a general sense and within the specific context of climate justice for marginalized groups and future generations, utilizing measures adapted from the Yale Program on Climate Change Communication (YPCCC [28]). Our investigation illuminates the multifaceted interplay among longtermism alignment, various mediating factors and environmental advocacy. Moreover, these insights offer pragmatic implications, opening pathways towards the development of effective interventions to drive collective engagement in climate action. See Table 1 for an overview.

**Table 1.** Table displaying potential mediators by category, along with a description and example item for each. Additionally, we provide reasoning for each variable's potential mediating role between longtermism alignment and pro-environmentalism.

| Category | Hypothesized Mediator | Description | Example Item | Rationale for Mediation |
|---|---|---|---|---|
| Concern for Others' and One's Own Future | Legacy Concerns (Zaval et al., 2015 [33]) | Other-oriented concern about leaving a positive imprint on the world for the sake of future generations. | "It is important for me to leave a positive mark on society". | • Longtermism beliefs predict Legacy Concerns.<br>• Legacy Concerns predict Pro-environmental Engagement. |
| | Future Self-Continuity (Hershfield et al., 2009 [41]) | Self-oriented overlap between one's current and future self-concept. | "Indicate the degree to which you feel connected to your future self 25 years from now". | Via Self-Oriented Future Concern:<br>• Longtermism is linked to Future Self-Continuity.<br>• Climate change poses risks to one's future well-being.<br>• Future Self-Continuity drives actions to safeguard one's future well-being.<br>Via Other-Oriented Future Concern:<br>• Longtermism is linked to Future Self-Continuity.<br>• Future Self-Continuity drives feelings of responsibility for future generations.<br>• Feelings of Responsibility for Future Generations informs Pro-environmentalism. |
| Expansive Prosociality | Expansive Altruism (Caviola et al., 2022 [58]) | A facet of effective altruism representing a willingness to allocate resources to others without regard to whether or not they are distant or emotionally non-salient. | "I am willing to make significant sacrifices for people in need that I don't know and will never meet". | • Longtermists exhibit elevated Expansive Altruism levels.<br>• Climate change affects minoritized groups and future generations more severely.<br>• Expansive Altruism enhances prosocial intentions toward these affected groups. |
| | Impartial Beneficence (Kahane et al., 2018 [57]) | A facet of utilitarianism which advocates impartial regard for the welfare of all. | "It is morally wrong to keep money that one doesn't really need if one can donate it to causes that provide effective help to those who will benefit a great deal". | • Longtermists exhibit elevated Impartial Beneficence levels.<br>• Climate change affects minoritized groups and future generations more severely.<br>• Impartial Beneficence enhances prosocial intentions toward these affected groups. |

**Table 1.** *Cont.*

| Category | Hypothesized Mediator | Description | Example Item | Rationale for Mediation |
| --- | --- | --- | --- | --- |
| Envisioning a Better, Greener Future | Utopian Thinking (Fernando et al., 2018 [60]) | The tendency to envision an ideal society. | "I spend a lot of time thinking about an ideal society". | • Utopian Thinking is linked to Future Oriented Efficacy.<br>• Future Oriented Efficacy drives Pro-environmentalism. |
| | Environmental Cognitive Alternatives (Wright et al., 2020 [67]) | The capability to conceptualize alternatives to the current environmental status quo and imagine a more harmonious coexistence between humans and the environment. | "A harmonious relationship between humans and the natural world is easy for me to imagine". | • Longtermists, with elevated Future Oriented Efficacy, likely exhibit increased ability to generate Environmental Cognitive Alternatives.<br>• Ability to generate Environmental Cognitive Alternatives drives Pro-environmentalism. |

All data, questionnaires, and code for the investigation are available on the Open Science Framework (OSF), https://osf.io/a9fe5/?view_only=c1029b1a532a4e1ebd7d49ca3e5f8aee (Accessed on 5 December 2023). The pre-registration for this study is available on AsPredicted, https://aspredicted.org/6GC_V42 (Accessed on 5 December 2023).

## 2. Materials and Methods

### *2.1. Participants*

A total of 800 participants were recruited via Prolific [69], an online platform designed for academic research that provides access to a diverse pool of engaged participants who participate in research in exchange for remuneration. An additional seven participants completed the survey but did not submit the survey for payment and were thus retained in the starting sample. After excluding participants with duplicate IP addresses ($N$ = 2) and those who missed our attention check (a multiple-choice question; $N$ = 21), a total of 784 participants remained. In this sample, 389 participants were men, 376 women, and the rest identified as a nonbinary person or some other category. The majority of the sample was white ($N$ = 612). The second largest race was Black ($N$ = 81). The average age was roughly 40 years old (M = 39.72, SD = 13.32). The study duration was approximately 12 min, and participants received USD 2.00 for their participation.

### *2.2. Materials*

Participants underwent the following measures to capture the primary predictor, longtermism beliefs, primary outcomes, assessment of pro-climate policy support, as well as four hypothesized mediators. The order was as follows: predictor (longtermism beliefs), mediators (all measures shown in a randomized order), and pro-climate policies (all measures shown in a randomized order).

Longtermism beliefs ($a$ = 0.96) were captured with the LBS [12]. It includes seven items on a 0–100 slider scale. Importantly, each item is completed simultaneously for four different timeframes/timepoints (1000, 10,000, 100,000, and 1,000,000 years in the future). Participants were classified as longtermists if they scored above 75 for the closest temporal timeframe (1000 years), and they had the same score or higher for future timeframes. This is in accordance with arguments stemming from longtermism, stating that all future generations, no matter when they will exist, should have the same rights as present generations. Thus, longtermists should also value the lives of future generations (i.e., having a score higher or equal to 75) and do so consistently across timeframes. In this sample, 183 (23.34%) were identified as longtermists, and 601 (76.66%) were not.

Legacy concerns ($a$ = 0.87) were captured using three items [33] and measured on a 7-point Likert scale. Future Self-Continuity (FSC) was measured with a single item using the seven overlapping circles to display FSC with oneself 25 years in the future (e.g., [42]).

Expansive altruism ($a$ = 0.80) was captured with the 6-item Expansive Altruism Scale [58] and measured on a 7-poin Likert scale. Impartial beneficence ($a$ = 0.81) was

captured with the 5-item Impartial Beneficence subscale of the Oxford Utilitarianism Scale [57] on a 7-point Likert scale.

Utopian Thinking ($a$ = 0. 84) was captured with 8 items [60] on a 7-point Likert scale. Environmental Cognitive Alternatives ($a$ = 0.92) were captured with 10 items [67] on a 7-point Likert scale.

Our outcomes were either taken directly from work conducted by the Yale Program on Climate Change Communication (YPCCC [28]) or adapted from the same work. Importantly, a total of 20 items was utilized. Of these items, nine focused on general pro-climate policy support ($a$ = 0.91; e.g., "How much do you support regulating carbon dioxide (the primary greenhouse gas) as a pollutant?"), seven on climate justice for minoritized people ($a$ = 0.93; e.g., "How much do you support creating more parks and green spaces in low-income communities and communities of color?"), and four were adapted to focus on climate justice for future generations ($a$ = 0.86; e.g., "How much do you support creating more parks and green spaces in for future generations?"). Pro-climate policy items were taken from work by Howe and colleagues [70] and the climate justice items were taken or adapted from work by Carman and colleagues [28]. All of these items were shown on a 6-point Likert-type scale ranging from 1 = strongly oppose to 6 = strongly support.

## 3. Results

### *3.1. Analytical Plan*

We pre-registered to examine our research question in the following process. First, we confirmed whether longtermists score significantly higher on the six potential mediators and the three types of policies. Then, we included covariates to confirm the robustness of these results. Afterwards, if all mediators related to each type of pro-climate policy consistently (i.e., similar magnitude and same direction and significance), then we averaged the three pro-climate policies into one measure and conducted mediation tests. For the mediation tests, we first tested each mediator separately. Subsequently, we tested all significant mediators in a single model, including covariates in a third and final model.

Covariates were pre-registered a priori, as were the demographic variables of age, gender, political orientation (1 item, 1–7 scale, higher scores indicate conservatism), and subjective socioeconomic status (1 item, 1–10 scale, ladder indicating one's subjective standing in society). Mediation tests were conducted with the PROCESS Macro [71] using Model 4, with 10,000 bootstrapped samples.

### *3.2. Differences between Longtermists and the General Population*

As shown in Table 2, longtermists scored significantly higher on all measures compared to the general population. As shown in Table 3, these results were robust to the inclusion of demographic covariates. These findings suggest that longtermists showed greater concern for their own and other people's futures, they tended to be more expansive in their prosociality, and they were capable of envisioning a better and greener future (see Figure 1 for a visual depiction of these differences).

Further, compared to non-longtermists, longtermists were also more supportive of policies addressing climate justice issues for minoritized and future people, as well as pro-climate policies in general (see Figure 2 for a visual depiction of these findings).

### *3.3. Indirect Effects*

We first inspected whether all measures correlated with the three types of policies in a similar manner. Indeed, as seen in Table 4, this was the case. All proposed mediators except for FSC positively related to each of the three types of policies.

**Table 2.** Differences between longtermists and the general population, sorted by magnitude of effect size.

| | **Longtermists (*N* = 183)** | | **General Population (*N* = 601)** | | | | |
|---|---|---|---|---|---|---|---|
| **Outcome** | **Mean** | **SD** | **Mean** | **SD** | ***t*-Test** | ***p*** | **Cohen's d** |
| Expansive Altruism | 5.20 | 1.02 | 4.61 | 1.09 | t(782) = 6.57 | <0.001 | 0.56 |
| Policy Support: Climate Justice for Future People | 5.21 | 0.81 | 4.72 | 1.03 | t(376.73) = 6.84 | <0.001 | 0.53 |
| Legacy Concerns | 5.47 | 1.27 | 4.81 | 1.34 | t(782) = 5.87 | <0.001 | 0.51 |
| Policy Support: Climate Justice for Minoritized People | 5.15 | 0.88 | 4.65 | 1.11 | t(373.38) = 6.28 | <0.001 | 0.50 |
| Utopian Thinking | 5.19 | 1.08 | 4.67 | 1.08 | t(782) = 5.74 | <0.001 | 0.48 |
| Impartial Beneficence | 3.96 | 1.32 | 3.41 | 1.27 | t(782) = 5.07 | <0.001 | 0.42 |
| Future Self-Continuity | 4.98 | 1.69 | 4.32 | 1.66 | t(782) = 4.65 | <0.001 | 0.39 |
| Pro-Climate Policy Support | 5.09 | 0.92 | 4.74 | 1.07 | t(343.86) = 4.37 | <0.001 | 0.35 |
| Environmental Cognitive Alternatives | 4.62 | 1.31 | 4.20 | 1.25 | t(782) = 3.99 | <0.001 | 0.33 |

Note. For analyses where df include a decimal point, assumptions of equality of variances were not met, and a Satterthwaite estimation method was used.

**Table 3.** Linear regression models controlling for the aforementioned demographic covariates.

| **Outcome** | **b** | **Lower 95% C.I.** | **Upper 95% C.I.** | ***β*** | ***p*** | **Model Adj. $R^2$** |
|---|---|---|---|---|---|---|
| Policy Support: Climate Justice for Minoritized People | 0.49 | 0.34 | 0.64 | 0.19 | <0.001 | 0.36 |
| Policy Support: Climate Justice for Future People | 0.51 | 0.37 | 0.65 | 0.21 | <0.001 | 0.32 |
| Pro-Climate Policy Support | 0.36 | 0.22 | 0.50 | 0.15 | <0.001 | 0.38 |
| Environmental Cognitive Alternatives | 0.49 | 0.28 | 0.70 | 0.16 | <0.001 | 0.05 |
| Utopian Thinking | 0.53 | 0.36 | 0.71 | 0.20 | <0.001 | 0.12 |
| Impartial Beneficence | 0.55 | 0.34 | 0.77 | 0.18 | <0.001 | 0.04 |
| Expansive Altruism | 0.58 | 0.41 | 0.76 | 0.22 | <0.001 | 0.09 |
| Future Self-Continuity | 0.71 | 0.44 | 0.98 | 0.18 | <0.001 | 0.09 |
| Legacy concerns | 0.68 | 0.46 | 0.90 | 0.21 | <0.001 | 0.07 |

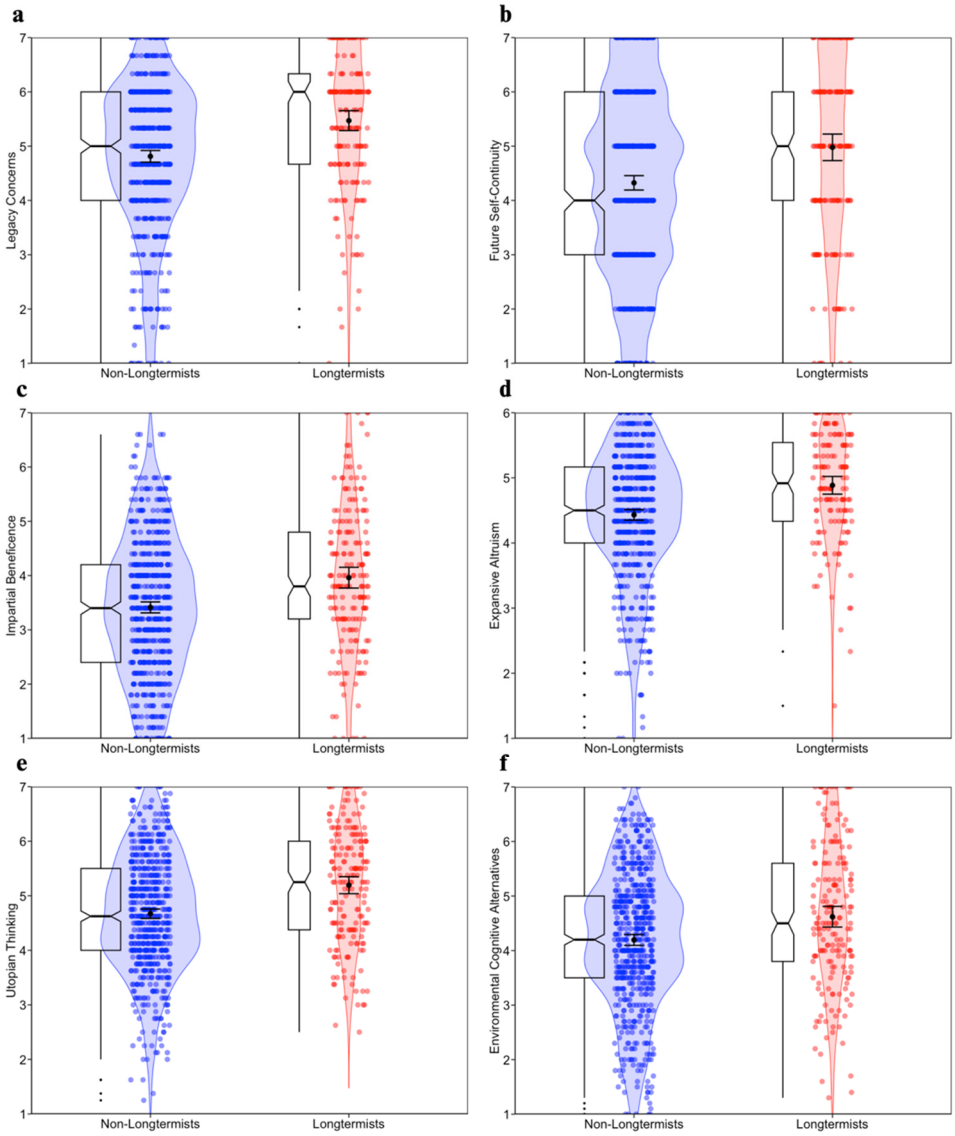


**Figure 1.** A visual depiction of the differences between longtermists and non-longtermists on the following outcomes: concern for other people's and one's own future (**a**,**b**), expansive prosociality (**c**,**d**), and ability to envision a better and greener future (**e**,**f**). Colored dots correspond to individual data points and are jittered for readability, with violin plots overlaid to show the relative distribution of scores across longtermists and non-longtermists. Error bars depict 95% C.I. around the mean. Notched box plots are included, with notches depicting a confidence interval around the median.

Considering these results and our pre-registered analytical plan, we averaged the three policy outcomes into a single, reliable measure (0.95). Since FSC did not relate to any of the three policies, we did not conduct analyses for this measure as a mediator. Our results indicate that utopian thinking, expansive altruism and environmental cognitive alternatives are robust to including other potential mechanisms and demographic covariates, as predictors of increased support for pro-environmental policies. Thus, even though longtermists appear to be more concerned about the future of others and their own future, it is their ability to envision a better and greener future and their expansiveness in their prosociality that appears to drive their support for pro-environmental policies. The final results are highlighted in Table 5 and Figure 3 for ease of interpretation. Importantly, the inclusion of the mediators rendered the total effect of longtermism on the outcome non-significant, suggesting that these mediators fully explained the effect of longtermism.

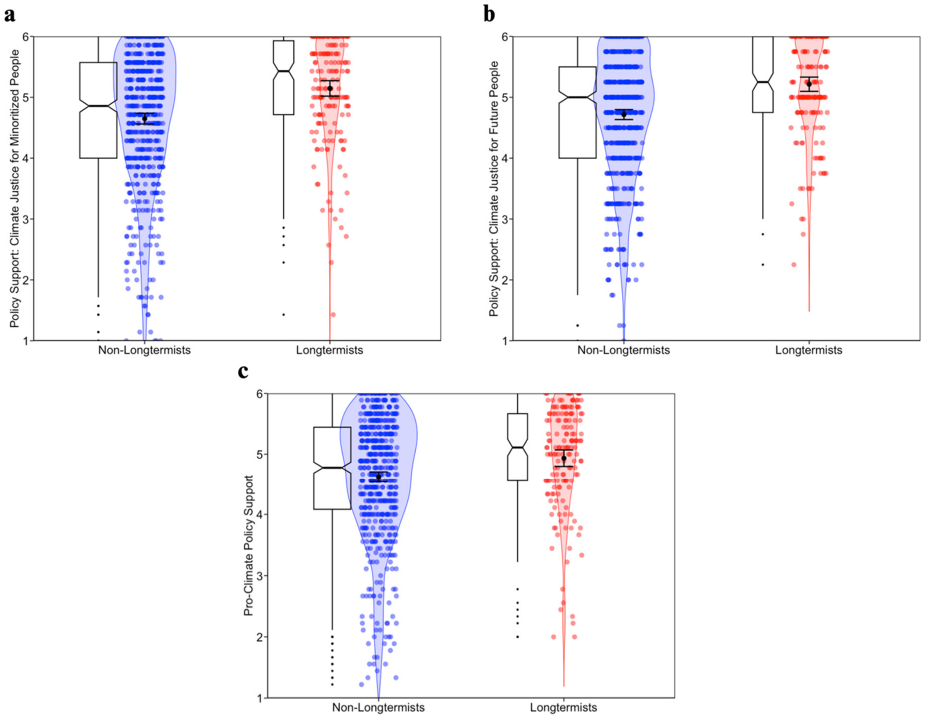


**Figure 2.** A visual depiction of the differences in support for policies addressing climate justice issues for minoritized (**a**) and future (**b**) people, as well as pro-climate policies in general (**c**) between longtermists and non-longtermists. Figure 2 can be interpreted in the same manner as Figure 1.

**Table 4.** Bivariate correlations between the proposed mediators (1–6) and the three outcomes (7–9).

| Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Legacy | -- | | | | | | | | |
| 2. FSC | 0.13 ** | -- | | | | | | | |
| 3. Expansive Altruism | 0.44 ** | 0.14 ** | -- | | | | | | |
| 4. Impartial Beneficence | 0.33 ** | 0.10 * | 0.60 ** | -- | | | | | |
| 5. Utopian Thinking | 0.29 ** | 0.13 ** | 0.45 ** | 0.28 ** | -- | | | | |
| 6. ECAS | 0.31 ** | 0.18 ** | 0.48 ** | 0.37 ** | 0.45 ** | -- | | | |
| 7. Pro-Climate Policies | 0.13 ** | 0.06 | 0.46 ** | 0.30 ** | 0.45 ** | 0.36 ** | -- | | |
| 8. CJ Policies for FP | 0.23 ** | 0.06 | 0.50 ** | 0.32 ** | 0.48 ** | 0.39 ** | 0.84 ** | -- | |
| 9. CJ Policies for MP | 0.17 ** | 0.05 | 0.53 ** | 0.36 ** | 0.47 ** | 0.37 ** | 0.86 ** | 0.87 ** | -- |
| 10. Longtermism Beliefs | 0.30 ** | 0.16 ** | 0.41 ** | 0.29 ** | 0.32 ** | 0.25 ** | 0.34 ** | 0.42 ** | 0.41 ** |

Note. * $p < 0.01$, ** $p < 0.001$. FSC = Future Self Continuity. ECAS = Environmental Cognitive Alternatives. FP = Future People. MP = Minoritized People.

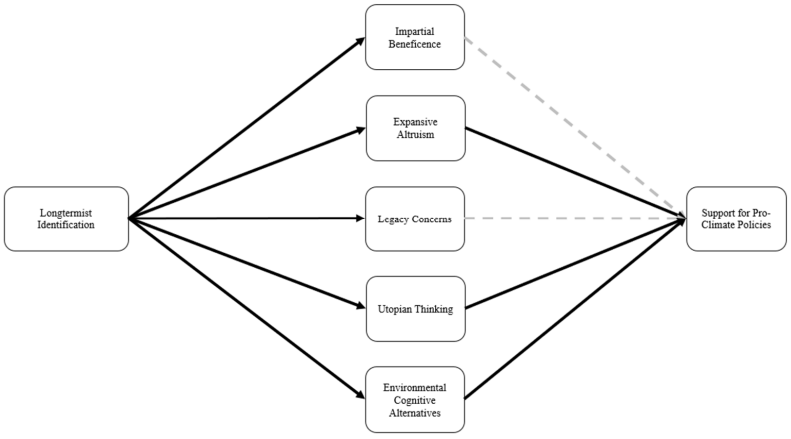


**Figure 3.** Pre-registered mediation model (for results, see Model 3 from Table 4). Dashed, grayed arrows depict non-significant associations.

**Table 5.** Pre-registered mediation models for each mediator separately (Model 1), as parallel mediators (Model 2), and with the inclusion of covariates (Model 3).

| | **Model 1: Single Mediator** | | | | **Model 2: All Mediators $R^2$ = 0.37** | | | **Model 3: All Mediators and Covariates $R^2$ = 0.57** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **X→M** | **M→Y** | **Indirect Effect** | | **X→M** | **M→Y** | **Indirect Effect** | **X→M** | **M→Y** | **Indirect Effect** |
| Mediator | b [95% C.I.] | b [95% C.I.] | b [95% C.I.] | $R^2$ | b [95% C.I.] | b [95% C.I.] | b [95% C.I.] | b [95% C.I.] | b [95% C.I.] | b [95% C.I.] |
| ECAS | 0.42 [0.22, 0.63] | 0.29 [0.24, 0.34] | 0.12 [0.06, 0.19] | 0.17 | 0.42 [0.22, 0.63] | 0.08 [0.03, 0.13] | 0.03 [0.01, 0.07] | 0.49 [0.28, 0.70] | 0.09 [0.05, 0.13] | 0.04 [0.02, 0.08] |
| UT | 0.52 [0.34, 0.70] | 0.42 [0.36, 0.48] | 0.22 [0.14, 0.30] | 0.25 | 0.52 [0.34, 0.70] | 0.26 [0.20, 0.32] | 0.14 [0.08, 0.20] | 0.53 [0.36, 0.70] | 0.14 [0.09, 0.19] | 0.08 [0.04, 0.12] |
| IB | 0.55 [0.33, 0.76] | 0.24 [0.19, 0.29] | 0.13 [0.08, 0.20] | 0.13 | 0.55 [0.33, 0.76] | 0.03 [−0.03, 0.08] | 0.01 [−0.02, 0.05] | 0.55 [0.34, 0.76] | 0.02 [−0.02, 0.07] | 0.01 [−0.01, 0.04] |
| EA | 0.60 [0.42, 0.77] | 0.45 [0.40, 0.51] | 0.27 [0.19, 0.36] | 0.28 | 0.60 [0.42, 0.77] | 0.32 [0.25, 0.39] | 0.19 [0.12, 0.27] | 0.58 [0.41, 0.76] | 0.24 [0.18, 0.30] | 0.14 [0.09, 0.20] |
| LC | 0.66 [0.44, 0.88] | 0.11 [0.06, 0.16] | 0.07 [0.03, 0.12] | 0.06 | 0.65 [0.44, 0.88] | −0.08 [−0.13, −0.03] | −0.05 [−0.09, −0.02] | 0.68 [0.46, 0.90] | −0.02 [−0.06, 0.01] | −0.01 [−0.05, 0.01] |

Note. X = Longtermist Identification, M = Mediator, Y = Average of three policy measures. ECAS = Environmental Cognitive Alternatives, UT = Utopian Thinking, IB = Impartial Beneficence, EA = Expansive Altruism, LC = Legacy Concerns. Even though longtermists were higher in SES, but notably did not differ in age or political ideology, when controlling for these variables, all direct and indirect effects remained consistent in terms of direction and significance (see Table S1 in the Supplementary Materials).

## 4. Discussion

Amidst imminent and worsening threats of climate collapse [1–3], longtermists [6,7,16] represent a subset of the population ready and willing to engage in collective action necessary to protect the future of our planet and species [10–12]. In a single, highly powered and pre-registered investigation, the present research builds upon previous findings connecting longtermism identification to pro-climate attitudes and action [10–12]. We demonstrate for the first time that longtermists consistently show elevated support for various environmental public policies essential for our shared future. Specifically, compared to non-longtermists, longtermists show greater support for policies addressing issues of climate justice for minoritized and future people, as well as pro-climate public policies in general. Importantly, these results are robust to demographic influences of age, gender, political orientation, and subjective socioeconomic status, suggesting stability and generalizability across subsets of the US population.

### *4.1. Exploring the Mechanisms of Pro-Environmentalism in Longtermism*

What most pivotally sets apart the present investigation from extant work is the systematic investigation of why longtermists manifest a pronounced inclination towards pro-environmentalism. To accomplish this, we measured a host of relevant variables capturing hypothesized mechanisms. Compared to the general population, our findings confirm that longtermists display a heightened concern about their own and others' futures, more expansive prosociality, and an enriched capacity to envision a better and greener future. These patterns persist across demographic variation, underscoring their stability and broad applicability. Moreover, except for Future Self-Continuity (FSC), all the anticipated mechanisms predict every policy support outcome in a bivariate context. However, only through utopian thinking, the ability to generate environmental cognitive alternatives, and expansive altruism does the link between longtermism identification and policy support remain consistent, unaffected by demographic variation and other mediating factors. Crucially, these findings suggest that despite longtermists' heightened concern for their own and others' futures, it is their heightened ability to imagine a better and greener future, as well as their expansive prosociality, that underpins their pro-environmental attitudes.

Longtermists' support for climate justice policies benefiting both future generations and present-day minoritized groups resonates with the predictive superiority of expansive prosociality over future-oriented concern in driving the relationship between longtermism alignment and pro-environmentalism. Moreover, these findings align with emerging evidence suggesting longtermists, compared to non-longtermist controls, extend greater

moral regard not only to future generations, but to present-day socially distant targets as well [10]. These patterns come more clearly into focus in light of another existing line of inquiry revealing substantial overlap in the processing mechanisms for temporal and social distance [72–75]. This work reveals that people tend to process information regarding individuals far removed from themselves in a similar manner to how they process timeframes far removed from the present.

Considering the current and earlier findings findings [10], rather than representing a preference to place the needs of future people above those of the presently living, longtermism alignment may instead embody a more generalized tendency or ability to transcend the parochial confines that typically constrain altruistic behavior and moral consideration to those who are the most proximal. If alignment with longtermism truly signifies a broadening of prosocial tendencies across all dimensions of psychological distance [73,76], be they temporal, spatial or social, this refutes a common criticism advanced against the longtermism philosophy as prioritizing the future at the expense of the present [77]. Additionally, this indicates that promoting longtermism alignment could be key to rallying support against the looming climate crisis, which threatens not just future generations but also the current population [1,48].

Aside from merely exhibiting expansive prosocial tendencies, the present findings reveal an intriguing connection between longtermists' heightened capacity to envision a better and more environmentally healthy future and their strong support for environmental policy. These insights parallel earlier observations of longtermists reporting more vivid simulations of distal future scenarios and their own future selves, and further advance understanding regarding the architecture of prospection in longtermists. Notably, it is not the imaginative vividness, a crucial element of FSC, that drives pro-environmentalism in longtermists; instead, it is the emotional tone of the futures they envision that plays a pivotal role. In other words, longtermists are not simply mental time travelers (see [78,79]) with a keen ability to vividly represent the future, but optimistic mental time travelers, with an elevated capacity to imagine a future that is better than today. This enhanced capacity endows longtermists with the ability to cognitively generate alternatives to the environmental status quo, perhaps making solutions to environmental challenges seem more tractable and worth striving for.

Indeed, existing literature has connected utopian thinking to collective action [61] and societal engagement [60]. Nonetheless, to the best of our knowledge, this is the first investigation to explicitly link utopian thinking to positive attitudes toward climate change policy. In fact, and in contrast to the evidence we present here, some speculative discourse in the political science literature has advanced the notion that utopian thinking might hinder effective climate action by setting unrealistic expectations [80]. Furthermore, prior research has established a relationship between the capacity to generate environmental cognitive alternatives and environmental activism [67,68]. The present findings corroborate these earlier ones, extending them to show that individual variation in longtermism beliefs is linked to notable enhancements in this capacity, which in turn have a positive association with pro-environmentalism. Besides confirming the importance of positive future thinking in environmental contexts, these results resonate with previous studies linking optimistic, and occasionally overconfident, perceptions about a preferred political candidate's support to heightened voter dedication [81]. Taken together, these findings suggest that wishful thinking about a desired future outcome can indeed inspire action towards achieving it.

### *4.2. Limitations and Future Directions*

The current study boasts several merits, including pre-registered hypotheses, a robust analysis plan, a highly powered sample, and results consistent across demographic variation. Moreover, the results offer both theoretical and practical insights that deepen the ongoing discourse on strategies to counteract the effects of climate change. Nevertheless, there are notable limitations and avenues which remain open and prime for further exploration.

For one, the present study is correlational in nature. Consequently, the potential causal nature of the relationships uncovered remain unaddressed. Future research following down this line of inquiry may seek to elucidate potential causal pathways between longtermism alignment and pro-environmental engagement by exploring these relationships in an experimental context. In addition, while the results appear robust to demographic variation within the United States, it is unclear whether they generalize across geographic boundaries and cultures. Emerging research shows that cultural factors such as environmental protection norms, civil liberty, and economic development exert a pronounced impact on individually held beliefs regarding climate change [82]. As such, it is possible that cultural variation in the patterns presented here may prevail in an international sample.

While our findings make apparent the features associated with longtermism, which robustly underlie pro-environmental attitudes, a critical next step is to leverage the present insights to inspire real-world environmental action. Specifically, we encourage and eagerly anticipate future research focused on crafting scalable interventions that target longtermism beliefs, visions of a brighter and more sustainable future, and broadened prosociality to foster climate action. Recent studies have shown that alignment with longtermism can be nurtured through educational interventions [13]. However, the impact of these interventions on real-world climate-related actions, such as voting preferences or actual engagement in environmental activism in vivo, remains unexplored.

## 5. Conclusions

As our planet and species steer towards environmental disaster, the urgency to pinpoint pathways to collective climate action has never been greater. But collective action starts at the individual level. Consequently, uncovering the psychological mechanisms that motivate individuals to embrace and advocate for sustainable collective measures is crucial, both scientifically and ethically, for the welfare of today's society and generations to come. We reveal that longtermists show support for pro-environmental public policies that benefit current and future generations alike, not necessarily because of their heightened concern for their own or others' future welfare, but because of their expansive prosocial tendencies and optimistic envisioning of the days ahead. While we have shed light on certain psychological mechanisms that underlie pro-environmental attitudes and actions within a U.S. sample, it is important to recognize that climate change is a worldwide issue. Therefore, future research should investigate whether there is a convergence of mechanisms that support pro-climate attitudes across diverse cultures, societies, and nations. Nonetheless, the present findings pave the way for ongoing inquiry to harness these psychological mechanisms for the sake of promoting a more promising and sustainable tomorrow.

**Supplementary Materials:** The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su152416732/s1, Table S1: Demographic composition of longtermists and non-longtermists.

**Author Contributions:** Conceptualization, K.F.L. and S.S.; Methodology, K.F.L. and S.S.; Software, S.S.; Validation, S.S.; Formal analysis, S.S.; Investigation, K.F.L. and S.S.; Resources, L.Y.; Data curation, S.S.; Writing—original draft, K.F.L. and S.S.; Writing—review & editing, K.F.L., S.S. and L.Y.; Visualization, K.F.L. and S.S.; Supervision, K.F.L. and S.S.; Project administration, K.F.L. and S.S.; Funding acquisition, L.Y. All authors have read and agreed to the published version of the manuscript.

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