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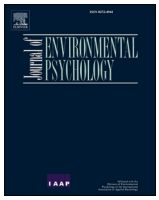

Self-focused value profiles relate to climate change skepticism in young adolescents☆

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ABSTRACT

Climate change skepticism hampers individual and societal transitions to a more sustainable way of life. Unfortunately, little is known about its emergence and early psychological underpinnings. To address this issue, the present study examined the links between basic values and climate change skepticism in young adolescents from three culturally, socially, and politically diverse countries. In an online survey, adolescents (N = 5,244, ages 12–14) from the Netherlands, China, and Colombia reported their basic values and levels of climate change skepticism. In each country, adolescents who reported elevated levels of climate change skepticism prioritized self-enhancement values (and, to a lesser degree, openness-to-change values), but not self-transcendence values. Latent Profile Analyses identified 5 value priority profiles, and similarly showed that adolescents with self-focused value priority profiles reported higher levels of climate change skepticism than adolescents with other-focused value priority profiles. Together, our findings show that, across countries, early emerging climate change skepticism is linked to value profiles that promote self-interest over collective welfare. These findings suggest opportunity for intervention in early adolescence, when adolescents' budding values and views on polarized topics such as climate change may be relatively malleable.

1. Introduction

Despite consensus that anthropogenic climate change is real, some people continue to doubt its existence, causes, or devastating consequences (Hornsey et al., 2016, 2018; Rutjens et al., 2022). Such climate change skepticism may be rooted in value systems that start to stabilize from early adolescence, a formative developmental stage (Daniel & Benish-Weisman, 2019; Vecchione et al., 2020). In samples from three countries and continents, we study young adolescents' climate change skepticism and its associations with basic values. Doing so, we trace the psychological roots of beliefs that hinder the transition to a more sustainable way of life.

1.1. Basic values and climate change skepticism

Basic values are higher-order, abstract life goals that guide attitudes and behaviors across contexts (for reviews, see Coelho et al., 2019; Schwartz, 1992, 2010; Schwartz & Cieciuch, 2016). Research has identified four higher-order basic values, clustered in two pairs of relatively opposite orientations: self-enhancement (i.e., personal advancement; comprising power and achievement) vs. self-transcendence (i.e., communal welfare; comprising benevolence and universalism); and conservation (i.e., protection and stability; comprising tradition, security, and conformity) vs. openness-to-change (i.e., growth and change; comprising self-directedness, stimulation, and hedonism). Values are organized, across development, in a few identifiable profiles (i.e., combinations) of value priorities. Such profiles typically involve combinations of non-opposite values. For example, some people prioritize self-transcendence and conservation values, whereas others prioritize self-transcendence and openness values (Daniel & Benish-Weisman, 2019; Ungvary et al., 2018; Xie et al., 2022). Value profiles thus help taxonomize individuals' constellations of value priorities.

Cultural Cognition Theory (Kahan, 2012) holds that how people think about societal threats, such as climate change, resonates with their basic values and related worldviews (i.e., how people think society

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should operate). When people are exposed to climate change-relevant information (e.g., scientific evidence) that contradicts their values, they may defensively discredit the information as untrue or unimportant, because it challenges their ideal way of living (Kahan et al., 2011, 2012; Wullenkord & Reese, 2021). Research in adults has found that, across nations, people who strongly endorse self-enhancement values exhibit less environmental concern and pro-environmental behavior, and more climate change skepticism, whereas the opposite is true for people who strongly endorse self-transcendence values (De Groot & Steg, 2007; Hornsey et al., 2016; Schultz et al., 2005; Stern & Dietz, 1994). This is understandable. Believing in climate change requires transcending immediate self-interest, because it places the welfare of our future selves, others, and the planet at the forefront (Wittmann & Sircova, 2018). Believing in climate change also calls for self-restraint (e.g., limiting consumerism that satisfies personal desires but harms the climate), modesty (e.g., making personal desires subordinate to planetary health), and concern for other people (e.g., those living in world regions most impacted by climate change). Understanding if such links exist cross-nationally and in earlier developmental stages is crucial, given that climate change skepticism should be relatively amenable to intervention then (Stevenson et al., 2014).

1.2. Early adolescence as critical period for the emergence of climate change skepticism

With others (e.g., Harker-Schuch, 2019; Ojala, 2021), we propose that early adolescence is a critical period for the emergence of climate change skepticism. Transitioning into adolescence, youth increasingly reflect on the world that they live in, explore the values they deem important for navigating life (Gouveia et al., 2015; Meeus, 2011), and reflect on how they can contribute to society (Damon et al., 2003; Flanagan, 2004; Fuligni, 2019). Individual differences in values and worldviews become increasingly stable, personal (Daniel & Benish-Weisman, 2019; Vecchione et al., 2020) and independent from their parents' and peers' (Steinberg & Silverberg, 1986; Vollebergh et al., 2001). Research suggests that such individual differences matter for how adolescents relate to climate change. For example, Western adolescents who are more self-centered, less interested in societal welfare, and less concerned about the environment, tend to be more climate change skeptic (Ojala, 2015; Stevenson et al., 2014). However, still unknown is how the full spectrum of value priorities and profiles relates to climate change skepticism across adolescents from diverse world regions. Investigating this can help identify adolescent *groups* that can be targeted to prevent or reduce climate change skepticism.

1.3. Present study

What basic values do young climate change skeptics hold? We conduct latent profile analysis (LPA; Vermunt, 2010) to identify subgroups of adolescents with similar value priorities and examine their climate change skepticism levels. We sample adolescents (ages 12 to 14) from China, Colombia, and the Netherlands and explore the association between adolescents' value priorities and climate change skepticism, and its cross-national variation. The selected countries differ in individualism-collectivism, which may be reflected in differential prioritization of self-enhancement over self-transcendent values (e.g., the Netherlands is more individualistic than China, and China is more individualistic than Colombia; Hofstede Insights, 2022). Similarly, countries place different emphasis on loyalty to authority (of central importance in China; Hwang, 1999), which may be reflected in differential prioritization of conservation over openness-to-change values (Xie et al., 2022).

As a first-of-its-kind cross-national analysis of adolescents' climate change skepticism and values, we did not specify hypotheses. We explored whether (1) self-transcendent (vs. self-enhancement) value priorities would relate to lower (vs. higher) levels of climate change skepticism across countries, and whether (2) these value-skepticism relations would be reflected in adolescents' value priority profiles. LPA studies often find four or five value profiles (e.g., Daniel et al., 2020; Ungvary et al., 2018; Xie et al., 2022). Relying on large cross-national samples, we explored the number and content of profiles that emerged from our data. We tested whether a higher proportion of adolescents would populate self-transcendent value priority profiles in China and Colombia, and conservation value priority profiles in China.

2. Method

Table 1 presents descriptive statistics for the pooled sample, and per country.

2.1. Ethics and open science

We use the Wave 1 data from a preregistered three-year longitudinal study on adolescent environmentalism, approved by the ethics committee of Utrecht University, The Netherlands. The research is conducted in China, Colombia, and the Netherlands, and includes yearly self-reports of demographics, basic values, and various environmentally relevant outcomes (e.g., attitudes, behavior, climate change skepticism; for a project description and full list of measures, see https://osf.io/7bvca/?view_only=fc78f87bd8f1413fb7b1f48c4fa6d09d). The present study was not preregistered. Data and analysis code are available online at https://osf.io/dfj26/?view_only=b73e41d44ae04b53bc3bc8f983bddaf2.

2.2. Participants and procedure

Participants were 5,244 (46.93% girls, 53.96% boys, 0.01% other) adolescents, ages 12 to 14 ($M = 13.07$, $SD = 0.79$). We recruited participants from the online panels of survey company Kantar and its partners (listed in the Supplement) via quota sampling. Sampling per country was stratified based on population ratios for gender, age, region, and household size. We oversampled to account for potential participant attrition in the longitudinal study (details in Supplement).

2.3. Measures

2.3.1. Climate change skepticism

Participants completed a 3-item climate change skepticism scale assessing disbelief (versus belief) in climate change, modelled after Ojala (2015; e.g., 1 = *I think that global warming is really happening* to 5 = *I doubt that global warming is really happening*). We computed a scale score by averaging responses across items.

2.3.2. Basic values

Participants completed the 21-item Portrait Values Questionnaire (PVQ-21; Schwartz, 2003a; Vecchione et al., 2020). Each item portrays other persons' goals and priorities in a single lower-order value domain (e.g., universalism: "It is important to these persons to listen to people who are different from them. Even when they disagree with other people, they still want to understand them"). Participants rated how similar they are to these persons (1 = *Not like me at all*, to 5 = *Very much like me*). Following standard procedure (Coelho et al., 2019; Schwartz, 1992, 2003b), we computed four higher-order value scores by averaging responses across corresponding lower-order value items.

2.4. Data preparation

First, we ipsatized value scores by centering each higher-order value score around the average of all 21 value items. Ipsatized value scores control for participants' response tendencies and reflect the relative priority of each value compared to other values (Rudnev, 2021; Schwartz, 2003b). Second, we z-standardized ipsatized value scores to

Table 1
Demographic information, psychometric properties of measures, descriptive statistics, and effect sizes for cross-national comparisons.

Variable	Pooled Sample N = 5,244			The Netherlands n = 1,256			China n = 2,126			Colombia n = 1862		
Gender												
Boys	2.777 (53.96%)			649 (51.67%)			1.202 (56.54%)			926 (49.73%)		
Girls	2.461 (46.93%)			601 (47.85%)			924 (43.46%)			936 (50.27%)		
Other	6 (0.01%)			6 (0.48%)			0 (0%)			0 (0%)		
	M	*SD*	α	M_{raw}/ $M_{ipsatized}$	SD_{raw}/ $SD_{ipsatized}$	α	M_{raw}/ $M_{ipsatized}$	SD_{raw}/ $SD_{ipsatized}$	α	M_{raw}/ $M_{ipsatized}$	SD_{raw}/ $SD_{ipsatized}$	α
Age	13.07	0.79	–	13.03	0.81	-	13.09	0.79	-	13.06	0.78	–
Climate Change Skepticism (3 items)	1.83	0.91	.85	2.17_a	0.91	.82	1.94_b	0.92	.87	1.47_c	0.76	.81
Self-Transcendence (5 items)	4.02	0.65	.76	3.68_a/0.08_d	0.65/1.02	.72	4.07_b/-0.33_e	0.58/0.87	.75	4.17_c/0.33_f	0.65/1.01	.77
Self-Enhancement (4 items)	3.27	0.80	.69	2.80_a/-0.25_d	0.73/1.07	.65	3.69_b/0.39_e	0.64/0.75	.56	3.12_c/-0.28_d	0.77/1.05	.65
Openness (6 items)	3.48	0.63	.65	3.38_a/0.54_d	0.64/1.05	.70	3.60_b/-0.16_e	0.63/0.90	.71	3.40_a/-0.18_e	0.61/0.94	.62
Conservation (6 items)	3.58	0.67	.70	3.11_a/-0.34_d	0.63/1.16	.65	3.82_b/0.10_e	0.57/0.86	.68	3.63_c/0.12_e	0.64/0.98	.64

Cross-National Comparison	Climate Change Skepticism	Self-transcendence		Self-enhancement		Openness		Conservation	
		Raw	Ipsatized	Raw	Ipsatized	Raw	Ipsatized	Raw	Ipsatized
	Cohen's d	*Cohen's d*	*Cohen's d*	Cohen's d	Cohen's d	Cohen's d	*Cohen's d*	*Cohen's d*	*Cohen's d*
The Netherlands - China	0.25	0.25	0.43	−0.63	0.43	−0.35	0.72	−1.18	−0.43
Th Netherlands - Colombia	0.83	0.83	−0.25	−0.16	−0.25	−0.03	0.72	−0.82	−0.43
China - Colombia	0.56	0.56	−0.70	−0.75	−0.70	0.32	0.02	0.31	−0.02

Note. Values, means, and standard deviations were computed with both raw (left side) and ipsatized, z-standardized (right side) scores. Reliability coefficients were computed with raw scale scores (Schwartz, 2003b).
Means in the same row with the same subscript do not differ significantly from each other, $p \geq .05$. Subscripts a-c refer to raw scores, d-f to ipsatized scores.

facilitate latent profile analysis and its interpretation.

2.5. Analytic plan

In preliminary analyses, we examined country differences in climate change skepticism (via *t*-tests) and correlations of climate change skepticism with value priorities (for the pooled sample and per country). In primary analyses, we first identified the optimal number of value priority latent profiles in the pooled sample with the four value priorities as indicators in the LPA. Then we examined profile differences in value priorities (via latent mean pairwise Wald tests), and in climate change skepticism (via χ^2 tests using the 3-Step BHC procedure; Vermunt, 2010). For comprehensiveness, we additionally explored profile differences in nationality (via ANOVA), gender (via *t*-tests), and age (via the 3-Step BHC procedure).

3. Results

3.1. Preliminary analyses

Climate change skepticism was highest in the Netherlands, then China, then Colombia (Table 1). The direction and strength of correlations between climate change skepticism and value priorities were generally consistent across countries (Table 2). Climate change skepticism was unrelated to conservation, positively related to self-enhancement and openness-to-change (except for a null relation in the Netherlands), and negatively related to self-transcendence. Cross-national differences (Table 1) and correlations between value priorities (Table S1) are reported in detail in the Supplement.[1]

Table 2
Correlations of climate change skepticism with value priorities.

Variable	Pooled Sample	Netherlands	China	Colombia
Self-Transcendence	−.34*** [-.36, −.31]	−.30*** [-.35, −.25]	−.34*** [-.37, −.30]	−.31*** [-.35, −.26]
Self-Enhancement	.20*** [.17, .22]	.20*** [.15, .26]	.17*** [.13, .21]	.18*** [.14, .23]
Openness	.15*** [.12, .17]	.05 [-.00, .11]	.12*** [.07, .16]	.09*** [.04, .14]
Conservation	−.01 [-.04, .02]	.04 [-.02, .09]	.04 [-.00, .08]	.02 [-.02, .07]

Note. Values in brackets indicate the 95% confidence interval for each correlation.
*p < .05. **p < .01. ***p < .001.

3.2. Primary analyses

3.2.1. Computing value priority profiles

3.2.1.1. Number. We identified the optimal number of latent value priority profiles in the pooled sample, comparing solutions from 1 to 8 profiles (Table S3). The 5-profile solution fit the data better than solutions with fewer profiles (i.e., lower BIC). Although the BIC was even lower for solutions with more profiles, the 5-profile solution fit the data equally well as solutions with more profiles, based on the *p*-values of the LMR and VLMR fit tests. The 5-profile solution also showed the highest level of entropy compared to the other solutions, indicating highest classification quality. Thus, we proceeded with the 5-profile solution.

3.2.1.2. Content. We examined the content of the 5 latent profiles (Table 3, Fig. 1; comparison details in Table S4). We labelled the first profile "open and self-enhancing" due to relatively high openness-to-change vs. conservation and self-enhancement vs. self-transcendence

[1] Self-transcendence includes one item relevant to pro-environmental values. We repeated correlational analyses excluding this item, replicating results (Table S2). We thus retained this item in LPA.

Table 3
Ethnic composition, value priorities, and climate change skepticism levels across latent profiles.

Variable	Profile 1: Open and Self-Enhancing		Profile 2: Open and Self-Transcendent		Profile 3: Conservative and Undifferentiated		Profile 4: Conservative and Self-Transcendent		Profile 5: Undifferentiated and Self-Enhancing	
Assigned Membership	*n*	*% Sample/% Profile*	*n*	*% Sample/% Profile*	*n*	*% Sample/% Profile*	*n*	*% Sample/% Profile*	*n*	*% Sample/% Profile*
Pooled Sample	345	6.58%/100%	541	10.32%/100%	639	12.19%/100%	742	14.15%/100%	2,977	56.77%/100%
Gender (Pooled Sample)										
Boy	177_a	6.37%/51.30%	232_a	8.35%/42.88%	349_a	12.57%/54.62%	359_a	12.93%/48.38%	$1,660_a$	59.78/55.76
Girl	167_b	6.79%/48.41%	307_b	12.47%/56.75%	289_b	11.74%/45.23%	382_b	15.52%/51.48%	$1,316_b$	53.47%/44.21%
Other	1	16.67%/0.29%	2	33.33/0.37%	1	16.67%/0.16%	1	16.67%/0.13%	1	16.67%/0.03%
Ethnicity										
Netherlands	173_a	13.77%/50.14%	263_a	20.94%/48.61%	53_a	4.22%/8.29%	161_a	12.82%/21.70%	606_a	48.25%/20.36%
China	90_b	4.23%/26.09%	48_b	2.26%/8.87%	333_b	15.66%/52.11%	138_b	6.49%/18.60%	$1,517_b$	71.35%/50.96%
Colombia	82_b	4.40%/23.77%	230_c	12.35%/42.51%	253_b	13.59%/39.59%	443_c	23.79%/59.70%	854_a	45.86%/28.69%
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Age	13.10_{ab}	0.05	12.99_a	0.04	12.97_a	0.04	13.04^{ab}	0.04	13.11_b	0.02
Self-Transcendence	0.02_a	0.13	0.99_b	0.06	0.39_c	0.06	0.88_b	0.05	-0.52_d	0.03
Self-Enhancement	0.50_a	0.16	-1.27_b	0.10	0.36_a	0.08	-1.19_b	0.08	0.41_a	0.02
Openness	1.58_a	0.08	0.98_b	0.16	-1.37_c	0.09	-0.62_d	0.13	0.11_e	0.03
Conservation	-2.07_a	0.08	-0.75_b	0.19	0.76_c	0.09	0.92_c	0.11	-0.03_d	0.02
Climate Change Skepticism	1.82_a	0.06	1.49_b	0.04	1.48_b	0.04	1.48_b	0.04	2.07_c	0.02

Note. Assigned memberships in the same column with the same subscript do not differ significantly from each other, $p \geq .05$.
In gender comparisons, we excluded the 6 nonbinary participants because we considered them too few to produce reliable results.
Latent means in the same row with the same subscript do not differ significantly from each other, $p \geq .05$.

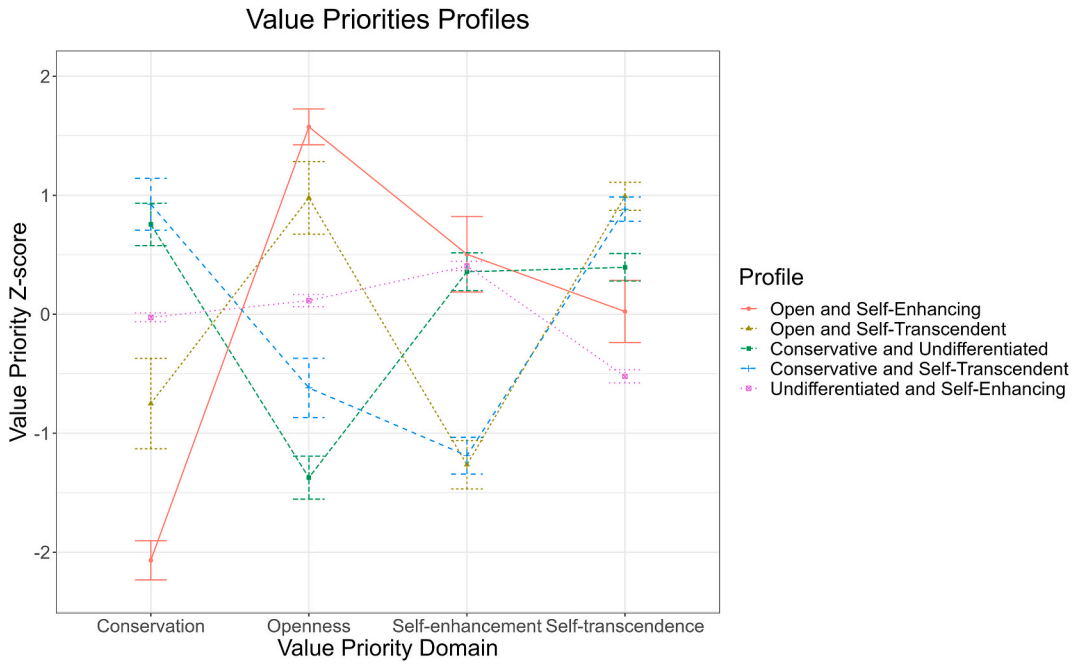

Fig. 1. Latent means of value priorities across profiles.
Note. Error bars represent 95% confidence intervals for the latent means.

levels; the second profile "open and self-transcendent", due to relatively high openness-to-change vs. conservation and self-transcendence vs. self-enhancement levels; the third profile "conservative and undifferentiated", due to relatively high conservation vs. openness-to-change and equally high self-enhancement vs. self-transcendence levels; the fourth profile "conservative and self-transcendent", due to relatively high conservation vs. openness-to-change and self-transcendence vs. self-enhancement levels; and the fifth and largest profile "undifferentiated and self-enhancing", due to equally high openness-to-change vs. conservation and relatively high self-enhancement vs. self-transcendence levels. Profile 5 was the most populated (56.77% of the pooled sample). Participants were relatively equally distributed across

the other profiles (6.58%–14.15%; Table 3).

3.2.1.3. Demographic differences between profiles. Results are presented in Table 3.

3.2.1.3.1. Nationality. Open and self-enhancing adolescents were more likely Dutch than Chinese or Colombian. Open and self-transcendent adolescents were more likely Dutch, then Colombian. Conservative and undifferentiated adolescents were more likely Chinese or Colombian. Conservative and self-transcendent adolescents were more likely Colombian, then Dutch. Finally, undifferentiated and self-enhancing adolescents were more likely Chinese than Dutch or Colombian (details in Table S5).

3.2.1.3.2. Gender. Open and self-enhancing, conservative and undifferentiated, and undifferentiated and self-enhancing adolescents were more likely boys. Open and self-transcendent and conservative and self-transcendent adolescents were more likely girls.

3.2.1.3.3. Age. Open and self-transcendent and conservative and undifferentiated adolescents were youngest, whereas undifferentiated and self-enhancing adolescents were oldest. The other two profiles did not differ significantly from any of the profiles.

3.2.2. Profile differences in climate change skepticism

Results are presented in Table 3. Across profiles of the pooled sample, climate change skepticism levels were generally low. Significant differences between profiles were small to moderate in size. Climate change skepticism was lowest among open and self-transcendent, conservative and self-transcendent, and conservative and undifferentiated adolescents (no profile differences, $ps \geq .895$, *Cohen's ds* ≤ 0.01); higher among open and self-enhancing adolescents ($ps < .001$, *Cohen's d* $= 0.32$ with lowest skepticism profiles, *Cohen's d* $= -0.23$ with highest skepticism profile); and highest among undifferentiated and self-enhancing adolescents ($ps < .001$, *Cohen's ds* $= 0.57$, 0.56, and 0.56 respectively with lowest skepticism profiles).

4. Discussion

This cross-national online survey examined how the basic values of young adolescents relate to climate change skepticism. Across the board, climate change skepticism levels were low, consistent with evidence that most adolescents see climate change as a real and alarming threat (Frantz, 2022; Ojala, 2015; United Nations Development Programme, 2021). Yet, those adolescents who did show elevated levels of climate change skepticism tended to prioritize self-enhancement values (and, to a lesser degree, openness-to-change values in China and Colombia). Conversely, adolescents with low levels of climate change skepticism prioritized self-transcendence values. These findings also manifested in the five value priority profiles we identified. Adolescents in more self-focused value priority profiles (i.e., open and self-enhancing, and especially undifferentiated and self-enhancing) showed higher levels of climate change skepticism than those in more other-focused ones (i.e., open and self-transcendent, conservative and self-transcendent, and conservative and undifferentiated).

4.1. Theoretical implications

Our findings inform climate change skepticism theory. They corroborate research showing that individual differences in climate change skepticism exist in early adolescence, when youth begin to form rudimentary worldviews and personal opinions on politicized topics (Ojala, 2015; Stevenson et al., 2014). We demonstrate that climate change skepticism in early adolescence is higher in relatively self-focused adolescents as well as in relatively individualistic countries. Thus, our findings align with Cultural Cognition Theory, which suggests that value priorities are reflected in the beliefs people develop about societal threats such as climate change (Kahan, 2012).

We found that conservation and openness-to-change are less compatible with skepticism when coupled with at least average levels of self-transcendence. Why so? Conservation relates to the desire to maintain the purity of nature (Feinberg & Willer, 2013; Wolsko et al., 2016), which may promote receptiveness to the insights of climate science. Openness-to-change revolves around desire for growth (Schwartz & Cieciuch, 2016). This desire is usually self-focused (e.g., openness-to-change includes hedonism, which relates to climate change skepticism; Ojala, 2015), especially when coupled with self-enhancement values, thus fostering skepticism. However, in self-transcendent adolescents, openness-to-change may promote acceptance of scientific insights that resonate with the prioritization of societal welfare over self-interest (such as the insights of climate science), thus protecting against skepticism. These findings show that multiple value priority profiles are incompatible with climate change skepticism.

Besides corroborating research suggesting that a limited number of value profiles suffice to capture common combinations of value priorities (e.g., Daniel et al., 2020; Ungvary et al., 2018; Xie et al., 2022), our findings inform basic values theory with developmental and cross-national insights. Most adolescents, especially older ones and males, prioritized self-enhancement over self-transcendence. This corroborates evidence that adolescence is marked by a normative developmental shift toward self-enhancement value priorities, which are more pronounced in boys (Daniel & Benish-Weisman, 2019). Furthermore, we found national differences in value priority profiles. Dutch adolescents were relatively open, a tendency observed in countries with high economic prosperity and low financial inequalities (Witte et al., 2020). Chinese adolescents were relatively conservative and self-enhancing, consistent with characterizations of modern China as increasingly individualistic while still respectful of tradition and social hierarchy (cf. Parker et al., 2009; Song et al., 2022). Colombian adolescents were relatively conservative and self-transcendent, reflecting a cultural emphasis on interdependence (Schwartz, 2010). Together, these findings illustrate how cross-national differences in values can be comprehensively characterized in terms of value priority profiles, more than in terms of discrete value priorities.

4.2. Policy implications

Our findings have implications for environmental policy (e.g., education, media campaigns) to curb climate change skepticism. First, they imply that it is opportune to implement such policy already from early adolescence. Second, they imply that such policy could be personalized and targeted to groups of adolescents whose value priorities suggest they are at increased risk for climate change skepticism. For example, such policy could attempt to reduce skepticism by harnessing adolescents' values (e.g., by communicating how belief in climate change, or the endorsement of pro-environmental attitudes more generally, is a way to earn respect from peers, thus satisfying both self-enhancement and self-transcendent values; De Groot & Steg, 2007). Such policies could complement fact-based education programs, which help reduce climate skepticism especially among self-focused adolescents (Stevenson et al., 2014).

4.3. Strengths, limitations, and future research

Our study has several strengths. It is the first to investigate how basic values relate to climate change skepticism in early adolescence, across three culturally different countries. It thus generated, cross-nationally, novel insights into the early psychological underpinnings of climate change skepticism. The large quota samples we used allowed for a person-centered analytic approach (LPA) to adolescents' value priorities, and generated findings likely to be robust and generalizable.

Our study also has limitations. Our cross-sectional, correlational design does not allow for drawing directional or causal conclusions. Longitudinal research could establish the value priorities and profiles

that foretell or co-occur with developmental changes in climate change skepticism. Experimental research could test the assumption that climate change skepticism is a psychological defense against value-incongruent information. For example, are self-enhancing adolescents inclined to express skepticism toward campaigns that convey we should prioritize sustainability over status-enhancing opportunities (e.g., avoiding travel to exotic, far-away destinations)? Finally, cross-cultural research could test the generalizability of our findings across other countries and cultural contexts.

5. Conclusion

Adolescents who prioritize their own over collective interests tend to be skeptical about climate change, arguably because this sits best with what they prioritize in life. The cross-national robustness and early presence of this phenomenon suggests that value systems are foundational to how people, from young age, relate to the threats of climate change.

Author note

Data and code for analyses are provided via the Open Science Framework at https://osf.io/dfj26/?view_only=b73e41d44ae04b53bc3bc8f983bddaf2.

Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jenvp.2023.101978.

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