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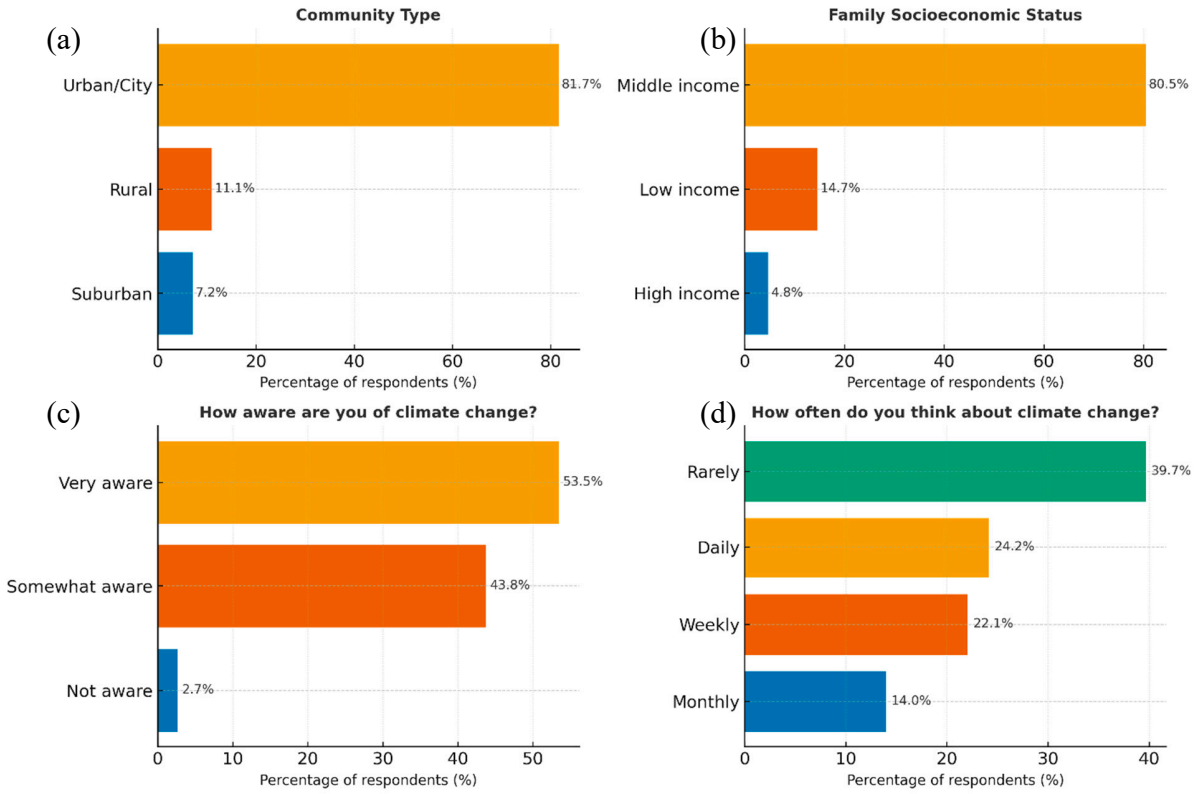
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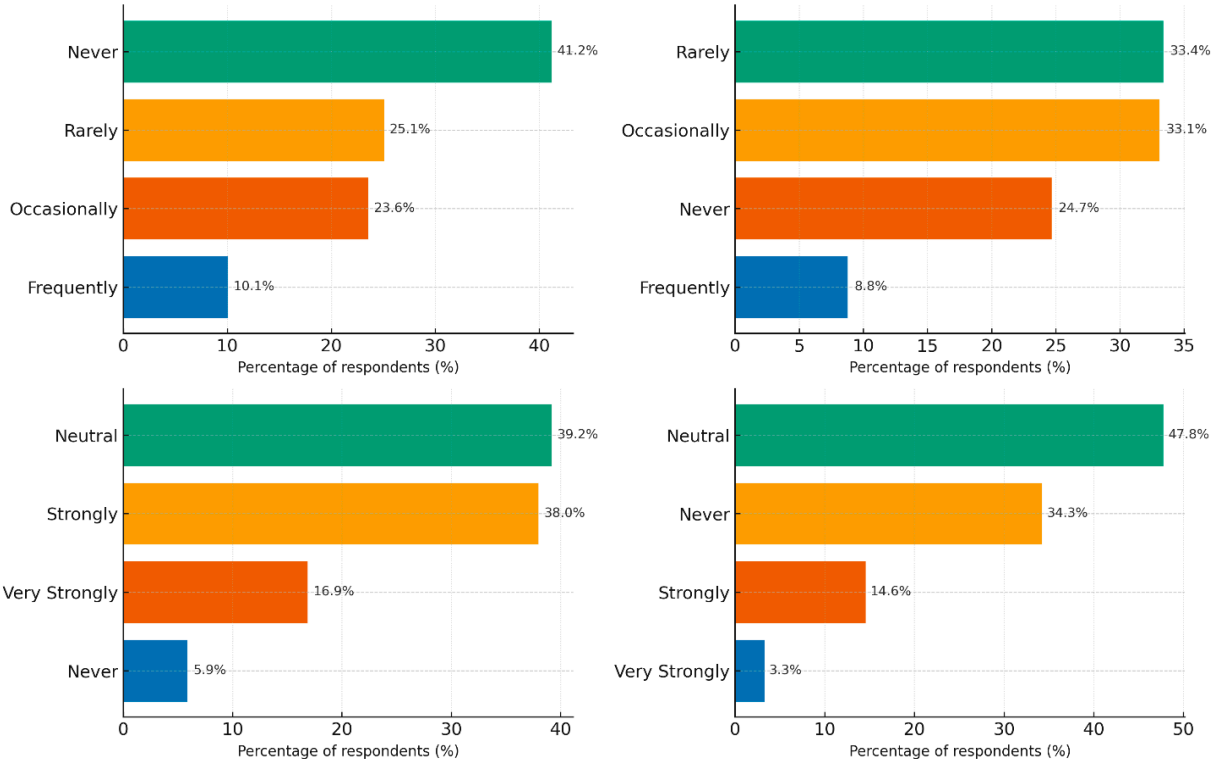
Figure S1. Socioeconomic demography



Proportion of respondents by (a) community type, (b) family socioeconomic status, (c) level of climate change awareness, and (d) frequency of thinking about climate change.

The demographic distribution highlights that most of the respondents reside in urban or city areas (81.7%), while rural (11.1%) and suburban (7.2%) populations are underrepresented. This urban dominance reflects a sampling bias but also aligns with global trends of urban concentration where climate discourse is more prevalent due to visible urban heat effects and infrastructural vulnerabilities [21]. Socioeconomically, 80.5% of participants reported middle-income status, with only 14.7% indicating low-income households. Socioeconomic status significantly influences perceptions and capacity for climate action; middle-income groups often possess greater access to information and resources for mitigation behaviors. Climate change awareness is relatively high, with 53.5% of respondents being very aware, although 43.8% remain only somewhat aware. The frequency of thinking about climate change shows that 39.7% engage with the issue rarely, suggesting a gap between awareness and continuous concern. These demographic findings underscore the necessity of targeted communication strategies in rural and lower-income communities, focusing on localized risks and practical adaptation measures.

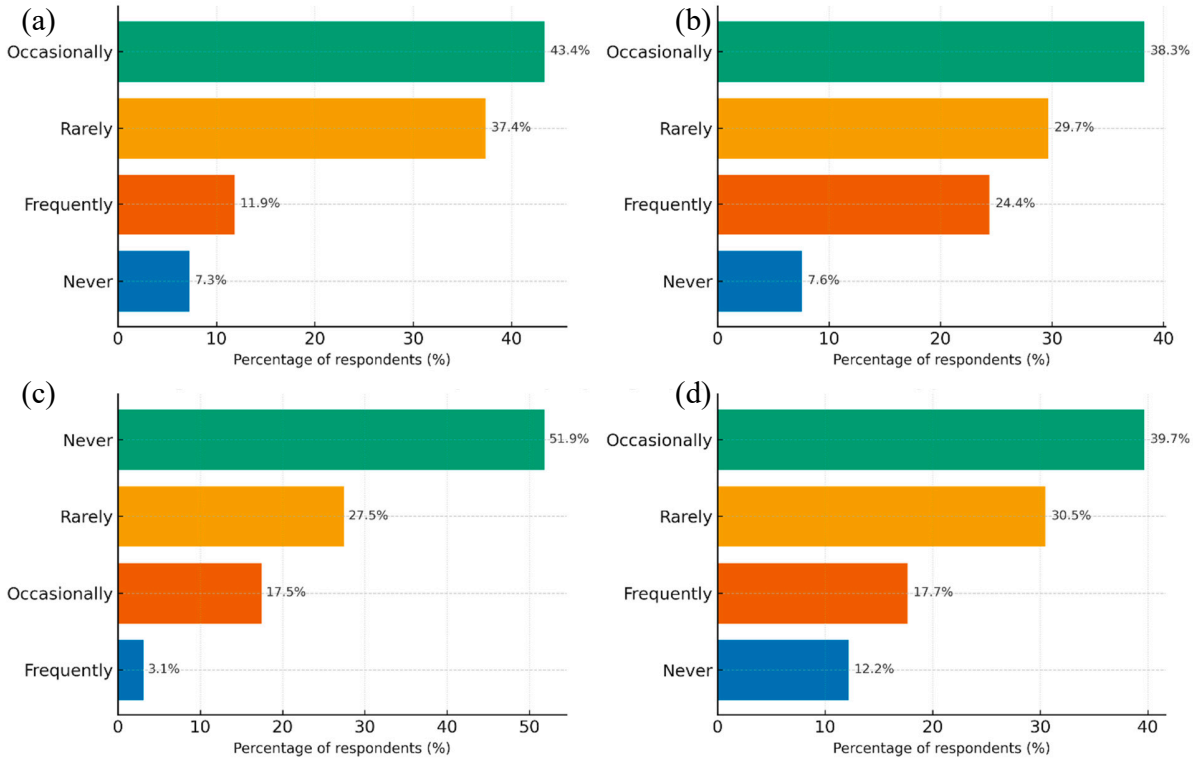
Figure S2. Community Experience and Perceptions of Climate Change



Responses on (a) participation in local climate actions, (b) experience of climate-linked natural disasters, (c) media-induced climate concern, and (d) evaluation of government performance in tackling climate change.

Local engagement with climate actions is notably low, with 41.2% of respondents indicating they have never participated in community-led climate initiatives. This points to the need for increased investment in community mobilization and infrastructure to support grassroots action. While 66.5% of participants report experiencing climate-linked natural disasters at varying frequencies, this lived experience does not seem to translate into widespread policy trust: only 14.6% strongly believe that their government is performing adequately on climate issues, while 47.8% remain neutral and 34.3% disagree. Media coverage of climate change strongly or very strongly worries 54.9% of respondents, reflecting the dual-edged nature of media-driven risk perception, it raises awareness but may also induce anxiety without accompanying calls to action. These findings suggest that government and NGOs should adopt participatory governance approaches, where local communities are both informed and empowered to co-create adaptation measures.

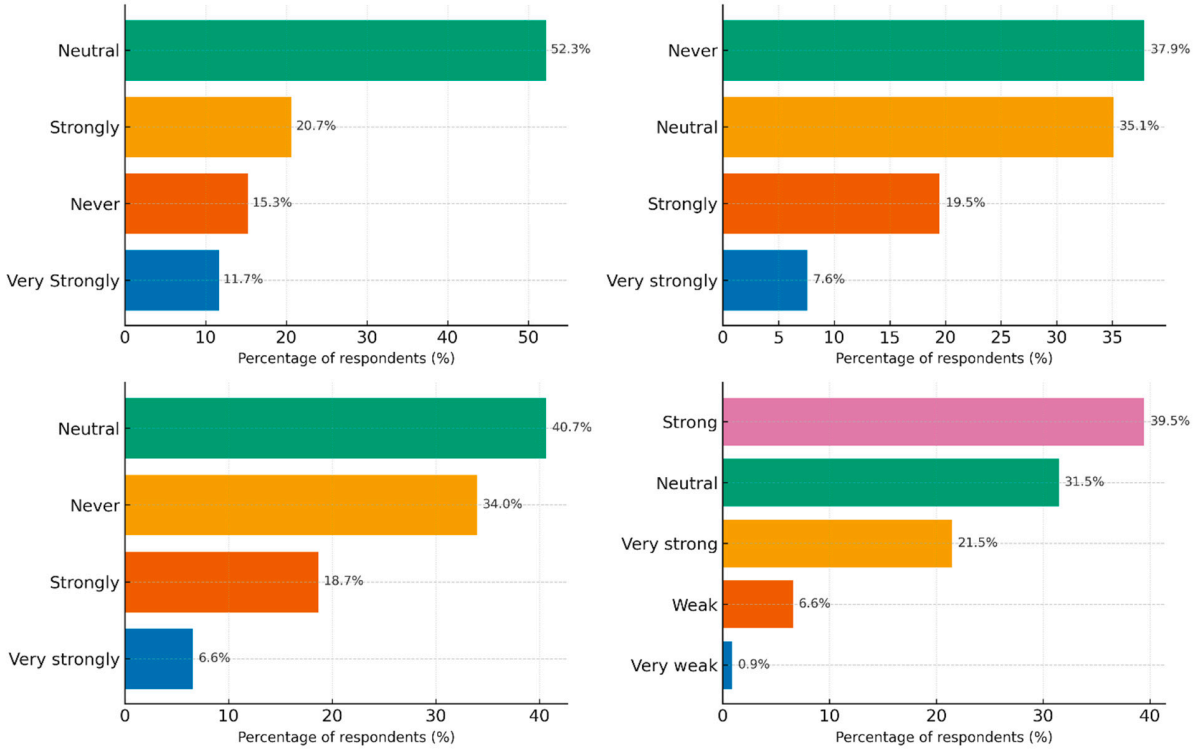
Figure S3. Social Engagement and Support in Climate Change Discourse



Distribution of responses regarding (a) frequency of climate change discussions with family/peers, (b) perceived support from family/friends, (c) tension or conflict related to climate change, and (d) climate change education provision by schools or communities.

The results reveal that climate change remains a sporadic topic of discussion among social networks: only 11.9% frequently discuss the topic with family or peers, while 43.4% engage occasionally and 37.4% rarely. Similarly, just 24.4% feel frequently supported by family or friends when expressing climate-related concerns, indicating a gap in social reinforcement. Weak social discourse can exacerbate climate anxiety by limiting emotional validation and community problem-solving. Interestingly, 51.9% report that climate change has never caused conflict within their family or peer groups, suggesting that climate issues are either avoided or depoliticized in these micro-settings. On education, 39.7% indicated occasional climate-related content from schools or communities, while 30.5% reported rarely receiving such education. This underlines the urgent need for climate literacy programs integrated into community-based and formal educational settings to enhance both knowledge and collective efficacy.

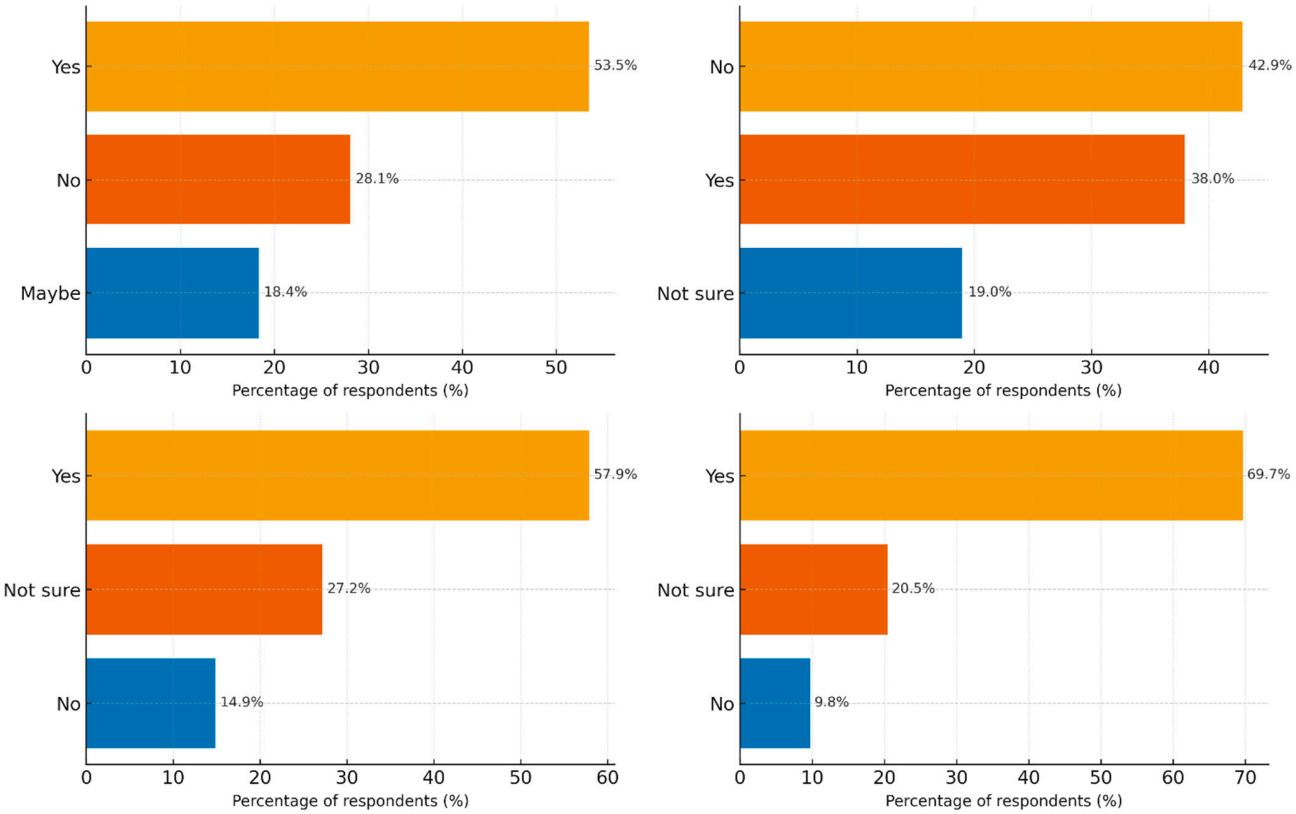
Figure S4. Cultural and Spiritual identity of Climate Perceptions



Responses on (a) exclusion from climate-related decision-making, (b) influence of cultural/spiritual background on climate perception, (c) climate impacts on culturally important places, and (d) knowledge of environmental impacts of food production.

Perceptions of climate change are significantly shaped by cultural and spiritual values, with 27.1% of respondents indicating that their cultural or spiritual background strongly or very strongly influences their understanding of climate risks. Furthermore, 25.3% report that climate change has affected culturally significant sites, underscoring the intersection between environmental degradation and cultural heritage loss. Knowledge of the environmental impact of food production varies: only 21.5% feel very knowledgeable, while 39.5% report moderate knowledge. This knowledge deficit could hinder sustainable food choices, which are crucial for reducing emissions from the agriculture sector [22]. Policies aimed at climate literacy must therefore integrate cultural sensitivity, leveraging community leaders and faith-based institutions to bridge the gap between knowledge and climate-conscious behavior.

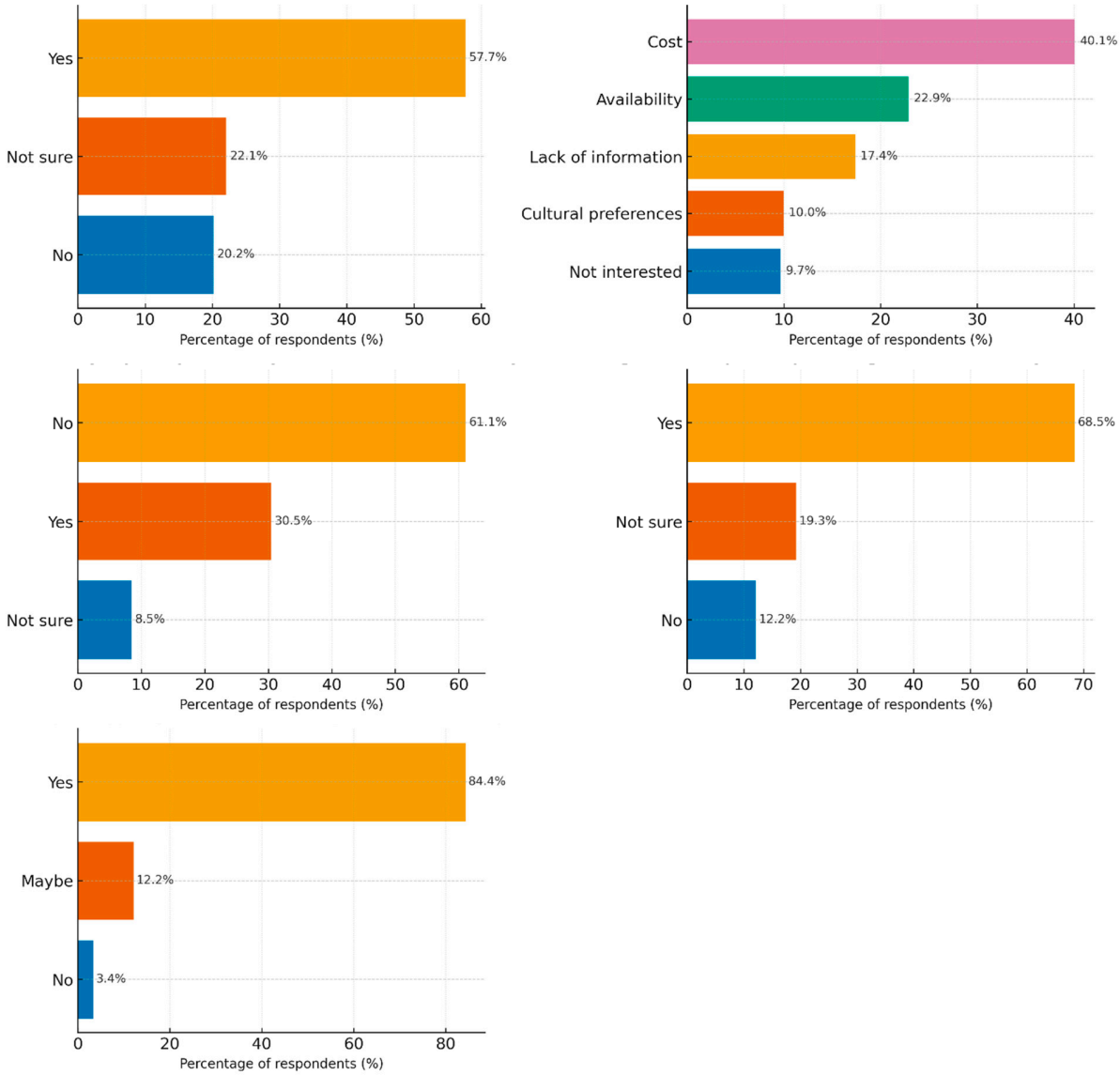
Figure S5. Climate change anxiety and its connection to food and sustainability awareness



Responses on (a) awareness of food choices' environmental impacts, (b) dietary changes due to environmental concerns, (c) belief in food-related climate mitigation, and (d) belief in sustainable food production's role in reducing climate anxiety.

More than half of respondents (53.5%) understand how food systems affect environmental outcomes, and 38% have already made dietary changes in response to climate concerns. However, nearly 43% have not altered their diets, often due to structural or informational barriers. The majority (57.9%) believe that food-related interventions, such as plant-based diets or sustainable meat production, can mitigate climate change, and 69.7% recognize that sustainable food production could reduce climate anxiety. These findings align with the literature emphasizing the food sector as a critical lever for achieving greenhouse gas reductions [23]. Policymakers should prioritize interventions such as subsidies for plant-based products, labeling schemes that highlight carbon footprints, and public campaigns linking dietary choices to climate benefits.

Figure S6. Barriers, Participation, and Policy Support for Sustainable Food Systems



Responses on (a) perceived anxiety reduction from sustainable food access, (b) barriers to adopting climate-friendly diets, (c) participation in food-related climate initiatives, (d) perceived impact of sustainable food policies on climate anxiety, and (e) support for policies encouraging sustainable food production.

The barriers to adopting climate-friendly diets are dominated by structural challenges: 40.1% of respondents cite cost, followed by availability (22.9%) and cultural preferences (10%). Such economic and cultural barriers align with findings from Lee et al. [24] and Pais et al. [25], which highlight that sustainable foods often remain inaccessible due to price disparities and limited market penetration. Encouragingly, 84.4% of respondents support policies that promote sustainable food systems, and 68.5% believe that government policies can reduce climate anxiety. Participation in food-related climate initiatives, such as community gardens or plant-based campaigns, remains modest at 30.5%, suggesting that greater institutional support and local awareness campaigns are needed. Policy measures could

include financial incentives for sustainable agriculture, public procurement of plant-based meals, and community programs to normalize low-carbon diets.

Figure S7. Correlation and regression analyses among variables

(a) Pairplot of key variables with marginal distributions

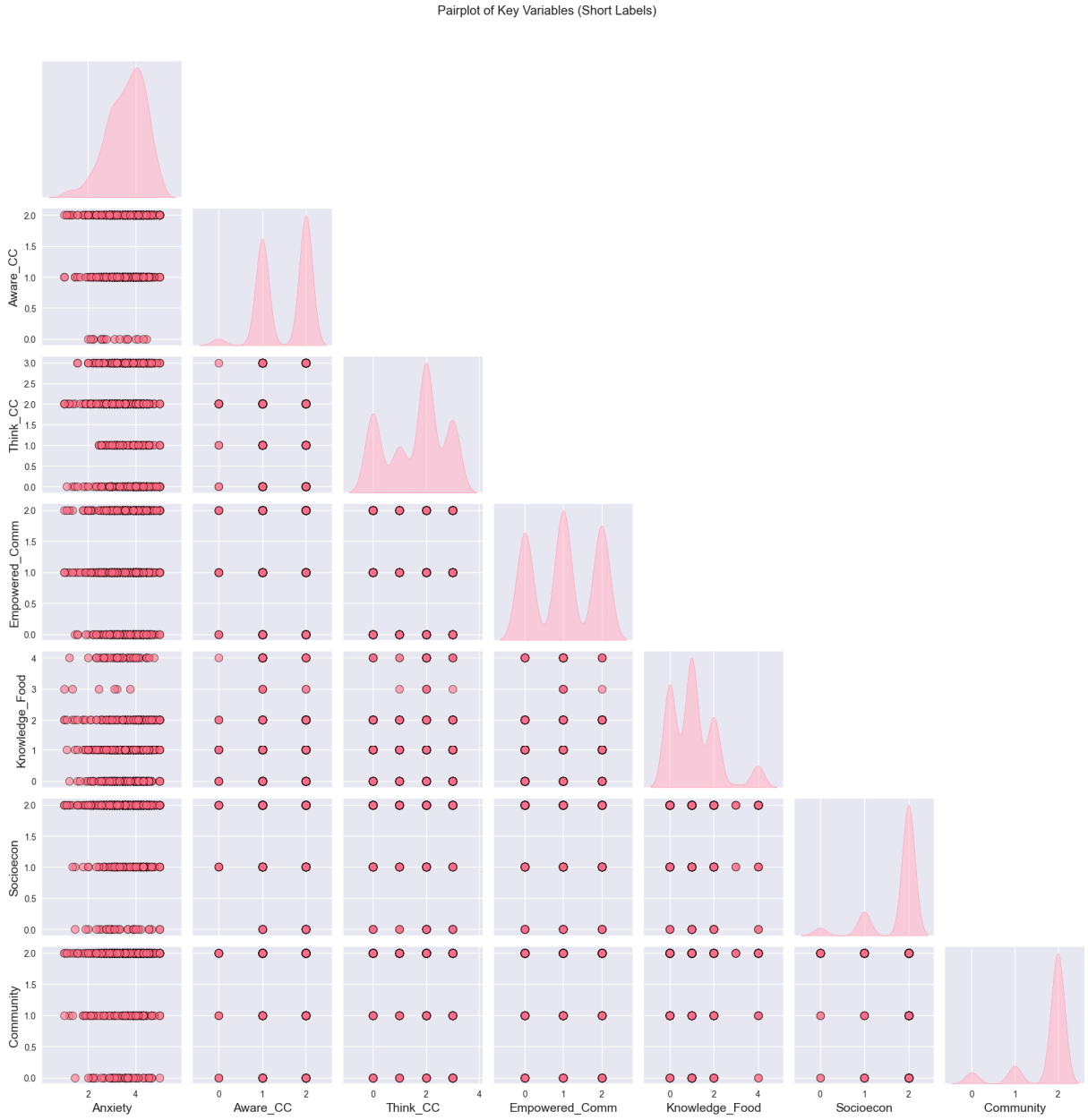


Table S1 Raw survey after data cleaning

See the attached excel spreadsheet

Table S2 Country sample sizes and recruitment channels

Country	Sample size (n)	Recruitment channels	Quotas used
Nigeria	497	University networks, social media, community groups	None
South Korea	88	University networks, social media, peer networks	None
United States	18	Social media, university groups	None
Canada	16	University mailing lists	None
Hungary	13	University networks	None
China	12	Student networks, social media	None
Australia	9	University networks	None
United Kingdom	7	Social media, student groups	None
Romania	1	Social media	None
Ukraine	1	Social media	None
Thailand	1	Social media	None
South Africa	1	Student networks,	None
Nepal	1	Social media	None
Philippines	1	Social media	None
Belgium	1	Student networks	None
Malaysia	1	Social media	None
Iran	1	Social media	None
Germany	1	Student networks	None
Gambia	1	Social media	None
Botswana	1	Social media	None
Zambia	1	University networks,	None

Note: Country counts reflect pooled participation from a non-probability convenience sample. No quotas or stratification procedures were used.

Table S3. Pearson bivariate correlations among variables included in the regression model (N = 673).

	X	Y	n	r	p
0	climate_anxiety_score	Aware_CC	673	0.134592	4.63E-04
1	climate_anxiety_score	Think_CC	673	0.191225	5.80E-07
2	climate_anxiety_score	Empowered_Comm	673	0.107243	5.35E-03
3	climate_anxiety_score	Socioecon	673	-0.06663	8.41E-02
4	climate_anxiety_score	Age_Group	673	0.015853	6.81E-01
5	Aware_CC	Think_CC	673	0.267931	1.58E-12
6	Aware_CC	Empowered_Comm	673	0.109395	4.49E-03
7	Aware_CC	Socioecon	673	0.04423	2.52E-01
8	Aware_CC	Age_Group	673	0.241149	2.33E-10
9	Think_CC	Empowered_Comm	673	0.147666	1.21E-04
10	Think_CC	Socioecon	673	0.010495	7.86E-01
11	Think_CC	Age_Group	673	0.093364	1.54E-02
12	Empowered_Comm	Socioecon	673	-0.01615	6.76E-01
13	Empowered_Comm	Age_Group	673	0.026509	4.92E-01
14	Socioecon	Age_Group	673	-0.04804	2.13E-01

Table S4. Correlation matrix (Pearson r) for regression variables (N = 673).

	climate_anxiety_score	Aware_CC	Think_CC	Empowered_Comm	Socioecon	Age_Group
climate_anxiety_score	1	0.135	0.191	0.107	-0.067	0.016
Aware_CC	0.135	1	0.268	0.109	0.044	0.241
Think_CC	0.191	0.268	1	0.148	0.01	0.093
Empowered_Comm	0.107	0.109	0.148	1	-0.016	0.027
Socioecon	-0.067	0.044	0.01	-0.016	1	-0.048
Age_Group	0.016	0.241	0.093	0.027	-0.048	1

Table S5 Variance inflation factors (VIFs) for predictors included in the multivariable regression model (N = 673).

	Predictor	VIF
1	Aware_CC	1.14463
2	Think_CC	1.095111
3	Empowered_Comm	1.028296
4	Socioecon	1.006107
5	Age_Group	1.066683

Table S6 Cross-country descriptive statistics.

Variable	Country	n	Mean	SD	Median	Q1	Q3	IQR
Climate anxiety score	Hungary	13	3.23	0.93	3	3	4	1
	South Korea	88	2.92	1.11	3	2	4	2
	Australia	9	2.89	1.36	3	2	4	2
	United Kingdom	7	2.86	1.46	3	2	3.5	1.5
	China	12	2.83	0.58	3	2.75	3	0.25
	Nigeria	497	2.81	1.11	3	2	3	1
	United States	18	2.5	0.86	3	2	3	1
	Canada	16	2.44	1.03	2	2	3	1
Climate change awareness	Australia	9	3	0	3	3	3	0
	China	12	2.75	0.45	3	2.75	3	0.25
	South Korea	88	2.67	0.52	3	2	3	1
	United States	18	2.67	0.49	3	2	3	1
	United Kingdom	7	2.57	0.53	3	2	3	1
	Hungary	13	2.46	0.52	2	2	3	1
	Canada	16	2.44	0.51	2	2	3	1
	Nigeria	497	2.41	0.56	2	2	3	1
Food system knowledge	Australia	9	4	1	4	4	5	1
	United Kingdom	7	4	0.82	4	3.5	4.5	1
	United States	18	4	0.84	4	4	4.75	0.75
	South Korea	88	3.98	0.8	4	3	5	2
	Nigeria	497	3.72	0.89	4	3	4	1
	China	12	3.5	1.17	4	3	4	1
	Hungary	13	3.46	1.05	4	3	4	1
	Canada	16	3.38	0.96	3.5	3	4	1
Frequency of climate-related thoughts	United Kingdom	7	3	0.82	3	2.5	3.5	1
	Hungary	13	2.69	1.25	3	2	4	2
	Australia	9	2.44	1.33	2	1	4	3
	South Korea	88	2.4	1.18	3	1	3	2
	Nigeria	497	2.28	1.24	2	1	3	2
	China	12	2.25	1.42	1.5	1	4	3
	Canada	16	2.12	1.15	2	1	3	2
	United States	18	1.94	1.06	1.5	1	3	2
Perceived social support	Australia	9	3.11	0.93	3	3	4	1
	Canada	16	2.94	0.85	3	2.75	3.25	0.5
	United States	18	2.89	0.9	3	3	3	0
	United Kingdom	7	2.86	1.07	3	2.5	3.5	1
	Hungary	13	2.85	0.55	3	3	3	0
	Nigeria	497	2.8	0.9	3	2	3	1
	South Korea	88	2.78	0.86	3	2	4	2
	China	12	2.08	0.9	2	1.75	2.25	0.5

n means the number of respondents with valid data for that variable in that country. **SD** means standard deviation, which shows how spread out the responses are around the mean. A larger SD means more variation among respondents. **Q1** means the first quartile, or the 25th percentile. It is the value below which 25% of responses fall. **Q3** means the third quartile, or the 75th percentile. It is the value below which 75% of responses fall. **IQR** means interquartile range, which is Q3 minus Q1. It shows the spread of the middle 50% of responses.

Table S6 showed modest cross-country variation in climate anxiety, with mean scores ranging from 2.44 in Canada to 3.23 in Hungary, while most countries clustered around values of 2.8 to 2.9. Climate change awareness was generally high across countries, with Australia showing the highest mean value and Nigeria the lowest among the included countries. Food system knowledge was also relatively high, with mean scores close to 4.0 in Australia, the United Kingdom, and the United States, but somewhat lower in Canada, Hungary, and China. Frequency of climate-related thoughts varied more noticeably, with the highest mean observed in the United Kingdom and the lowest in the United States. Perceived social support showed comparatively limited variation, with most countries centered around a mean of approximately 2.8 to 3.1, although China showed a lower mean score. Overall, the descriptive results suggest some cross-country variation in awareness and related perceptions, whereas climate anxiety itself appeared relatively similar across countries.

Exploratory cross-country differences in key variables were assessed using Kruskal–Wallis tests across eight countries with sufficient sample sizes. No statistically significant differences were observed for climate anxiety, frequency of climate-related thoughts, food system knowledge, or perceived social support ($p > 0.05$), indicating broadly consistent patterns across countries. A significant difference was observed for climate change awareness ($H = 25.04$, $p < 0.001$), suggesting that awareness levels may vary more substantially than for anxiety itself across national contexts.