

## **Supplementary Materials**

for

### **When Environmental Motivation Does and Does Not Cut Emissions: Environmental Motivation and Students' Cafeteria Food Decisions**

by

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## R-Packages

The R-packages used are broom (Robinson et al., 2024), correlation (Makowski et al., 2020), flextable (Gohel & Skintzos, 2024), ggpubr (Kassambara, 2023), ggplot2 (Wickham, 2016), ggrepel (Slowikowski, 2024), gt (Iannone et al., 2025), gtsummary (Sjoberg et al., 2021), lme4 (Bates et al., 2015), lmerTest (Kuznetsova et al., 2017), modelsummary (Arel-Bundock, 2022), officer (Gohel et al., 2024), performance (Lüdecke et al., 2021), pscl (Jackman, 2020), psych (Revelle, 2021), stringr (Wickham, 2023), TAM (Robitzsch et al., 2024), tidyverse (Wickham et al., 2019), and WrightMap (Torres Irribarra & Freund, 2024).

## Explanation of the CO<sub>2</sub>e calculations

Ingredients provided by the cafeteria were labeled according to the Food Category defined by the Cool Food Calculator (Waite et al., 2019). In the case of plant-based meat, egg, dairy, and seafood substitutes, the Cool Food Calculator has not yet obtained accurate emissions factors. Therefore, the plant-based substitute's primary ingredient was used to classify the ingredient. For example, the soy yogurt alternative was classified as "Soybeans/Tofu" because soybeans are the primary ingredient of soy yogurt alternatives. The same method was used to classify other ingredients that did not have a specific emission factor defined by the Cool Food calculator. For example, lemon juice was classified as "Citrus Fruit" because lemons are the primary ingredient in lemon juice.

All ingredients were converted to either kilograms or liters, depending on the unit required for the Cool Food calculator. For certain liquids, the Cool Food calculator already applies a conversion factor to convert liters to kilograms. In certain instances, the ingredient's unit as given by the cafeteria did not match the unit given by the Food Category as defined by the Cool Food calculator (for example: Fish sauce (in liters) was categorized as Fish (kg) by the Cool Food Calculator). In this case, the liters of fish sauce were converted to kilograms. The conversion factors used are available under the "Conversion Factors" sheet here <https://doi.org/10.17605/OSF.IO/CV3G7> (file: Cool Food).

For the side salad/apple option, we cannot know what the student took. However, the ingredients are planned for 100 portions; therefore, we know that both the side salad and apples together represent 100 portions (rather than representing 200 portions). So by dividing each by 100 and adding both to the total meal weight, we can represent the average emissions for both side options.

The study overlooked the fact that certain meals have an option to make it vegetarian/vegan (for example, with the exclusion of cheese) or omnivorous or vegan (this is the case for the weekly dish, every day). The questionnaire could not capture which of these options the individuals opted for. Therefore, the researchers assumed which of the meal types the respondent chose depending on the dietary preferences indicated by the participant (item: SD08). For example, if the participant indicated having a vegan dietary preference, the study assumed that the participant opted for the vegan option when presented with a vegetarian/vegan choice. Similarly, when the participant indicated having a vegetarian dietary choice, the study assumed that the participant chose the vegetarian meal when presented with an option between vegetarian/vegan. Additionally, when the participant indicated having an omnivorous dietary preference, the study assumed they chose the vegetarian option when presented with the vegetarian/vegan versions of the meal. The resulting emission differences are negligible, nevertheless.

## Survey Questionnaire (Table S1)

**Table S1**

*Study Questionnaire Translated to English*

<b>General</b>	
<b>Item Index</b>	<b>Wording</b>
PV02	I understand that my participation is voluntary and that I can withdraw from the questionnaire at any point for whatever reason (1 = Yes; 2 = No)
PV03	I consent to take part in this study (1= Yes; 2 = No)
QU01	Are you currently enrolled as a university student in Freiburg? (1 = Yes; 2 = No)
QU02	Did you purchase a meal at Mensa Rempartstrasse at least once this week (22/01 – 26/01)? (1 = Yes; 2 = No)
QU03	Where did you learn about this questionnaire? (1 = At Rempartstraße; 2 = Other [online, social group etc.])
<b>Food Choices</b>	
<b>Item Index</b>	<b>Wording</b>
AB01	Please select the meal you purchased at Mensa Rempartstrasse on Monday (22/01)
	<b>Response options</b>
	Tagesgericht – Soy gyros, tzatziki, vegetable rice, carrot coleslaw
	Schneller Teller – Vegetable chili, mixed bread
	Essen 1 – Chickpea polenta, ratatouille, sheep cheese with mint, side salad or regional apple
	Essen 2 – Tandoori chicken breast, peanut sauce, basmati rice, side salad or regional apple
	Wochenangebot – Currywurst or plantwurst, french fries, side salad or regional apple
	I did not purchase a meal at Mensa Rempartstrasse on Monday
AB02	Please select the meal you purchased at Mensa Rempartstrasse on Tuesday (23/01)
	<b>Response options</b>
	Tagesgericht – Spaghetti, vegetable soy bolognese, grated hard cheese, side salad
	Schneller Teller – Mango-wheat tabbouleh, herbs
	Essen 1 – Egg omelette with tomato and cheese, potato gratin, broccoli vegetables
	Essen 2 – Roast beef, red wine sauce, farmer's spaetzle, red cabbage
	Wochenangebot – Currywurst or planted currywurst, french fries, side salad or regional apple
	I did not purchase a meal at Mensa Rempartstrasse on Tuesday
AB03	Please select the meal you purchased at Mensa Rempartstrasse on Wednesday (24/01).
	<b>Response options</b>
	Tagesgericht – Cheese spaetzle melted, onion, lettuce
	Schneller Teller – Pumpkin stew with apple and lemongrass, grain rolls

Essen 1 – Vegetarian meatball, parsley sauce, mashed potatoes, kohlrabi apple carrot salad  
 Essen 2 – Chili chicken, cream sauce with rucicola and tomatoes, fusilli, broccoli vegetables  
 Wochenangebot – Currywurst or planted currywurst, french fries, side salad or regional apple  
 I did not purchase a meal at Mensa Rempartstrasse on Wednesday

AB04

**Wording**

Please select the meal you purchased at Mensa Rempartstrasse on Thursday (25/01)

**Response options**

Tagesgericht – Zucchini kofte, herb yoghurt dip, Greek farmer's salad, flatbread  
 Schneller Teller – Bulgur with zucchini and tomatoes, yogurt mint dip or cucumber dip  
 Essen 1 – Spinach Maultaschen, gratinated with tomatoes, cheese and onions, side salad or regional apple  
 Essen 2 – Börek with spinach, carrot curry, pea puree, sesame  
 Wochenangebot – Currywurst or planted currywurst, french fries, side salad or regional apple  
 I did not purchase a meal at Mensa Rempartstrasse on Thursday

AB05

**Wording**

Please select the meal you purchased at Mensa Rempartstrasse on Friday (26/01)

**Response options**

Tagesgericht – Schupfnudel vegetable pan, onion sauce, organic smoked tofu, sauerkraut, side salad  
 Schneller Teller – Herb spaetzle, tomato ragout, grated cheese  
 Essen 1 – Sweet potato-pointed cabbage curry with mango, coriander-lemon yogurt, organic tofu, peanut cubes, and long-grain rice, side salad or regional apple  
 Essen 2 – Gourmet fillet bordelaise, white wine sauce, long grain rice, broccoli vegetables  
 Wochenangebot – Currywurst or planted currywurst, french fries, side salad or regional apple  
 I did not purchase a meal at Mensa Rempartstrasse on Friday

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**General Ecological Behavior Scale (Kaiser, 2020) – polytomous items**
**Instruction:**

For the following 32 behaviors, please indicate how often you perform them. Choose “Not applicable” (N/A) if you are unable to answer.

**Response options: 1=Never, 2=Seldom, 3=Occasionally, 4=Often, 5=Very Often, -1=NA**

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**Item  
index**
**Wording**


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GB01\_01 I ride a bicycle or take public transportation to work or school  
 GB01\_02 I buy meat and produce with eco-labels  
 GB01\_03 I buy beverages in cans  
 GB01\_04 I use an oven-cleaning spray to clean my oven  
 GB01\_05 I wait until I have a full load before doing my laundry  
 GB01\_06 I drive my car in or into the city  
 GB01\_07 In the winter, I air rooms while keeping on the heat and leaving the windows open, simultaneously  
 GB01\_08 I wash dirty clothes without prewashing

- 
- GB01\_09 I drive on freeways at speeds under 100kph (= 62.5 mph)
- GB01\_10 If I am offered a plastic bag in a store, I take it
- GB01\_11 In nearby areas (around 30 kilometers; around 20 miles), I use public transportation or ride a bike
- GB01\_12 I collect and recycle used paper
- GB01\_13 I bring empty bottles to a recycling bin
- GB01\_14 I have pointed out unecological behavior to someone
- GB01\_15 I contribute financially to environmental organizations
- GB01\_16 I buy beverages and other liquids in returnable bottles
- GB01\_17 I buy bleached or colored toilet paper
- GB01\_18 I buy convenience foods
- GB01\_19 I buy products in refillable packages
- GB01\_20 I buy domestically grown wooden furniture
- GB01\_21 I boycott companies with an unecological background
- GB01\_22 I buy seasonal produce
- GB01\_23 I use a clothes dryer
- GB01\_24 I read about environmental issues
- GB01\_25 I talk with friends about environmental pollution, climate change, and/or energy consumption
- GB01\_26 For longer journeys (more than 6 hours of travel time by car), I take an airplane
- GB01\_27 I keep the engine running while waiting at a railroad crossing or in a traffic jam
- GB01\_28 At red traffic lights, I keep the engine running
- GB01\_29 I kill insects with a chemical insecticide
- GB01\_30 I shower (rather than taking a bath)
- GB01\_31 In winter, I turn down the heat when I leave my apartment for more than 4 hours
- GB01\_32 I drive to where I want to start my hikes
- GB01\_33 *To monitor data quality, please respond "NA" to this item*
- 

**General Ecological Behavior Scale (Kaiser, 2020) – dichotomous items**

**Instruction:**

For the following 18 behaviors, please indicate whether you perform them or not. Choose the answer that fits your situation closest. Again, choose "Not applicable" (NA) if you are unable to answer.

**Response options: 1=Yes, 2=No, -1=NA**

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**Item  
index**

**Wording**

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- GB02\_01 I reuse my shopping bags
- GB02\_02 In the winter, I keep the heat on so that I do not have to wear a sweater
- GB02\_03 I use fabric softener with my laundry
- GB02\_04 I put dead batteries in the garbage
- GB02\_05 After meals, I dispose of leftovers in the toilet
- GB02\_06 I use a chemical air freshener in my bathroom
- GB02\_07 I am a member of an environmental organization
- GB02\_08 In hotels, I have the towels changed daily

- GB02\_09 I own an energy-efficient dishwasher (efficiency class A+ or better)
- GB02\_10 After a picnic, I leave the place as clean as it was originally
- GB02\_11 I own solar panels
- GB02\_12 I have looked into the pros and cons of having a private source of solar power
- GB02\_13 I have a contract for renewable energy with my energy provider
- GB02\_14 I refrain from owning a car
- GB02\_15 I am a member of a carpool
- GB02\_16 I drive in such a way as to keep my fuel consumption as low as possible
- GB02\_17 I own a fuel-efficient automobile (less than 6 liters per 100 kilometers)

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### Efficiency Knowledge (Cologna et al., 2022)

**Instruction:**

Please rank the potential of the following behaviors for reducing your carbon footprint on a scale from 1 = “Most effective; to 8 = “Least effective”.

Please complete this section on your own and without the help of others.

**1=Rank 1, 2=Rank 2, 3=Rank 3, 4=Rank 4, 5=Rank 5, 6=Rank 6, 7=Rank 7, 8=Rank 8**

- 
- EK01\_01 Shift to a vegan diet (from an omnivorous diet)
- EK01\_02 Shift to a vegetarian diet (from an omnivorous diet)
- EK01\_03 Purchase only Bio/Organic foods
- EK01\_04 Purchase only seasonal foods
- EK01\_05 Purchase only local and regional foods
- EK01\_06 Reduce avoidable food waste (examples: leftovers from a meal, expired food, and food that is damaged but still fit for consumption)
- EK01\_07 Consume fewer foods with low nutritional value (for example, coffee, alcohol, candy, etc.)
- EK01\_08 Purchase food products with less or more sustainable packaging

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### Sociodemographic questions

Item index	Wording
SD01	Please identify your gender (1 = Male; 2 = Female; 3 = Diverse)
SD03_01	What is your age? (Open question)
SD05	Please indicate your highest level of completed education (1 = High school [or equivalent]; 2 = Bachelor's Degree [or equivalent]; 3 = Master's Degree [or equivalent]; 4 = PhD)
SD06	Please select your study subject (1 = Engineering; 2 = Veterinary Medicine, Agriculture, Nutritional Sciences; 3 = Linguistics and Cultural Studies; 4 = Natural Science and Mathematics; 5 = Art and Music; 6 = Medicine and Health Sciences; 7 = Law, Economics, and Social Sciences; 8 = Other)
SD08	Which best describes your dietary preference? (1 = Omnivorous [no dietary restriction]; 2 = Vegetarian; 3 = Vegan)
SD07	In your honest opinion, do you think we can use your data for this thesis? (1 = Yes; 2 = No)

*Note.* All missing values were coded as -9.

## Rasch Model (Tables S2 and S3)

Model fit was inspected via item-level infit and outfit mean square statistics and their associated Holm-corrected  $p$ -values (Adams & Wu, 2007). Infit is an information-weighted fit statistic that is particularly sensitive to unexpected responses to items located near a person's ability (environmental motivation in the present case), while outfit is an outlier-sensitive statistic that captures unexpected responses to items far from a person's ability level. In both cases, nonsignificant  $p$ -values associated with the infit and outfit statistics support that the observed item responses do not systematically deviate from the Rasch model's expectations (Linacre, 2002; Wright & Linacre, 1994). From the 49 items, none misfitted the Rasch model based on the infit criteria, but 4 misfitted the Rasch model based on the outfit criteria. Yet, given that the GEB is a validated scale and the respectable reliability of the estimation, we chose not to remove any items.

**Table S2**

*Rasch Estimation Results of the General Ecological Behavior Scale Used in the Regressions*

Item estimates ( $N = 49$ )		Person estimates ( $N = 115$ )	
Mean of item estimates	-0.73	Mean of person estimates	0.00
SD of item estimates	1.73	SD of person estimates	0.86
Mean of infit MS [ $M(MS)$ ]	1.00	Mean of infit MS [ $M(MS)$ ]	0.96
SD of infit MS [ $SD(MS)$ ]	0.09	SD of infit MS [ $SD(MS)$ ]	0.34
Mean of infit $t$ [ $M(t)$ ]	0.06	Mean of infit $t$ [ $M(t)$ ]	-0.21
SD of infit $t$ [ $SD(t)$ ]	0.86	SD of infit $t$ [ $SD(t)$ ]	1.67
Min. of infit MS	0.84	% Misfit ( $z$ -value > 1.96) of subjects	11.30
Max. of infit MS	1.27		
Items with a perfect score	None	Persons with a perfect score	None
Items with zero score	None	Persons with a zero score	None
Item separation reliability	0.97	Person separation reliability	0.78

**Table S3***Rasch Estimation Results of the General Ecological Behavior Scale Used in the Regressions*

Item	Difficulty	SE	Infit	Infit <i>t</i>	Infit <i>p</i>	Infit <i>p</i> <sub>Holm</sub>	Outfit	Outfit <i>t</i>	Outfit <i>p</i>	Outfit <i>p</i> <sub>Holm</sub>
GB01_01	-4.313	0.718	0.999	0.223	0.82	1.00	0.622	-0.449	.65	1.00
GB01_02	0.493	0.203	0.851	-2.225	0.03	1.00	0.817	-2.772	.01	.25
GB01_03	3.583	0.515	1.052	0.263	0.79	1.00	3.769	3.688	.00	.01
GB01_04	-0.997	0.229	1.114	1.102	0.27	1.00	1.185	1.724	.09	1.00
GB01_05	-3.132	0.427	0.977	0.055	0.96	1.00	0.936	-0.081	.94	1.00
GB01_06	-2.947	0.399	0.995	0.090	0.93	1.00	1.346	1.008	.31	1.00
GB01_07	-1.578	0.248	1.047	0.363	0.72	1.00	1.011	0.110	.91	1.00
GB01_08	-2.483	0.342	0.875	-0.424	0.67	1.00	0.647	-1.492	.14	1.00
GB01_09	2.216	0.318	1.073	0.390	0.70	1.00	1.107	0.522	.60	1.00
GB01_10	-1.590	0.248	0.915	-0.564	0.57	1.00	0.869	-0.922	.36	1.00
GB01_11	-2.010	0.279	0.973	-0.088	0.93	1.00	0.897	-0.527	.60	1.00
GB01_12	-1.033	0.221	0.835	-1.741	0.08	1.00	0.736	-2.923	.00	.16
GB01_13	-2.981	0.398	0.976	0.035	0.97	1.00	0.837	-0.438	.66	1.00
GB01_14	1.550	0.244	1.081	0.611	0.54	1.00	1.191	1.343	.18	1.00
GB01_15	2.703	0.355	0.995	0.072	0.94	1.00	1.234	0.847	.40	1.00
GB01_16	-0.885	0.215	0.959	-0.442	0.66	1.00	0.924	-0.845	.40	1.00
GB01_17	-0.837	0.216	1.094	1.039	0.30	1.00	1.102	1.114	.27	1.00
GB01_18	-0.373	0.201	1.012	0.188	0.85	1.00	1.020	0.306	.76	1.00
GB01_19	0.917	0.215	0.989	-0.095	0.92	1.00	0.968	-0.330	.74	1.00
GB01_20	2.044	0.353	1.005	0.096	0.92	1.00	1.055	0.281	.78	1.00
GB01_21	0.689	0.208	0.902	-1.266	0.21	1.00	0.881	-1.554	.12	1.00
GB01_22	-0.165	0.201	0.950	-0.798	0.43	1.00	0.930	-1.148	.25	1.00
GB01_23	-1.995	0.280	1.004	0.080	0.94	1.00	0.974	-0.097	.92	1.00
GB01_24	1.097	0.221	0.944	-0.520	0.60	1.00	0.939	-0.583	.56	1.00
GB01_25	-0.577	0.204	0.929	-0.967	0.33	1.00	0.919	-1.118	.26	1.00
GB01_26	-1.465	0.240	0.936	-0.450	0.65	1.00	0.891	-0.820	.41	1.00
GB01_27	-2.007	0.300	0.947	-0.212	.83	1.00	0.948	-0.222	0.824	1.00

Item	Difficulty	SE	Infit	Infit <i>t</i>	Infit <i>p</i>	Infit <i>p</i> <sub>Holm</sub>	Outfit	Outfit <i>t</i>	Outfit <i>p</i>	Outfit <i>p</i> <sub>Holm</sub>
GB01_28	0.827	0.225	1.053	0.599	.55	1.00	1.095	1.029	0.303	1.00
GB01_29	-1.815	0.268	1.021	0.174	.86	1.00	1.020	0.156	0.876	1.00
GB01_30	-0.577	0.204	1.139	1.833	.07	1.00	1.187	2.413	0.016	.68
GB01_31	-2.440	0.327	0.949	-0.134	.89	1.00	0.743	-1.087	0.277	1.00
GB01_32	-3.888	0.591	1.064	0.295	.77	1.00	1.830	1.381	0.167	1.00
GB02_01	-2.269	0.304	0.976	-0.044	.97	1.00	0.747	-1.207	0.227	1.00
GB02_02	-1.298	0.231	0.934	-0.534	.59	1.00	0.900	-0.836	0.403	1.00
GB02_03	-1.350	0.234	0.960	-0.290	.77	1.00	0.951	-0.380	0.704	1.00
GB02_04	-2.287	0.315	1.008	0.106	.92	1.00	0.878	-0.493	0.622	1.00
GB02_05	-1.513	0.244	0.996	0.010	.99	1.00	1.114	0.831	0.406	1.00
GB02_06	-1.413	0.237	0.903	-0.742	.46	1.00	0.898	-0.806	0.420	1.00
GB02_07	1.221	0.226	1.042	0.406	.69	1.00	1.231	1.967	0.049	1.00
GB02_08	-2.176	0.306	0.881	-0.511	.61	1.00	0.678	-1.634	0.102	1.00
GB02_09	0.784	0.288	1.084	0.712	.48	1.00	1.156	1.261	0.207	1.00
GB02_10	-1.939	0.273	0.942	-0.278	.78	1.00	0.740	-1.555	0.120	1.00
GB02_11	1.610	0.288	1.274	1.533	.13	1.00	1.725	3.546	0.000	.02
GB02_12	-0.289	0.225	1.047	0.671	.50	1.00	1.070	0.983	0.326	1.00
GB02_13	-0.279	0.251	1.175	2.006	.05	1.00	1.220	2.478	0.013	.58
GB02_14	-1.062	0.230	0.978	-0.179	.86	1.00	0.999	0.016	0.987	1.00
GB02_15	0.773	0.213	1.214	2.371	.02	.87	1.348	3.698	0.000	.01
GB02_16	-0.843	0.234	0.910	-0.919	.36	1.00	0.822	-1.904	0.057	1.00
GB02_17	0.763	0.284	1.139	1.142	.25	1.00	1.162	1.312	0.190	1.00

*Note.* GEB = Items from the General Ecological Behavior scale; Difficulty describes how likely individuals are to self-report engaging in a certain behavior on average. The exact likelihood for a specific person is determined by the distance between the behavior difficulty and the person's environmental motivation; The dichotomous item "I am a vegetarian" was omitted from the scale, because this item directly relates to the sustainable food consumption behavior studied in this research.

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## Food-related emission knowledge (Table S4)

**Table S4**

*Food-Related Emission Knowledge Test*

<b>Behavior</b>	<b>Reduction Potential (tCO<sub>2</sub>e/cap/year)</b>	<b>Source</b>
Eat only Bio/Organic foods	0.011	Treu et al., 2017
Consume fewer foods with low nutritional value (alcohol, tea, chocolate)	0.097	Ivanova et al., 2020
Buy products with less or greener packaging	0.16	Ivanova et al., 2020
Eat only seasonal foods	0.21	Ivanova et al., 2020
Reduce avoidable food waste	0.32	Ivanova et al., 2020
Eat only regional/local foods	0.44	Ivanova et al., 2020
Eat a vegetarian diet	0.49	Meier & Christen, 2013
Eat a vegan diet	1.09	Meier & Christen, 2013

## Zero-order correlations (Table S5)

**Table S5**

*Zero-order correlations of person-level variables*

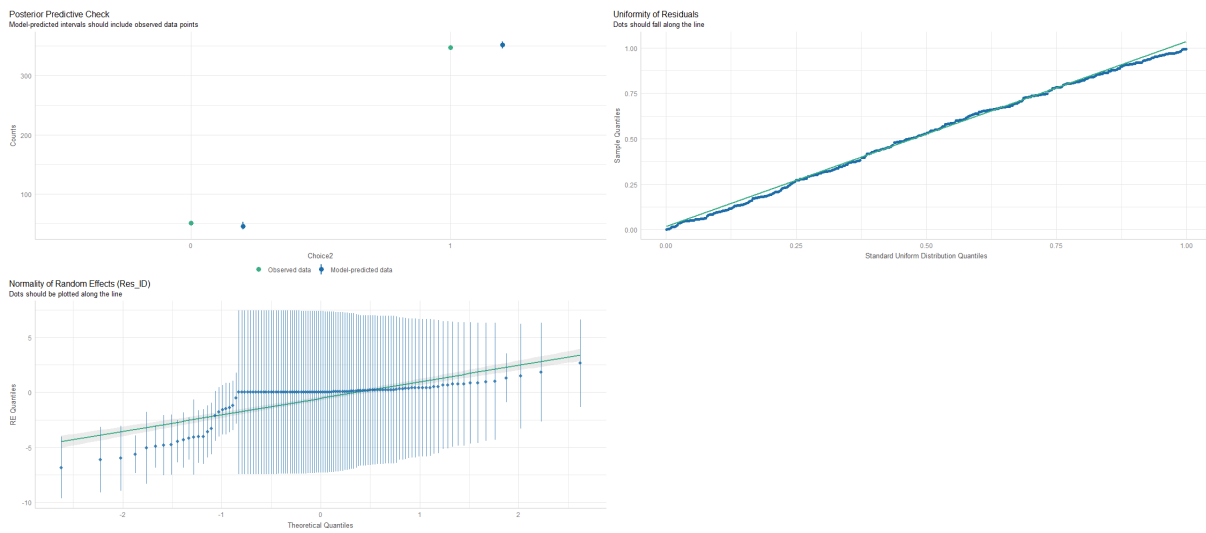
<b>Variable 1</b>	<b>Variable 2</b>	<b><i>r</i></b>	<b>95% CI []</b>	<b><i>t</i></b>	<b><i>p</i></b>
Environmental Motivation	Food-related emission knowledge	.24	[0.06, 0.40]	2.59	.011
Environmental Motivation	Age	.18	[-0.01, 0.35]	1.89	.061
Environmental Motivation	Gender	-.07	[-0.25, 0.12]	-0.70	.483
Environmental Motivation	Education	-.10	[-0.28, 0.09]	-1.06	.291
Food-related emission knowledge	Age	.00	[-0.19, 0.17]	-0.09	.926
Food-related emission knowledge	Gender	-.12	[-0.30, 0.06]	-1.31	.192
Food-related emission knowledge	Education	.04	[-0.15, 0.22]	0.38	.706
Age	Gender	.35	[0.17, 0.50]	3.92	<.001
Age	Education	.58	[0.44, 0.69]	7.50	<.001
Gender	Education	.21	[0.03, 0.38]	2.32	.022

*Note.* Correlations are set: polychoric when ordinal factors are involved, tetrachoric when dichotomous factors are involved, point-biserial if one dichotomous and one continuous, and Pearson otherwise by default with the R-function used.

## Model diagnostics (Figures S6-12)

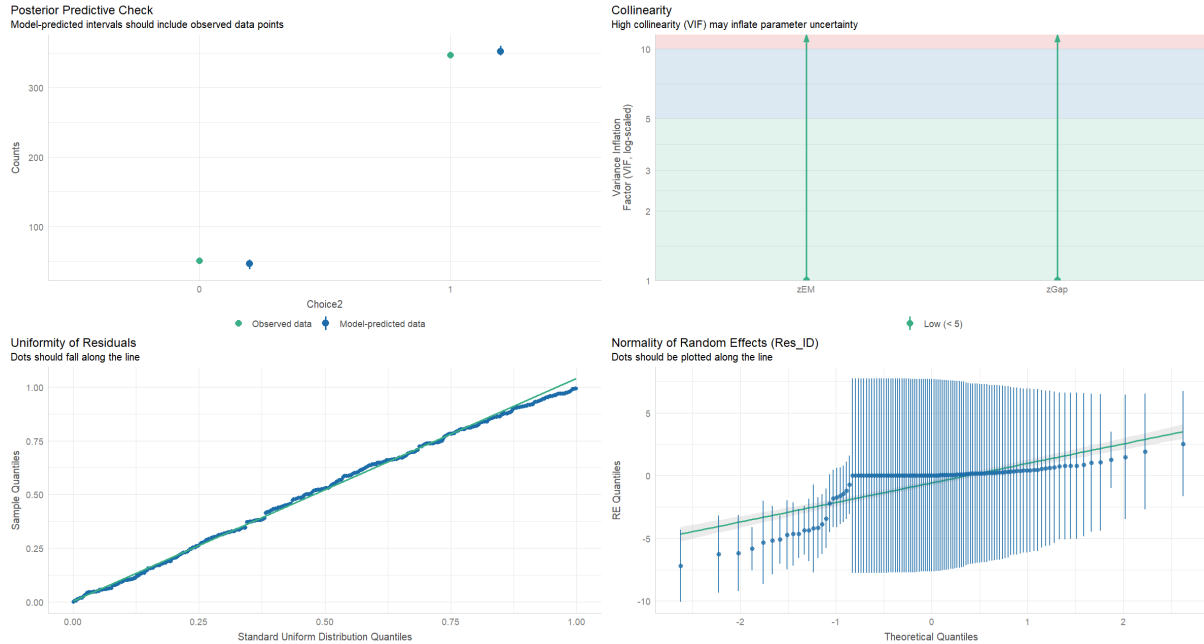
### Figure S6

*Graphical model checks for logistic mixed-effects regressions predicting the likelihood of choosing a sustainable meal (vegetarian or vegan) versus an omnivorous meal option: Model 1*



## Figure S7

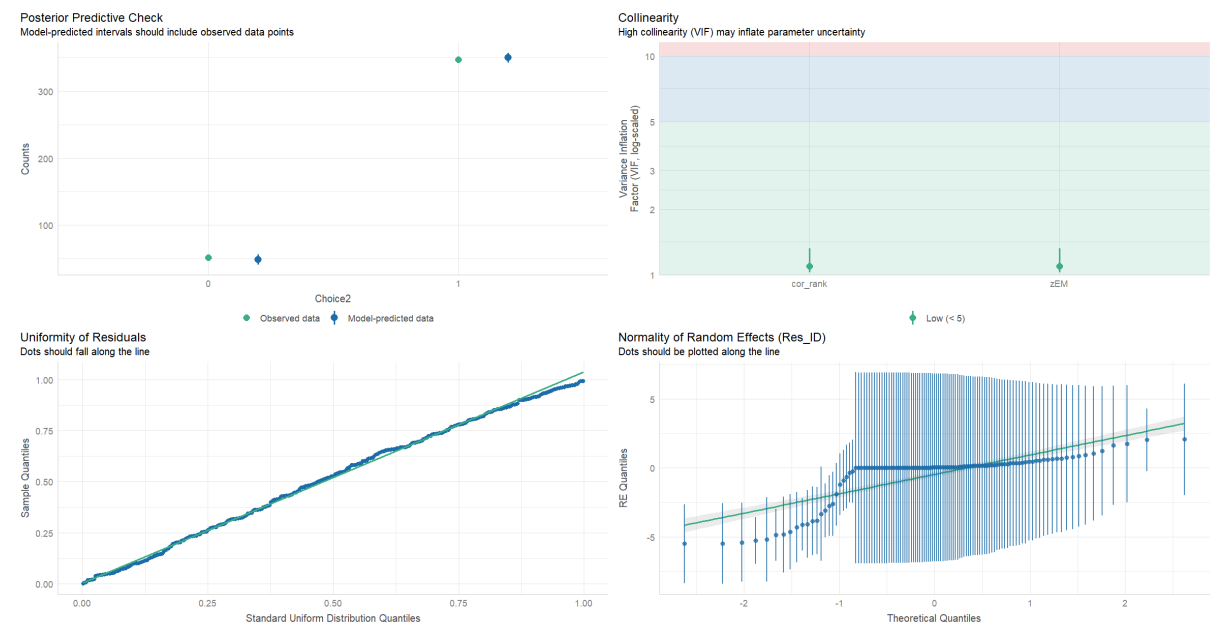
*Graphical model checks for logistic mixed-effects regressions predicting the likelihood of choosing a sustainable meal (vegetarian or vegan) versus an omnivorous meal option: Model 2*



*Note.* zEM = Environmental motivation, zGap = Objective emission difference

## Figure S8

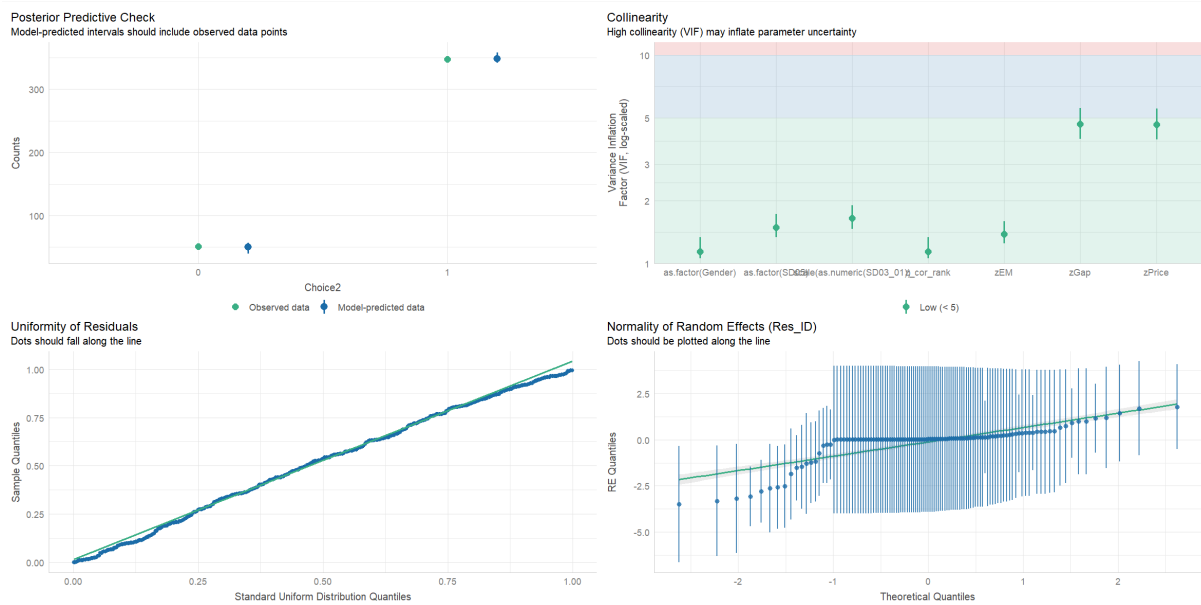
*Graphical model checks for logistic mixed-effects regressions predicting the likelihood of choosing a sustainable meal (vegetarian or vegan) versus an omnivorous meal option: Model 3*



*Note.* zEM = Environmental motivation, z\_cor\_rank = Food-related emission knowledge

## Figure S9

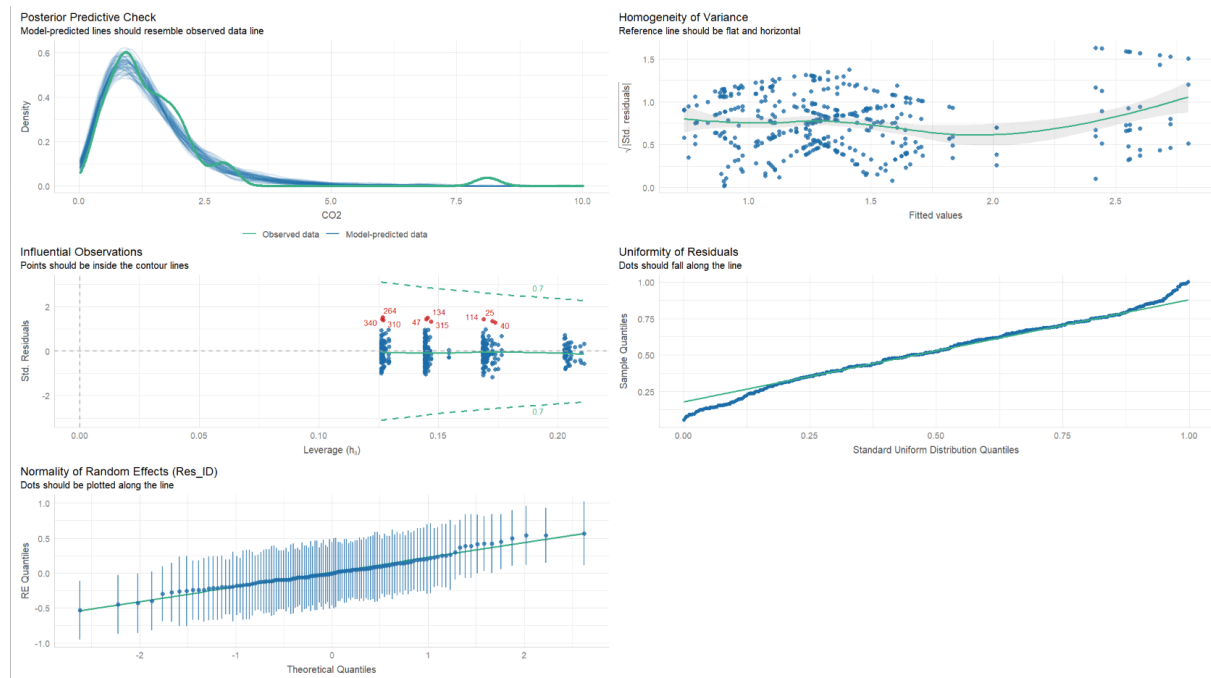
*Graphical model checks for logistic mixed-effects regressions predicting the likelihood of choosing a sustainable meal (vegetarian or vegan) versus an omnivorous meal option: Model 4*



*Note.* zEM = Environmental motivation, zGap = Objective emission difference, SD05 = Education, SD03\_01 = Age, z\_cor\_rank = Food-related emission knowledge, zPrice = Price difference

## Figure S10

### *Graphical model checks for generalized mixed-effects regressions predicting the CO<sub>2</sub>e emissions: Model 5*



## Figure S11

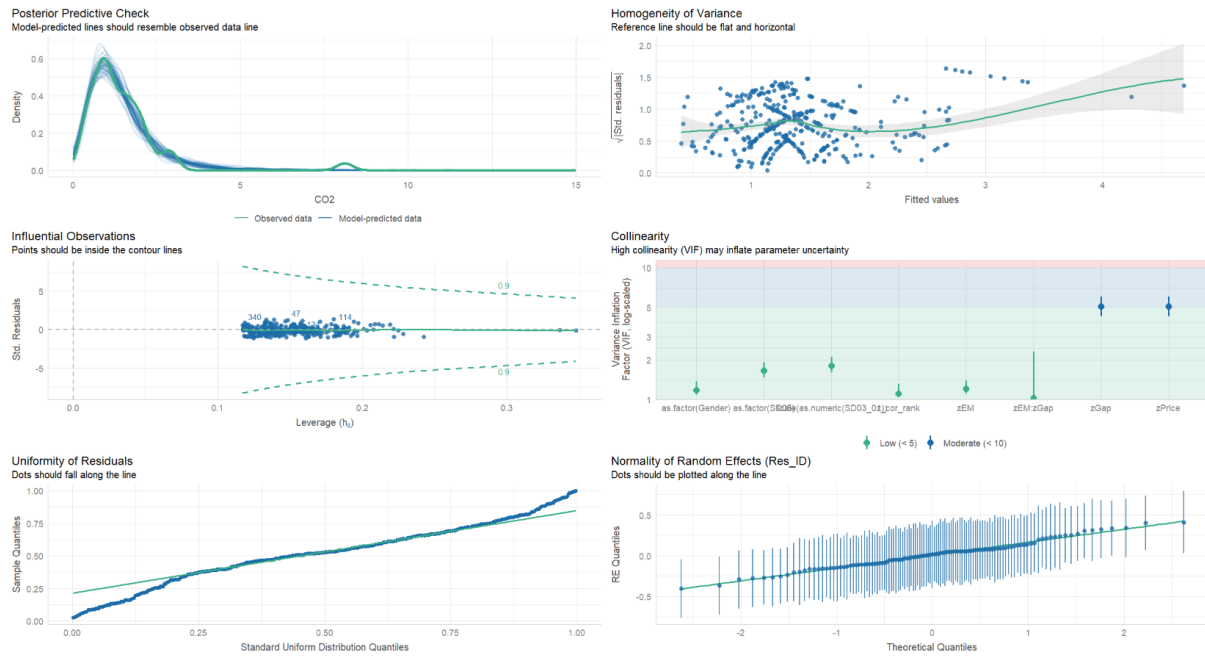
### Graphical model checks for generalized mixed-effects regressions predicting the CO<sub>2</sub>e emissions: Model 6



*Note.* zEM = Environmental motivation, zGap = Objective emission difference

**Figure S12**

*Graphical model checks for generalized mixed-effects regressions predicting the CO2e emissions: Model 7*



*Note.* zEM = Environmental motivation, zGap = Objective emission difference, SD05 = Education, SD03\_01 = Age, z\_cor\_rank = Food-related emission knowledge, zPrice = Price difference

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## Sensitivity analyses A-C

For Sensitivity Analysis A, we collapsed vegetarian and omnivorous meal choices into one category (i.e., “sustainable” meals) and contrasted this with vegan meal choices. For Sensitivity Analysis B, we have applied a different, less strict data exclusion. Specifically, we removed only participants who did not consent or understand the instructions (for ethical reasons), non-student participants (because they were such a small minority), participants who ate no meal at all (in contrast to participants with > 1 meal), and participants who recorded more than 30% (in contrast to 20%) missing values. We still did not exclude people who incorrectly answered the bogus item or said they had carelessly answered the questionnaire (or did not answer that question at all). *N* was 184 (instead of 115). For Sensitivity Analysis C, we combined both Sensitivity Analysis A and B. That is, we used the alternative specification of “sustainable” meals with the less strictly cleaned data.

## Sensitivity analyses A: Collapsing vegetarian and omnivore vs. vegan

**Table S13**

*Results of logistic mixed-effects regressions predicting the likelihood of choosing a vegan meal versus a vegetarian or omnivorous meal option*

Variable	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>		<i>Model 4</i>	
	OR 95% CI []	<i>p</i>	OR 95% CI []	<i>p</i>	OR 95% CI []	<i>p</i>	OR 95% CI []	<i>p</i>
Intercept	143.4 [20.5, 1002.7]	<.001	143.01 [20.5, 99.1]	<.001	56.3 [9.8, 322.8]	<.001	103.1 [27.3, 389.9]	<.001
EM	8.29 [3.08, 22.3]	<.001	8.30 [3.08, 22.3]	<.001	5.70 [2.20, 14.75]	<.001	5.48 [2.64, 11.3]	<.001
$M_{CO_2e \text{ diff.}}$			0.96 [0.63, 1.45]	.846			1.50 [0.68, 3.30]	.315
EK					4.44 [0.86, 22.9]	.075	1.37 [0.60, 3.10]	.453
$M_{price \text{ diff.}}$							1.59 [0.71, 3.53]	.256
Age							0.53 [0.28, 0.99]	.046
Male							0.15 [0.05, 0.48]	.001
Bachelor's degree							0.46 [0.12, 1.70]	.243
Master's degree							1.16 [0.15, 9.15]	.888
Doctoral degree							9.32 [0.20, 430.0]	.253
$R^2c$	.82		.82		.80		.79	
$R^2m$	.24		.24		.26		.44	

*Note.* CI = 95% confidence intervals. OR = Odds Ratio. EM = Environmental motivation.  $M_{CO_2e \text{ diff.}}$  = Mean CO<sub>2e</sub> emission difference between sustainable and omnivorous meal alternatives. EK = Food-related emission knowledge.  $M_{price \text{ diff.}}$  = Mean price difference between sustainable and omnivorous alternatives. The reference category for the gender variable was female; the reference category for education was having at least a high-school diploma.  $R^2$  values are pseudo  $R^2$ 's calculated as recommended by Nakagawa and Schielzeth (2013).  $R^2c$  =  $R^2$  conditional (including random effects).  $R^2m$  =  $R^2$  marginal (fixed effects only).

Supplementary Materials for:

Neef, N. E., Wakabayashi, K., Briem, A.-K., Bauknecht, D., & Otto, S. (2026). When Environmental Motivation Does and Does Not Cut Emissions: Environmental Motivation and Students' Cafeteria Food Decisions. *Environmental Psychology Open*, 30. <https://doi.org/10.69805/epo.v30.a53>

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**Table S14**

*Results of generalized mixed-effects regressions predicting the CO<sub>2e</sub> emissions via environmental motivation and the CO<sub>2e</sub> emissions difference between sustainable and omnivorous meal options*

Variable	<i>Model 5</i>		<i>Model 6</i>		<i>Model 7</i>	
	% change 95% CI []	<i>p</i>	% change 95% CI []	<i>p</i>	% change 95% CI []	<i>p</i>
EM	-15.1 [-15.3, -14.9]	<.001	-14.1 [-14.3, -13.9]	<.001	-12.6 [-19.1, -5.5]	.001
$M_{CO_2e \text{ diff.}}$			-5.5 [-5.7, -5.3]	<.001	-12.0 [-19.8, -3.3]	.008
EM x $M_{CO_2e \text{ diff.}}$			-12.6 [-12.8, -12.4]	<.001	-12.4 [-15.9, -8.7]	<.001
EK					-2.8 [-9.7, 4.6]	.449
$M_{price \text{ diff.}}$					-7.5 [-15.9, 1.7]	.105
Age					-2.5 [-11.5, 7.4]	.609
Male					35.3 [14.9, 59.1]	<.001
Bachelor's degree					19.6 [-1.0, 44.6]	.063
Master's degree					15.5 [-18.2, 64.1]	.412
Doctoral degree					-1.6 [-50.6, 96.0]	.963
$R^2c$	.36		.40		.42	
$R^2m$	.06		.12		.20	

*Note.* \*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; EM = Environmental motivation;  $M_{CO_2e \text{ diff.}}$  = Mean CO<sub>2e</sub> emission difference between sustainable and omnivorous meal alternatives; EK = Food-related emission knowledge;  $M_{price \text{ diff.}}$  = Mean price difference between sustainable and omnivorous alternatives; the reference category for the gender variable was female; the reference category for education was having at least a high-school diploma;  $R^2$  values are pseudo  $R^2$ 's calculated as recommended by Nakagawa and Schielzeth (2013);  $R^2c$  =  $R^2$  conditional (including random effects);  $R^2m$  =  $R^2$  marginal (fixed effects only). The intercept is omitted because a percentage interpretation is not meaningful for the baseline in a Gamma model.

## Sensitivity analyses B: Alternative exclusion criteria

**Table S15**

*Results of logistic mixed-effects regressions predicting the likelihood of choosing a vegan or vegetarian meal versus an omnivorous meal option*

Variable	Model 1		Model 2		Model 3		Model 4	
	OR	<i>p</i>	OR	<i>p</i>	OR	<i>p</i>	OR	<i>p</i>
Intercept	0.55	<.001	0.54	<.001	0.58	<.001	0.74	<.001
	[0.41, 0.74]		[0.39, 0.74]		[0.37, 0.91]		[0.38, 1.44]	
EM	1.94	<.001	2.00	<.001	1.98	<.001	2.49	<.001
	[1.41, 2.67]		[1.43, 2.79]		[1.40, 2.78]		[1.47, 4.20]	
$M_{CO_2e \text{ diff.}}$			0.75	.021			0.56	<.001
			[0.58, 0.96]				[0.41, 0.76]	
EK					0.89	.75	1.08	.708
					[0.43, 1.85]		[0.71, 1.66]	
$M_{price \text{ diff.}}$							4.76	<.001
							[3.13, 7.23]	
Age							1.31	.320
							[0.77, 2.25]	
Male							0.24	.005
							[0.09, 0.66]	
Bachelor's degree							0.80	.696
							[0.26, 2.43]	
Master's degree							0.65	.686
							[0.08, 5.13]	
$R^2c$	.30		.33		.30		.68	
$R^2m$	.09		.11		.09		.41	

*Note.* CI = 95% confidence intervals. OR = Odds Ratio. EM = Environmental motivation.  $M_{CO_2e \text{ diff.}}$  = Mean CO<sub>2</sub>e emission difference between sustainable and omnivorous meal alternatives. EK = Food-related emission knowledge.  $M_{price \text{ diff.}}$  = Mean price difference between sustainable and omnivorous alternatives. The reference category for the gender variable was female; the reference category for education was having at least a high-school diploma.  $R^2$  values are pseudo  $R^2$ s calculated as recommended by Nakagawa and Schielzeth (2013).  $R^2c$  =  $R^2$  conditional (including random effects).  $R^2m$  =  $R^2$  marginal (fixed effects only).

**Table S16**

*Results of generalized mixed-effects regressions predicting the CO<sub>2e</sub> emissions via environmental motivation and the CO<sub>2e</sub> emissions difference between sustainable and omnivorous meal options*

Variable	<i>Model 5</i>		<i>Model 6</i>		<i>Model 7</i>	
	% change 95% CI []	<i>p</i>	% change 95% CI []	<i>p</i>	% change 95% CI []	<i>p</i>
EM	-17.9 [-25.1, -10.0]	<.001	-16.0 [-23.0, -8.4]	<.001	-14.1 [-21.1, -6.5]	.001
$M_{CO_2e \text{ diff.}}$			3.3 [-1.9, 8.7]	.221	4.4 [-0.5, 9.4]	.078
EM x $M_{CO_2e \text{ diff.}}$			-14.5 [-18.6, -10.3]	<.001	-13.7 [-17.5, -9.8]	<.001
EK					-0.7 [-8.3, 7.6]	.867
$M_{price \text{ diff.}}$					-12.5 [-16.5, -8.3]	.105
Age					-3.2 [-12.3, 6.8]	.517
Male					31.6 [10.4, 56.9]	.002
Bachelor's degree					18.8 [-2.8, 45.2]	.092
Master's degree					24.5 [-13.4, 79.0]	.237
$R^2c$	.35		.39		.44	
$R^2m$	.09		.16		.28	

*Note.* \*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; EM = Environmental motivation;  $M_{CO_2e \text{ diff.}}$  = Mean CO<sub>2e</sub> emission difference between sustainable and omnivorous meal alternatives; EK = Food-related emission knowledge;  $M_{price \text{ diff.}}$  = Mean price difference between sustainable and omnivorous alternatives; the reference category for the gender variable was female; the reference category for education was having at least a high-school diploma;  $R^2$  values are pseudo  $R^2$ s calculated as recommended by Nakagawa and Schielzeth (2013);  $R^2c$  =  $R^2$  conditional (including random effects);  $R^2m$  =  $R^2$  marginal (fixed effects only). The intercept is omitted because a percentage interpretation is not meaningful for the baseline in a Gamma model.

## Sensitivity analyses C: Collapsing vegetarian and omnivore vs. vegan & alternative exclusion criteria

**Table S17**

*Results of logistic mixed-effects regressions predicting the likelihood of choosing a vegan meal versus a vegetarian or omnivorous meal option*

Variable	Model 1		Model 2		Model 3		Model 4	
	OR 95% CI []	<i>p</i>	OR 95% CI []	<i>p</i>	OR 95% CI []	<i>p</i>	OR 95% CI []	<i>p</i>
Intercept	0.68 [0.54, 0.86]	.001	0.66 [0.52, 0.85]	.001	0.60 [0.42, 0.85]	.004	0.92 [0.55, 1.53]	.743
EM	1.81 [1.41, 2.32]	<.001	1.92 [1.47, 2.50]	<.001	1.72 [1.32, 2.25]	<.001	2.47 [1.63, 3.74]	<.001
$M_{CO_2e \text{ diff.}}$			0.65 [0.52, 0.81]	.251			0.51 [0.39, 0.67]	<.001
EK					1.34 [0.75, 2.41]	.324	1.23 [0.88, 1.72]	.217
$M_{price \text{ diff.}}$							4.23 [2.96, 6.03]	<.001
Age							1.04 [0.66, 1.66]	.857
Male							0.33 [0.15, 0.72]	.005
Bachelor's degree							0.62 [0.25, 1.52]	.294
Master's degree							0.73 [0.14, 3.78]	.709
Doctoral degree							2.63 [0.12, 58.1]	.541
$R^2c$	.24		.30		.24		.65	
$R^2m$	.08		.12		.09		.41	

*Note.* CI = 95% confidence intervals. OR = Odds Ratio. EM = Environmental motivation.  $M_{CO_2e \text{ diff.}}$  = Mean CO<sub>2e</sub> emission difference between sustainable and omnivorous meal alternatives. EK = Food-related emission knowledge.  $M_{price \text{ diff.}}$  = Mean price difference between sustainable and omnivorous alternatives. The reference category for the gender variable was female; the reference category for education was having at least a high-school diploma.  $R^2$  values are pseudo  $R^2$ s calculated as recommended by Nakagawa and Schielzeth (2013).  $R^2c$  =  $R^2$  conditional (including random effects).  $R^2m$  =  $R^2$  marginal (fixed effects only).

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**Table S18**

*Results of generalized mixed-effects regressions predicting the CO<sub>2e</sub> emissions via environmental motivation and the CO<sub>2e</sub> emissions difference between sustainable and omnivorous meal options*

Variable	Model 5		Model 6		Model 7	
	% change 95% CI []	<i>p</i>	% change 95% CI []	<i>p</i>	% change 95% CI []	<i>p</i>
EM	-15.1 [-15.3, -14.9]	<.001	-14.7 [-21.0, -7.8]	<.001	-13.6 [-19.8, -6.8]	<.001
$M_{CO_2e \text{ diff.}}$			3.9 [-0.8, 8.8]	.105	4.4 [0.0, 9.0]	.050
EM x $M_{CO_2e \text{ diff.}}$			-14.0 [-17.7, -10.1]	<.001	-13.8 [-17.5, -9.9]	<.001
EK					-0.26 [-9.2, 4.6]	.471
$M_{price \text{ diff.}}$					-12.2 [-15.8, -8.4]	<.001
Age					-1.4 [-10.3, 8.3]	.767
Male					32.0 [12.7, 54.6]	.001
Bachelor's degree					17.6 [-2.1, 41.2]	.083
Master's degree					12.2 [-19.6, 56.6]	.499
Doctoral degree					-14.3 [-56.0, 67.0]	.650
$R^2c$	.36		.39		.45	
$R^2m$	.06		.13		.25	

*Note.* \*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; EM = Environmental motivation;  $M_{CO_2e \text{ diff.}}$  = Mean CO<sub>2e</sub> emission difference between sustainable and omnivorous meal alternatives; EK = Food-related emission knowledge;  $M_{price \text{ diff.}}$  = Mean price difference between sustainable and omnivorous alternatives; the reference category for the gender variable was female; the reference category for education was having at least a high-school diploma;  $R^2$  values are pseudo  $R^2$ 's calculated as recommended by Nakagawa and Schielzeth (2013);  $R^2c$  =  $R^2$  conditional (including random effects);  $R^2m$  =  $R^2$  marginal (fixed effects only). The intercept is omitted because a percentage interpretation is not meaningful for the baseline in a Gamma model.

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