

# Spiritual Beliefs Regarding Nature Predict Meat-Avoidance Motives

Natasha Davis<sup>1</sup>, Eleanor Goodridge<sup>1</sup>, and Justin H. Park<sup>1</sup>

<sup>1</sup> School of Psychology and Neuroscience, University of Bristol, Bristol, UK

Correspondence: Justin H. Park ([j.h.park@bristol.ac.uk](mailto:j.h.park@bristol.ac.uk))

**ABSTRACT** – Against the backdrop of multiple reasons for avoiding meat (animal welfare, environmental degradation, and health concerns), people vary in their attitudes toward meat and meat avoidance, as well as in the underlying psychological characteristics. The present study investigated the extent to which ecospirituality (spiritual beliefs regarding nature and human–nature connectedness) predicts meat-avoidance motives, using previously validated measures. A sample of 244 UK-based individuals completed a measure of ecospirituality and a measure of meat-avoidance motives pertaining to animal rights, the environment, and health. They also completed measures of meat-eating justification (endorsing the view that meat is natural, necessary, normal, and nice) and mental-capacity dichotomization (ascribing lower mental capacities to “food” animals than to “nonfood” animals). Ecospirituality predicted all three meat-avoidance motives while controlling for meat-eating justification and mental-capacity dichotomization. These results add to the literature on the correlates of attitudes toward meat and meat avoidance and have implications for interventions.

**Keywords:**

Ecospirituality; Meat avoidance;  
Plant-based diet; Speciesism;  
Veganism; Vegetarianism

**Received:** May 23, 2026

**Accepted:** June 1, 2026

**Published:** June 4, 2026

**Citation:**

Davis, N., Goodridge, E., & Park, J. H. (2026). Spiritual beliefs regarding nature predict meat-avoidance motives. *Individual Differences Research*, 24(2), e24006.  
<https://doi.org/10.65030/idr.24006>

## Introduction

With increasing awareness of inhumane practices in factory farms, environmental degradation caused by animal agriculture, and diseases associated with meat consumption, people have had multiple reasons to avoid meat. Nevertheless, consumption of meat and dairy persists at levels that are environmentally unsustainable and suboptimal for health (Clark et al., 2020; Poore & Nemecek, 2018; Willett et al., 2019). This is in part because eating meat is rarely a carefully considered decision; most people eat meat out of habit, having been

socialized in families and cultural contexts that normalize eating animals (Bastian & Loughnan, 2017; Joy, 2009). Revealingly, many children are unaware that the meat they eat comes from animals, with the majority of children answering that eating animals (including cows and pigs) is not acceptable (Hahn et al., 2021). As they grow out of childhood, people become less opposed to eating animals and more speciesist in their views regarding humans and animals (McGuire et al., 2023; Wilks et al., 2021).

Of course, some people do deliberately avoid animal products for one or more of the reasons noted above (Janssen et al., 2016; Ruby, 2012); meat eaters also vary substantially in their level of attachment to meat and willingness to change their diet (Graça et al., 2015). Accordingly, a growing body of research has attempted to identify individual differences underlying attitudes toward meat and meat avoidance. The objective of the present research was to investigate the extent to which *ecospirituality* (spiritual beliefs regarding nature and human–nature connectedness) predicts meat-avoidance motives, an association that has not been explored previously.

### ***Characteristics Underlying Attitudes Toward Meat and the Environment***

Faced with multiple reasons and arguments for avoiding meat, committed meat eaters may be motivated to defend their diet, and thus a core process is the justification of meat consumption—namely, the extent to which meat is seen as *natural*, *necessary*, *normal*, and *nice* (the 4Ns; Piazza et al., 2015). When participants were asked to “give three reasons why you think it is OK to eat meat,” most of the responses aligned with the 4Ns. When scales were used to measure the degree to which people endorse the 4Ns, meat eaters were higher in the 4Ns than vegetarians and vegans (Piazza et al., 2015) and higher 4Ns were associated with lower meat-avoidance motives (Trenkenschuh et al., 2025). Another process is reduced perceptions of mental capacities in animals, which may be a dissonance-reduction strategy (eating animals causes little conflict if they are perceived to be incapable of suffering). Compared with vegetarians and vegans, meat eaters ascribe lower mental capacities to animals (Hankins et al., 2024). At the level of broader personality traits, empathy and openness to experience have been found to be associated with being vegetarian or vegan (Holler et al., 2021; Reist et al., 2023). Right-wing ideologies, such as social dominance orientation, have been found to be associated with pro-meat attitudes and behavior (Braunsberger et al., 2021; Holler et al., 2021), anti-vegan attitudes (MacInnis & Hodson, 2017), and reduced pro-environmental attitudes (Stanley & Wilson, 2019).

The role of ideology in environmental attitudes is important because environmental harms are typically framed in a manner that resonates with left-wing ideologies and moral intuitions (i.e., emphasizing harm and social justice). Accordingly, standard pro-environmental messages appeal more to those on the left than to those on the right, and messages that are specifically designed to appeal to those on the right (e.g., emphasizing patriotism and purity) prove more impactful for right-leaning individuals (Feinberg & Willer, 2013; Wolsko et al., 2016). To circumvent unhelpful politicization of environmental issues, it seems important to identify variables that can predict or affect pro-environmental attitudes regardless of political ideology. One such variable may be attachment security: A study found that priming attachment security increased donations made to a sustainability group regardless of political ideology, whereas a standard climate change message backfired for conservatives (Nisa et al., 2021). Another variable that may be immune to political ideology is ecospirituality.

### ***Ecospirituality and Meat-Avoidance Motives***

Conceptualizing the world and our experiences in spiritual and sacred terms is an enduring human tendency (Barrett, 2000). Ecospirituality is an aspect of this tendency, defined as the appraisal and experience of nature's spiritual qualities, including ascribing spiritual and social qualities to nature with which humans can connect (Billet et al., 2023, 2025). In a series of studies comprising samples from multiple countries, Billet et al. (2023) created and validated a measure of ecospirituality, which was found to be closely related to spirituality, weakly related to religiosity, and largely unrelated to political orientation. Those higher in ecospirituality were more likely to include nature (e.g., forests, oceans, parks, animals) in their circle of morality, to hold stronger pro-environmental attitudes, and to identify as pro-environmentalists, while controlling for political orientation, religiosity, and income. Ecospirituality was also associated with perceiving human-caused environmental degradation as a moral violation and with refusal to make monetary trade-offs (e.g., being unwilling to endorse projects that bring economic benefits but cause large-scale damage to nature).

Ecospirituality has high relevance for meat avoidance, as meat consumption is associated with harms to animals and the environment. Even harm to one's health may be seen as a form of damage to nature, especially among those who perceive themselves to be interconnected with nature. Consistent with this line of reasoning, connection with nature has been found to be associated with physical and mental health (de Diego-Cordero et al., 2024), and the beneficial effect of nature engagement is mediated by feeling connected to nature (Capaldi et al., 2017). It therefore follows that individuals higher in ecospirituality may be more inclined to avoid meat, whether for reasons of minimizing harm to animals, the environment, or one's health. The present study investigated the extent to which ecospirituality is associated with meat-avoidance motives pertaining to these three reasons using previously validated measures. To assess the independent predictive effect of ecospirituality, the study included two other variables closely associated with attitudes toward meat: meat-eating justification (the 4Ns) and mental-capacity dichotomization (ascribing lower mental capacities to "food" animals than to "nonfood" animals). The inclusion of these variables enabled replications of some of the previous findings.

## **Method**

### ***Participants***

A total of 290 UK-based individuals took part in the study: 80 undergraduate students who received course credit, 95 members of the public who received payment, and 115 volunteers recruited via the researchers' networks. Removal of participants who did not consent to their data being used (34) and who failed attention checks (12) resulted in a final sample of 244.

The mean age was 34 years ( $SD = 16.54$ ), with a range of 17–75. There were 161 females (65.98%), 79 males (32.38%), and 3 nonbinary individuals (1.23%); 1 chose not to answer. There were 173 omnivores (70.90%), 28 flexitarians (11.48%), 25 vegetarians (10.25%), 10 pescatarians (4.10%), and 8 vegans (3.28%); definitions of these categories were provided.

### ***Measures***

*Ecospirituality.* Spiritual beliefs regarding nature and human–nature connectedness were measured using the 8-item Ecospirituality Scale (Billet et al., 2023). Example items are "When

I am in nature, I feel a sense of awe” and “There is a spiritual connection between human beings and the natural environment.” Responses are provided on a 7-point scale (“strongly disagree” to “strongly agree”). The scale showed high internal consistency in the present sample ( $\alpha = .89$ ), comparable to that reported by Billet et al. (2023).

*Meat-Eating Justification.* Meat-eating justification was measured using the 16-item 4N Scale (Piazza et al., 2015). This scale measures the extent to which meat eating is believed to be *natural* (e.g., “It is only natural to eat meat”), *necessary* (e.g., “A healthy diet requires at least some meat”), *normal* (e.g., “It is abnormal for humans not to eat meat”), and *nice* (e.g., “Meals without meat would just be bland and boring”)—which reportedly loaded onto a single factor. Responses are provided on a 7-point scale (“strongly disagree” to “strongly agree”). The scale showed high internal consistency in the present sample ( $\alpha = .94$ ), comparable to values reported by Piazza et al. (2015), who also observed strong test–retest reliability over two weeks ( $r = .93$ ).

*Mental-Capacity Dichotomization.* While vegetarians and vegans tend to perceive higher mental capacities in animals, there is also a general tendency among people to ascribe lower mental capacities to “food” animals than to “nonfood” animals (Bastian et al., 2012; Hankins et al., 2024). Thus, to capture the most relevant individual difference, the study included a measure of mental-capacity dichotomization, adapted from previously used scales (Hankins et al., 2024; Jacobs et al., 2024). The Dichotomization Scale included four food animals (cow, pig, chicken, salmon) and four nonfood animals (dog, horse, pigeon, frog). Participants rated the extent to which they believed each animal possesses each of six mental capacities on a 7-point scale (“definitely does not possess” to “definitely does possess”). The animals were selected based on perceived edibility and familiarity (Jacobs et al., 2024). The mental capacities were selected to represent both the experience (pleasure, pain, fear) and intellect (memory, self-control, planning) dimensions of mind perception (Loughnan et al., 2010). For each participant, a dichotomization score was calculated by subtracting their mean food animal score from their mean nonfood animal score. Therefore, positive scores indicated ascribing higher mental capacities to nonfood animals than to food animals. The scale showed high internal consistency ( $\alpha = .95, .93, \text{ and } .97$  for food animals, nonfood animals, and all animals, respectively).

*Meat-Avoidance Motives.* Meat-avoidance motives were measured using the 15-item Vegetarian Eating Motives Inventory (VEMI; Hopwood et al., 2020). The exact instructions were as follows: “Please rate the importance of each of the following reasons for you to eat less meat or animal products. Please rate these items even if you don’t intend to change your diet.” The VEMI comprises three distinct scales designed to assess motives pertaining to animal rights (6 items, e.g., “It does not seem right to exploit animals”), the environment (5 items, e.g., “Plant-based diets are more sustainable”), and health (4 items, e.g., “I care about my body”). Responses are provided on a 7-point scale (“not important” to “very important”). The scales showed good internal consistency in the present sample ( $\alpha$ s for the three scales were .93, .95, and .91, respectively), comparable to values reported by Hopwood et al. (2020).

## **Procedure**

The study was administered on an online survey platform. After receiving instructions and providing consent, participants completed demographic questions and indicated their diet. Next, the Ecospirituality Scale, the 4N Scale, the Dichotomization Scale, and the VEMI were

administered in a randomized order. The survey included two attention-check questions, embedded within scales. Following completion of the final scale, participants were debriefed and asked to provide consent for their data being used. The study was approved by the university's ethics committee.

## Results

Descriptive statistics and correlations are reported in Table 1. The three VEMI scales (meat-avoidance motives pertaining to animals, the environment, and health) were positively correlated with each other, with the coefficients ( $r$ s between .13 and .46) being somewhat lower than those reported by Hopwood et al. (2020;  $r$ s between .27 and .70). Meat-eating justification (the 4Ns) was strongly associated with lower meat-avoidance motives pertaining to animals ( $r = -.50$ ) and the environment ( $r = -.58$ ). A positive dichotomization score, which differed significantly from 0 ( $t [243] = 14.45, p < .001$ , Cohen's  $d = .93$ ), indicated that participants tended to ascribe higher mental capacities to nonfood animals than to food animals. Moreover, greater dichotomization was associated with lower meat-avoidance motives pertaining to animals ( $r = -.23$ ) and the environment ( $r = -.15$ ). Critically, ecospirituality was positively correlated with all three meat-avoidance motives: animals ( $r = .34$ ), the environment ( $r = .23$ ), and health ( $r = .24$ ). There was also a negative correlation between ecospirituality and the 4Ns ( $r = -.14$ ).

**Table 1: Means, Standard Deviations, and Correlations**

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Ecospirituality	5.26	1.07					
2. 4Ns	4.01	1.25	-.14*				
3. Dichotomization	0.39	0.42	-.11	.25**			
4. VEMI Animals	5.56	1.26	.34**	-.50**	-.23**		
5. VEMI Environment	4.66	1.58	.23**	-.58**	-.15*	.46**	
6. VEMI Health	5.58	1.36	.24**	.04	.05	.13*	.23**

Note:  $N = 244$ . Dichotomization has a possible range of  $-6$  to  $6$ ; all other variables have a possible range of  $1-7$ . \* $p < .05$ , \*\* $p < .001$ .

To examine their independent predictive effects, ecospirituality, the 4Ns, and dichotomization were entered into regression analyses with each of the meat-avoidance motives acting as the dependent variable; gender (female, male) and age were also included as covariates. Collinearity diagnostics indicated no issues (tolerance  $\geq .95$ , VIF  $\leq 1.05$ ). The significant effects (with standardized coefficients) are noted: For animals (model  $R^2 = .33$ ), ecospirituality ( $\beta = .28, p < .001$ ) and the 4Ns ( $\beta = -.45, p < .001$ ) exerted predictive effects; for the environment (model  $R^2 = .33$ ), ecospirituality ( $\beta = .16, p < .01$ ) and the 4Ns ( $\beta = -.55, p < .001$ ) exerted predictive effects; for health (model  $R^2 = .10$ ), ecospirituality ( $\beta = .27, p < .001$ ) and age ( $\beta = .17, p < .01$ ) exerted predictive effects. Thus, the effect of ecospirituality persisted for all three meat-avoidance motives.

Exploratory analyses compared the responses of vegetarians/vegans (combined into a single category veg\*ns, due to low numbers) and non-veg\*ns. As shown in Table 2, veg\*ns were lower in the 4Ns ( $d = 2.01$ ) and dichotomization ( $d = 0.59$ ), and higher in meat-avoidance motives pertaining to animals ( $d = 1.13$ ) and the environment ( $d = 1.28$ ).

**Table 2: Comparisons Between Veg\*ns (Vegetarians/Vegans) and Non-Veg\*ns**

	Veg*ns	Non-Veg*ns	<i>t</i>	<i>p</i>	<i>d</i>
Ecospirituality	5.35 (1.09)	5.25 (1.07)	0.52	.60	0.10
4Ns	2.21 (0.57)	4.29 (1.09)	16.79	< .001	2.01
Dichotomization	0.18 (0.39)	0.42 (0.42)	3.16	.002	0.59
VEMI Animals	6.71 (0.62)	5.38 (1.24)	9.72	< .001	1.13
VEMI Environment	6.27 (0.96)	4.41 (1.51)	9.46	< .001	1.28
VEMI Health	5.55 (1.23)	5.59 (1.38)	0.13	.90	0.03

Note: Veg\*ns  $n = 33$ , non-veg\*ns  $n = 211$ . Adjusted  $t$  and  $p$  values are reported where equal variances could not be assumed.

## Discussion

This study examined the association between ecospirituality and meat-avoidance motives pertaining to animals, the environment, and health. Ecospirituality was significantly and positively correlated with all three motives. Meat-eating justification (the 4Ns) and mental-capacity dichotomization were negatively correlated with two of the motives (animals and the environment), and the 4Ns were negatively correlated with ecospirituality. Regression analyses revealed that ecospirituality remained a significant predictor (in the small-to-medium range) for all three motives while controlling for the 4Ns and dichotomization (as well as gender and age). These results point to ecospirituality as a characteristic that meaningfully predicts meat-avoidance motives, adding to the growing literature linking ecospirituality with environmental awareness and sustainable behavior (Adow et al., 2024; Billet et al., 2023).

In addition, the overall pattern of results corroborated previous findings and expectations. Analyses of gender differences (not reported above) revealed that males were significantly higher in the 4Ns (Cohen's  $d = .29$ ) and lower in ecospirituality ( $d = .42$ ) compared with females, consistent with previous findings (Billet et al., 2023; Piazza et al., 2015). The strong negative associations between the 4Ns and meat-avoidance motives pertaining to animals and the environment (but not health) are broadly in line with previous findings showing larger and more consistent associations for animals and the environment (Trenkenschuh et al., 2025). The health motive likely obscures a more complex picture: Endorsement of the 4Ns implies the belief that meat is necessary for health; the desire to avoid meat for health entails the somewhat contradictory belief that reducing meat is beneficial for health. This may result in a null or small positive association (as both variables pertain to the desire for health), which has been observed elsewhere (Trenkenschuh et al., 2025).

The relatively small number of vegetarians/vegans (veg\*ns) in the sample ( $n = 33$ ) precludes any firm conclusions, but veg\*ns were significantly lower in the 4Ns and dichotomization compared with non-veg\*ns, as expected. Veg\*ns were significantly higher in meat-avoidance motives pertaining to animals and the environment, but not health, in line with Hopwood et al.'s (2020) finding that animals and environment differentiated vegans and non-vegans much more strongly than did health. The present results also align with previous findings in showing that people (especially non-veg\*ns) tend to rate health the highest of the three motives (Hopwood et al., 2020; Trenkenschuh et al., 2025). These findings suggest that stronger motives pertaining to animals and the environment get translated into meat-avoidance behavior, whereas the health motive does not. Given the greater ambiguity surrounding meat and health (with plenty of health experts recommending at least moderate

amounts of meat, reinforcing the existing belief that meat is necessary), the highly rated health motive may simply reflect people's desire for good health—i.e., many people are willing to entertain the possibility of eating less meat for improved health (the VEMI health items relate to the importance of one's health, body, and longevity), even if this does not translate into behavior change.

As the present findings are correlational, any causal implications must be considered with caution. Nevertheless, the findings do suggest avenues for interventions. The fact that the 4Ns remained a significant independent predictor of meat-avoidance motives pertaining to animals and the environment, while dichotomization did not, points to the 4Ns as a more potent (though possibly more resistant) target for interventions. Crucially, the fact that ecospirituality remained a significant independent predictor for all three meat-avoidance motives identifies it as a promising intervention target. In other words, inducing a state of heightened spiritual connection with nature while appealing to animal welfare, the environment and/or health may result in heightened motives to avoid meat. Furthermore, given that ecospirituality appears to be largely unrelated to political ideology (Billet et al., 2023), interventions invoking ecospirituality may have more universal applicability, compared to those whose effectiveness depends on political ideology.

Attitudes toward meat and meat avoidance are part of a complex network of personality traits, ideological characteristics, and other individual differences. The present study considered only a couple of relevant variables alongside ecospirituality, so it is limited in terms of demonstrating how well ecospirituality holds up—although it should be noted that the validation studies conducted by Billet et al. (2023) demonstrated ecospirituality's robustness in the presence of a broader set of covariates (including political orientation, religiosity, and income). The study is also limited by the dependent variable being self-reported meat-avoidance motives. Further research can explore the links between ecospirituality and other related outcomes, such as the level of meat consumption, attitudes toward veg\*ns, and willingness to try plant-based alternatives.

Given the wide-ranging harm caused by meat consumption, it is imperative that we devise ways of inducing changes in people's diets. Of course, this is a task that goes beyond psychology, as cultural and systemic factors strongly influence what people eat. Any additional knowledge we can accumulate regarding the role of specific variables will be valuable, and this study adds another piece to the puzzle.

---

**Conflicts of Interest:** The authors declare no conflicts of interest.

**Funding:** No specific funding was received for conducting this study.

---

## References

- Adow, A. H. E., Safeer, M. M., Mohammed, M. G. H., Alam, M. S., & Sulphey, M. M. (2024). A synthesis of academic literature on eco-spirituality. *Global Journal of Environmental Science and Management*, 10(4), 2163–2178. <https://doi.org/10.22034/gjesm.2024.04.40>
- Barrett, J. L. (2000). Exploring the natural foundations of religion. *Trends in Cognitive Sciences*, 4(1), 29–34. [https://doi.org/10.1016/S1364-6613\(99\)01419-9](https://doi.org/10.1016/S1364-6613(99)01419-9)

- Bastian, B., & Loughnan, S. (2017). Resolving the mat-paradox: A motivational account of morally troublesome behavior and its maintenance. *Personality and Social Psychology Review*, 21(3), 278–299. <https://doi.org/10.1177/1088868316647562>
- Bastian, B., Loughnan, S., Haslam, N., & Radke, H. R. M. (2012). Don't mind meat? The denial of mind to animals used for human consumption. *Personality and Social Psychology Bulletin*, 38(2), 247–256. <https://doi.org/10.1177/0146167211424291>
- Billet, M. I., Baimel, A., Sahakari, S. S., Schaller, M., & Norenzayan, A. (2023). Ecospirituality: The psychology of moral concern for nature. *Journal of Environmental Psychology*, 87, Article 102001. <https://doi.org/10.1016/j.jenvp.2023.102001>
- Billet, M. I., Baimel, A., Schaller, M., & Norenzayan, A. (2025). Ecospirituality. *Current Directions in Psychological Science*, 34(2), 97–104. <https://doi.org/10.1177/09637214241304326>
- Braunsberger, K., Flamm, R. O., & Buckler, B. (2021). The relationship between social dominance orientation and dietary/lifestyle choices. *Sustainability*, 13(16), Article 8901. <https://doi.org/10.3390/su13168901>
- Capaldi, C. A., Passmore, H.-A., Ishii, R., Chistopolskaya, K. A., Vowinckel, J., Nikolaev, E. L., & Semikin, G. I. (2017). Engaging with natural beauty may be related to well-being because it connects people to nature: Evidence from three cultures. *Ecopsychology*, 9(4), 199–211. <https://doi.org/10.1089/eco.2017.0008>
- Clark, M. A., Domingo, N. G., Colgan, K., Thakrar, S. K., Tilman, D., Lynch, J., Azevedo, I. L., & Hill, J. D. (2020). Global food system emissions could preclude achieving the 1.5° and 2°C climate change targets. *Science*, 370(6517), 705–708. <https://doi.org/10.1126/science.aba7357>
- de Diego-Cordero, R., Martínez-Herrera, A., Coheña-Jiménez, M., Lucchetti, G., & Pérez-Jiménez, J. M. (2024). Ecospirituality and health: A systematic review. *Journal of Religion and Health*, 63(2), 1285–1306. <https://doi.org/10.1007/s10943-023-01994-2>
- Feinberg, M., & Willer, R. (2013). The moral roots of environmental attitudes. *Psychological Science*, 24(1), 56–62. <https://doi.org/10.1177/09567976124449177>
- Graça, J., Calheiros, M. M., & Oliveira, A. (2015). Attached to meat? (Un)Willingness and intentions to adopt a more plant-based diet. *Appetite*, 95, 113–125. <https://doi.org/10.1016/j.appet.2015.06.024>
- Hahn, E. R., Gillogly, M., & Bradford, B. E. (2021). Children are unsuspecting meat eaters: An opportunity to address climate change. *Journal of Environmental Psychology*, 78, Article 101705. <https://doi.org/10.1016/j.jenvp.2021.101705>
- Hankins, E., Jenkins, R., Bousfield, E., & Wilks, M. (2024). Diet predicts mind and moral concern towards a broad range of animal categories. *Psychology of Human-Animal Intergroup Relations*, 3, Article e14597. <https://doi.org/10.5964/phair.14597>
- Holler, S., Cramer, H., Liebscher, D., Jeitler, M., Schumann, D., Murthy, V., Michalsen, A., & Kessler, C. S. (2021). Differences between omnivores and vegetarians in personality profiles, values, and empathy: A systematic review. *Frontiers in Psychology*, 12, Article 579700. <https://doi.org/10.3389/fpsyg.2021.579700>
- Hopwood, C. J., Bleidorn, W., Schwaba, T., & Chen, S. (2020). Health, environmental, and animal rights motives for vegetarian eating. *PLoS ONE*, 15(4), Article e0230609. <https://doi.org/10.1371/journal.pone.0230609>

- Jacobs, T. P., Wang, M., Leach, S., Siu, H. L., Khanna, M., Chan, K. W., Chau, H. T., Tam, K. Y. Y., & Feldman, G. (2024). Revisiting the motivated denial of mind to animals used for food: Replication registered report of Bastian et al. (2012). *International Review of Social Psychology*, *37*(1), 1–15. <https://doi.org/10.5334/irsp.932>
- Janssen, M., Busch, C., Rödiger, M., & Hamm, U. (2016). Motives of consumers following a vegan diet and their attitudes towards animal agriculture. *Appetite*, *105*, 643–651. <https://doi.org/10.1016/j.appet.2016.06.039>
- Joy, M. (2009). *Why we love dogs, eat pigs, and wear cows: An introduction to carnism*. Conari Press.
- Loughnan, S., Haslam, N., & Bastian, B. (2010). The role of meat consumption in the denial of moral status and mind to meat animals. *Appetite*, *55*(1), 156–159. <https://doi.org/10.1016/j.appet.2010.05.043>
- MacInnis, C. C., & Hodson, G. (2017). It ain't easy eating greens: Evidence of bias toward vegetarians and vegans from both source and target. *Group Processes and Intergroup Relations*, *20*(6), 721–744. <https://doi.org/10.1177/1368430215618253>
- McGuire, L., Palmer, S. B., & Faber, N. S. (2023). The development of speciesism: Age-related differences in the moral view of animals. *Social Psychological and Personality Science*, *14*(2), 228–237. <https://doi.org/10.1177/19485506221086182>
- Nisa, C. F., Bélanger, J. J., Schumpe, B. M., & Sasin, E. M. (2021). Secure human attachment can promote support for climate change mitigation. *Proceedings of the National Academy of Sciences*, *118*(37), Article e2101046118. <https://doi.org/10.1073/pnas.2101046118>
- Piazza, J., Ruby, M. B., Loughnan, S., Luong, M., Kulik, J., Watkins, H. M., & Seigerman, M. (2015). Rationalizing meat consumption. The 4Ns. *Appetite*, *91*, 114–128. <https://doi.org/10.1016/j.appet.2015.04.011>
- Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. *Science*, *360*(6392), 987–992. <https://doi.org/10.1126/science.aaq0216>
- Reist, M. E., Bleidorn, W., Milfont, T. L., & Hopwood, C. J. (2023). Meta-analysis of personality trait differences between omnivores, vegetarians, and vegans. *Appetite*, *191*, Article 107085. <https://doi.org/10.1016/j.appet.2023.107085>
- Ruby, M. B. (2012). Vegetarianism: A blossoming field of study. *Appetite*, *58*, 141–150. <https://doi.org/10.1016/j.appet.2011.09.019>
- Stanley, S. K., & Wilson, M. S. (2019). Meta-analysing the association between social dominance orientation, authoritarianism, and attitudes on the environment and climate change. *Journal of Environmental Psychology*, *61*, 46–56. <https://doi.org/10.1016/j.jenvp.2018.12.002>
- Trenkensschuh, M., Graça, J., & Hopwood, C. J. (2025). Associations between motivations for and against eating meat with four types of meat engagement. *Appetite*, *215*, Article 108237. <https://doi.org/10.1016/j.appet.2025.108237>
- Wilks, M., Caviola, L., Kahane, G., & Bloom, P. (2020). Children prioritize humans over animals less than adults do. *Psychological Science*, *32*(1), 27–38. <https://doi.org/10.1177/0956797620960398>
- Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., Garnett, T., Tilman, D., DeClerck, F., Wood, A., Jonell, M., Clark, M., Gordon, L. J., Fanzo, J., Hawkes, C., Zurayk, R., Rivera, J. A., de Vries, W., Sibanda, L. M., ... Murray, C. J. L. (2019). Food in the Anthropocene: The EAT–Lancet Commission on healthy diets from sustainable food

systems. *The Lancet*, 393(10170), 447–492. [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)

Wolsko, C., Ariceaga, H., & Seiden, J. (2016). Red, white, and blue enough to be green: Effects of moral framing on climate change attitudes and conservation behaviors. *Journal of Experimental Social Psychology*, 65, 7–19. <https://doi.org/10.1016/j.jesp.2016.02.005>