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Individual Differences in Effective Animal Advocacy: Moderating Effects of Gender Identity and Speciesism

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ABSTRACT

The present research examined whether personality and individual differences have practical implications for effective animal advocacy (i.e., how effective an animal advocacy message is) by exploring whether individual differences in gender identity, social dominance orientation, and speciesism moderate the effects of advocacy. An online study was conducted employing an experimental design (advocacy vs. control condition). Four hundred and ninety-five participants (120 men, 375 women) watched either an advocacy video showing chickens suffering on a free-range egg farm or a control video (a lifestyle video showing the preparation of plant-based meals). Data were analyzed using MANOVA, ANOVAs, correlations, and moderated regression analyses. Results indicated that participants in the advocacy condition showed more positive attitudes toward chickens and less positive attitudes toward free-range eggs and stronger intentions to reduce egg consumption, compared with participants in the control condition. Importantly, whereas social dominance orientation had no moderating effects, gender identity moderated the effect of advocacy on attitudes toward chickens: Women, but not men, showed more positive attitudes in the advocacy condition compared with the control condition. Furthermore, speciesism moderated the effects of advocacy on attitudes toward free-range eggs and on intentions to reduce egg consumption: Participants low in speciesism expressed less positive attitudes toward free-range eggs and stronger intentions to reduce egg consumption in the advocacy compared with the control condition. These effects were weaker (attitudes) or nonsignificant (intentions) in participants high in speciesism. The findings suggest that some types of animal advocacy may work only for some people, but not others. The present research contributes to the understanding of the role that personality and individual differences play in human–animal relations and has relevance for practical efforts of animal advocacy to improve these relations, increase animal welfare, and reduce the use of animal products.

KEYWORDS

Effective animal advocacy; gender identity; human–animal interaction; social dominance orientation; speciesism

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Personality and individual differences – including individual differences in ideological attitudes and gender identity – play a key role if we want to understand, explain, and predict how different people think, feel, and behave not only in general, but also regarding specific areas (e.g., Ashton, 2022; Wood & Eagly, 2015). Accordingly, individual differences should also play a role in how people think, feel, and behave regarding their relationships with nonhuman animals, subsequently referred to as animals (e.g., Dhont et al., 2019; Hopwood et al., 2020; Hopwood & Bleidorn, 2019; Smillie et al., 2023). The present study aimed to explore the role of individual differences in how effective an animal advocacy message is by examining whether individual differences in gender identity, social dominance orientation, and speciesism moderated the effects of an advocacy video about the suffering of chickens in the egg industry.

Individual Differences in Human–Animal Relations

Studies demonstrate that individual differences in ideological attitudes matter for human–animal relations. Regarding general attitudes, social dominance orientation (SDO) is important (Dhont et al., 2014, 2016). It captures differences in people's general preferences for intergroup relations to be hierarchical and ordered along a superior–inferior dimension, or to be equal (Pratto et al., 1994). SDO has been shown to predict negative outgroup attitudes not only in human–human, but also in human–animal relations, with people high in SDO endorsing stronger beliefs in human supremacy over animals and being more likely to legitimize and accept practices of animal exploitation than people low in SDO (e.g., Dhont et al., 2014; Dhont & Hodson, 2014).

Regarding animal-specific attitudes, speciesism is important. Speciesism is the assignment of different moral worth based on species membership characterized by the assumption that humans as a species are superior to (other) animals and so justifies the exploitation of animals (Caviola et al., 2019; Dhont et al., 2020). People differ in what they consider appropriate treatment of animals and what uses of animals they approve or disapprove of (e.g., use for human consumption, medical research, sport hunting; Herzog & Mathews, 1997). People high in speciesism tend to approve how animals are commonly used by humans and do not see these uses as animal exploitation, whereas people low in speciesism tend to disapprove of these uses and see them as exploitation (Dhont et al., 2020; Gunther et al., 2023; Herzog et al., 2015).

Finally, gender identity is important. Different from biological sex, gender identity (subsequently referred to as gender) captures individual differences in how people identify with cultural definitions of male and female and the meanings and expectations associated with these identities (Wood & Eagly, 2015), which also includes *non*-identification with the traditional gender roles of male and female. Whereas many individual differences show no pronounced gender differences (Hyde, 2005), there are consistent and meaningful gender differences in individual differences related to human–animal relations. When compared with people who self-identify as male (men), people who self-identify as female (women) show lower levels of speciesism and higher levels of empathy with animals and are more likely to become involved in animal welfare campaigns and take action against animal abuse (e.g., Graça et al., 2018; Herzog et al., 1991; Ioannidou et al., 2023).

Individual Differences Regarding Food Animals and Food Animal Products

Individual differences in SDO, speciesism, and gender also predict how people feel about so-called "food animals" – that is, animals who we use as food directly (e.g., meat) or whose products we use – and food animal products (e.g., cow's milk, chicken eggs). For example, people high in SDO and speciesism eat more meat and justify their meat consumption more strongly compared with people low in SDO and speciesism (e.g., Dhont & Hodson, 2014; Piazza et al., 2015). Regarding gender, meat-eating women consistently report lower meat consumption, lower emotional attachment to meat, and higher willingness to reduce their meat consumption than meat-eating men; and a much greater percentage of women follow a vegetarian (avoiding meat and fish) or vegan (avoiding all animal products) lifestyle than men (Graça et al., 2015; Rosenfeld & Tomiyama, 2021; Salmen & Dhont, 2023).

Individual Differences in Effective Animal Advocacy?

While there is now a significant body of research examining individual differences in human–animal relations, the psychology of meat consumption, and vegetarianism/veganism, there is little research examining whether individual differences influence how people react to advocacy aimed at improving human–animal relations: for example, advocacy focused on raising awareness of the plight of food animals and advocacy encouraging people to consume less meat and fewer animal products. One study examining gender differences found that women were more responsive to information on how lambs are raised and slaughtered for meat (versus nutrition information on lamb meat), showing reduced meat attachment after receiving information about lambs, whereas men showed increased attachment (Dowsett et al., 2018). But no study so far has explored whether individual differences in SDO and speciesism influence the effectiveness of animal advocacy. Knowing which individual differences may have such influence would be important for effective animal advocacy (Sebo, 2019), providing evidence that can be used for targeted interventions.

To examine whether individual differences in gender, SDO, and speciesism influence animal advocacy effectiveness, we examined video advocacy (i.e., advocacy using videos) because this type of animal advocacy can be effective (e.g., Faunalytics, 2017). In particular, we examined advocacy for chickens (layer chickens), egg farming, and eggs because chickens are by far the most widely "used" food animal (e.g., Rozenbaum, 2023), egg farming is an industry of international importance, and the vast majority of people (including vegetarians) consume eggs and egg products. Hence, the advocacy video we chose for the present study focused on raising awareness for the plight of chickens on egg farms, encouraging people to consume fewer eggs (see Procedure).

We expected gender, SDO, and speciesism to moderate the effectiveness of the advocacy video (when compared with a control video) such that the advocacy video would be more effective in female participants (when compared with male participants), and less effective in participants high in SDO and speciesism (when compared with participants low in SDO and speciesism). In this, "more effective" means the advocacy video would show larger effects on the study's target variables – attitudes toward chickens suffering

and egg consumption, attitudes toward free-range eggs, and intentions to reduce egg consumption (see Target Variables) – in the intended direction (higher agreement that chickens suffer in the egg industry and that it is important to reduce egg consumption, lower agreement that free range is higher welfare, and stronger intentions to reduce egg consumption) when compared with the control video. "Less effective" means the advocacy video would show smaller or no effects. Statistically speaking, we expected advocacy (participants watching the advocacy versus control video) and individual differences (gender, SDO, speciesism) to show significant interactions predicting variance in the target variables, with individual differences moderating the effects of advocacy.

Methods

The study was approved by the relevant ethics committee at the School of Psychology, approval number 202016081957086895.

Participants

We advertised the study as a Qualtrics® survey, titled "Attitudes, Diet, and Lifestyle Videos," examining relationships between attitudes toward people and animals, diet, and how people evaluate lifestyle videos. To prevent missing data, participants were required to respond to all survey questions.

Because there was no systematic research examining individual differences in effective animal advocacy, there were no prior findings on which to base statistical power and sample size requirement calculations. However, we expected the interactions to be difficult to detect, so a large sample was required (cf. McClelland & Judd, 1993). Therefore, we aimed for a sample size exceeding 300 participants.

We recruited undergraduate psychology students, for extra course credit, and – to increase the diversity of our sample (Gosling et al., 2010) – Internet users via various social media platforms (e.g., Facebook, Instagram, Snapchat), offering them a chance to win a £30 Amazon® voucher. Of the 588 participants who started the survey, 500 (85%; 294 students, 206 Internet users) finished it – which included watching the video – and provided complete data for our analyses. The remaining 15% dropped out before the end of the survey (see online Supplemental file). Regarding gender, 375 self-identified as female (75%), 120 as male (24%), and 5 as "other" or preferred not to say (1%). Participants' mean age was 21.6 years ($SD = 6.4$; range: 17–68 years; 8 preferred not to say); 69% self-identified as White, 11% Asian, 10% Black, 6% mixed/multiple ethnic, and 3% other (1% preferred not to say).

Procedure

Our study employed a cross-sectional correlational design with one experimental factor (advocacy video vs. control video). After providing informed consent and demographic information, participants completed the individual differences measures (see Measures). Then they were randomly assigned to one of the two conditions: the advocacy video or the control video. Because the majority of eggs in the UK come from so-called free-

Table 1. Target variables: Attitude and intention items used in the present study.

Attitudes Toward Chickens Suffering and Egg Consumption
Eating eggs directly contributes to the suffering of chickens.
It is important to minimize the amount of eggs a person consumes.
Attitudes Toward Free-Range Eggs
Free-range eggs are more ethical than eggs from battery-cage egg farms.
Chickens on free-range egg farms have a better life than chickens on battery-cage farms.
Intentions to Reduce Egg Consumption
I intend to eat fewer eggs in the future.
I intend to eat less foods containing eggs in the future.
I intend to avoid eggs wherever possible.
I intend to avoid foods containing eggs wherever possible.
I intend to adopt an egg-free diet.
Intentions to Increase Plant-Based Food Consumption
I intend to eat more plant-based food in the future.
I intend to adopt a plant-based diet.

Note: See Target Variables (Methods) for further information.

range farms that are touted as providing higher animal welfare, we chose "Dyer's Free Range Egg Farm" (2:26 min; Animal Aid, 2018) as the advocacy video. It shows footage of chickens on an egg farm living in dark, crowded, and filthy conditions, with all chickens showing loss of feathers, some being ill or dying, and one dead. For the control video, we chose "Easy Plant-Based Meal Recipes" (5:07 min; Wonders, 2017), which shows the preparation of three plant-based meals. It was chosen because it does not mention eggs or vegetarianism/veganism, and research shows that lifestyle videos are appropriate control videos when evaluating advocacy videos (Caldwell, 2017). Participant dropout was lower in the advocacy condition (see online Supplemental file); 53% ($n = 265$) watched the advocacy video and 47% ($n = 235$) the control video. Following the video, participants completed the attitudes and intentions measures (see Target Variables and Table 1). After finishing the survey, students received course credit, Internet users were offered the opportunity to participate in the raffle for the voucher, and all participants were debriefed.

Measures

Individual Differences

Research on meat consumption suggests that people who consume more meat have more negative attitudes toward animals farmed for meat and are more reluctant to reduce their meat consumption than people who consume less meat (Monteiro et al., 2017). Because similar relationships could be expected regarding egg consumption and layer chickens, we assessed individual differences in participants' egg consumption as a control variable using an item from the Food Frequency Questionnaire (Animal Charity Evaluators, 2016). We asked how often participants had consumed "eggs (boiled, fried, omelet, in salad, in baked goods, etc)" in the previous two weeks. The response is given on a scale that ranges from 0 (never) to 7 (4 or more times per day).

To assess SDO, we used the short form of the SDO_7 Scale (Ho et al., 2015), which comprises eight items that capture the degree to which people hold social dominance (e.g., "An ideal society requires some groups to be on top and others to be on the bottom") versus egalitarian beliefs (e.g., "We should work to give all groups an equal chance to

succeed"), with the latter reverse scored. Responses are given on a scale that ranges from 1 (strongly oppose) to 7 (strongly favor; Cronbach's $\alpha = 0.82$).

To assess speciesism, we used the brief version of the Animal Attitude Scale (Herzog et al., 2015), which comprises ten items that capture attitudes favoring (e.g., "Basically, humans have the right to use animals as we see fit") versus attitudes opposing animal exploitation (e.g., "It's morally wrong to hunt wild animals just for sport"), with the latter reverse scored. Responses are given on a scale that ranges from 1 (strongly disagree) to 5 (strongly agree; $\alpha = 0.80$).

Target Variables

Table 1 shows the items used to assess the target variables. To assess attitudes toward chickens suffering and egg consumption, we adapted two items that assess attitudes toward pig suffering and pork consumption, taken from a study evaluating the effectiveness of an animal advocacy video focused on pig farming (Faunalytics, 2017). Participants responded on a scale from −3 (definitely NO) to +3 (definitely YES), with a midpoint of 0 (neutral), and answers were averaged to a scale score ($\alpha = 0.72$).

To assess attitudes toward free-range eggs, two items were created asking whether free-range eggs were more ethical and whether chickens on free-range farms had a better life compared with those on battery cage farms. Participants responded using the same scale as above ($\alpha = 0.91$).

To assess intentions to reduce egg consumption, five items were created asking about intentions to eat fewer eggs and avoid foods containing eggs. Participants responded using the same scale as above ($\alpha = 0.95$).

Finally, as a control variable not specifically about chickens and eggs, we created two items to assess intentions to increase plant-based food consumption. Participants responded using the same scale as above ($\alpha = 0.80$)

Data Screening and Coding

All analyses were conducted using SPSS version 26. Because gender was a key variable of the study, we removed the five participants who self-identified as neither male nor female, resulting in the final sample of 495, and – as we expected the advocacy video to be more effective in female participants – created a variable "female gender" (coded 1 = female, 0 = male). Screening the variables of the study for multivariate outliers found no participant with a Mahalanobis distance greater than $\chi^2_{(9)} = 27.88$, $p < 0.001$ (Tabachnick & Fidell, 2014). Consequently, all 495 participants were retained for the analyses.

Results

The Advocacy Video's Effects

First, we conducted a MANOVA examining the overall effect of the advocacy video on the target variables when compared with the control video, which was significant (Wilks' lambda = 0.49, $F_{(4,\ 490)} = 39.49$, $p < 0.001$, $\eta^2 = 0.244$). This was followed by a series of

Table 2. Effects of the advocacy video on the target variables compared with the control video.

	Video					
	Control		Advocacy			
Target variables	*M*	(*SD*)	*M*	(*SD*)	$F_{(1, 493)}$	η^2
Attitudes toward …						
Chickens suffering and egg consumption[a]	−0.10	(1.49)	0.83	(1.47)	49.69***	0.092
Free-range eggs[b]	1.87	(1.30)	0.34	(1.80)	114.68***	0.189
Intentions to …						
Reduce egg consumption	−0.85	(1.61)	−0.30	(1.73)	13.09***	0.026
Increase plant-based food consumption	0.39	(1.69)	0.17	(1.78)	2.07	0.004

Notes: $n = 495$ (advocacy: $n = 263$; control: $n = 232$). Response scale: from −3 (Definitely NO) to +3 (Definitely YES), with midpoint = 0.
[a]Eating eggs contributes to chickens suffering, and it is important to minimize egg consumption.
[b]Free range is more ethical and higher welfare.
***$p < 0.001$.

ANOVAs (see Table 2). Regarding attitudes and intentions, the advocacy video had significant effects in the intended direction on attitudes toward chickens suffering and egg consumption (subsequently referred to as attitudes toward chickens), attitudes toward free-range eggs, and intentions to reduce egg consumption, but no effect on intentions to increase plant-based food consumption. Specifically, participants who watched the advocacy video showed higher agreement that chickens suffer in the egg industry and that it is important to reduce egg consumption, lower agreement that free range is more ethical and higher welfare, and stronger intentions to reduce egg consumption when compared with participants who watched the control video.

Individual Differences

Next, we inspected the bivariate correlations between the individual differences and target variables (see Table 3). In line with previous research, female gender showed negative correlations with SDO and speciesism, and SDO and speciesism showed positive correlations with each other. Moreover, female gender showed a negative correlation

Table 3. Individual differences and target variables: bivariate relationships.

Variable	1	2	3	4	5	6	7
Individual differences							
1. Female gender							
2. Egg consumption	−0.19***						
3. SDO (social dominance orientation)	−0.13**	0.16***					
4. Speciesism	−0.30***	0.18***	0.45***				
Target variables							
Attitudes toward …							
5. Chickens suffering and egg consumption	0.19***	−0.23***	−0.26***	−0.42***			
6. Free-range eggs	−0.03	0.15***	−0.04	0.12**	−0.38***		
Intentions to …							
7. Reduce egg consumption	0.22***	−0.34***	−0.20***	−0.37***	0.64***	−0.37***	
8. Increase plant-based food consumption	0.20***	−0.14**	−0.24***	−0.36***	0.41***	−0.09*	0.58***

Notes: $n = 495$. Female gender (coded 1 = female, 0 = male).
**$p < 0.01$, ***$p < 0.001$.

with egg consumption, whereas SDO and speciesism showed positive correlations. Regarding the target variables, gender showed positive correlations with attitudes toward chickens as well as intentions to reduce egg consumption and increase plant-based food consumption, whereas SDO and speciesism showed negative correlations with these variables. In addition, SDO showed a positive correlation with attitudes toward free-range eggs (thinking free range is more ethical and higher welfare).

Individual Differences Moderating Advocacy Effects

Finally, and coming to the central question of our study whether advocacy and individual differences showed significant interactions in predicting variance in the target variables, we conducted a series of moderated regression analyses (Cohen et al., 2003) examining whether any of the individual differences moderated the advocacy video's effects (see Table 4). Regarding Step 2 of the analyses (where the critical interactions were tested), results indicated that female gender moderated the effect of advocacy on attitudes toward chickens, and speciesism moderated the effects of advocacy on attitudes toward free-range eggs and intentions to reduce egg consumption. SDO showed no significant interactions.

To probe the significant interactions, we first conducted a 2×2 ANOVA of advocacy and female gender on attitudes toward chickens which, replicating the finding from the moderated regression analysis, showed a significant interaction ($F_{(1,\ 491)} = 4.28$, $p < 0.05$; see Figure 1). Simple effects analyses showed that the advocacy video had a significant effect in the intended direction in female participants ($F_{(1,\ 491)} = 56.04$, $p < 0.001$) but not in male participants ($F_{(1,\ 491)} = 3.34$, $p = 0.068$).

Next, we probed the interactions of advocacy and speciesism by conducting a series of moderated regression analyses comparing the effects of the advocacy video against the

Table 4. Moderated regression analyses of advocacy and individual differences predicting the target variables.

	Attitudes toward …				Intentions to …			
	Chickens suffering and egg consumption		Free-range eggs		Reduce egg consumption		Increase plant-based food consumption	
Steps and predictors	ΔR^2	*b*	ΔR^2	*b*	ΔR^2	*b*	ΔR^2	*b*
Step 1: Advocacy and individual differences	0.313***		0.227***		0.252***		0.154***	
Advocacy video (AV)		1.00***		−1.56***		0.61***		−0.17
Female gender		0.21		0.06		0.32		0.34
Egg consumption		−0.22***		0.24***		−0.45***		−0.10
SDO (social dominance orientation)		−0.11		−0.09		−0.01		−0.17*
Speciesism		−0.56***		0.25**		−0.52***		−0.49***
Step 2: Interactions	0.021**		0.020*		0.019*		0.003	
AV × female gender		0.82**		−0.22		0.65		0.24
AV × egg consumption		0.10		−0.06		0.16		−0.02
AV × SDO		0.03		0.13		0.05		−0.11
AV × speciesism		−0.23		0.40*		−0.33*		−0.05

Notes: $n = 495$. AV (coded 1 = advocacy video, 0 = control video); egg consumption, SDO, and speciesism standardized ($M = 0$, $SD = 1$). Interactions = AV × individual differences interactions. *b* = unstandardized regression coefficient.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

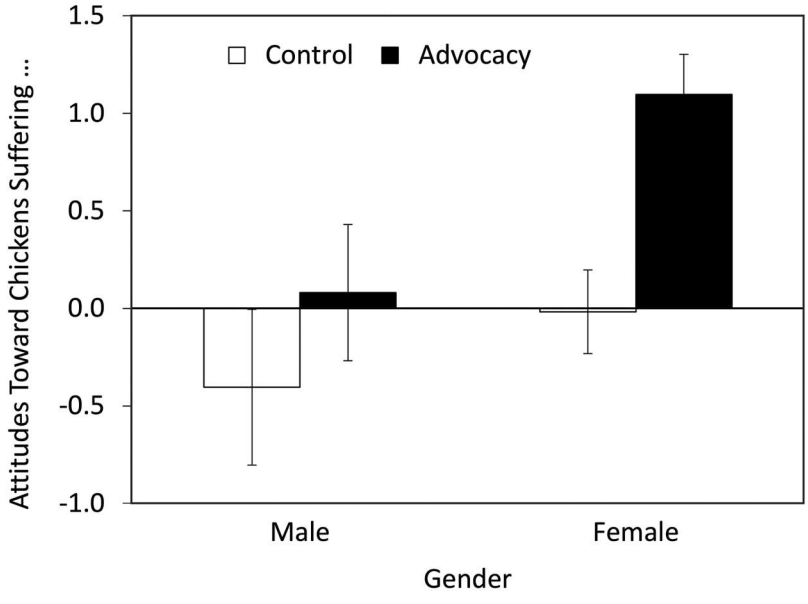

Figure 1. Advocacy × gender interaction: Mean differences.

Note: Attitudes toward chickens suffering … = attitudes toward chickens suffering and egg consumption (see Table 2). Error bars show standard errors.

control video condition for participants high in speciesism (+1 *SD* above the mean) versus participants low in speciesism (−1 *SD* below; Cohen et al., 2003). Regarding attitudes toward free-range eggs (thinking free range is more ethical and higher welfare), results showed that – even though both regression weights were significant and in the intended direction – the advocacy video had a significantly smaller effect in participants high in speciesism ($b = -1.08$, $t_{(491)} = -5.42$, $p < 0.001$) than in participants low in speciesism ($b = -2.02$, $t_{(491)} = -10.10$, $p < 0.001$; see Figure 2, Panel A). Regarding intentions to reduce egg consumption, the advocacy video had a significant effect in the intended direction in participants low in speciesism ($b = 0.92$, $t_{(491)} = 5.37$, $p < 0.001$) but had no significant effect in participants high in speciesism ($b = 0.29$, $t_{(491)} = 1.22$, $p = 0.088$; see Figure 2, Panel B).

Discussion

The Present Findings

The present study is the first to demonstrate that, in addition to gender identity, individual differences in speciesism play a role in effective animal advocacy as we found that both gender identity and speciesism moderated the effectiveness of an animal advocacy video focused on chickens suffering in the egg industry and encouraging a reduction in egg consumption. As expected from previous research showing women (people self-identifying as female) to be more empathic and compassionate regarding animals compared with men (people self-identifying as male), the advocacy video had a significant effect on

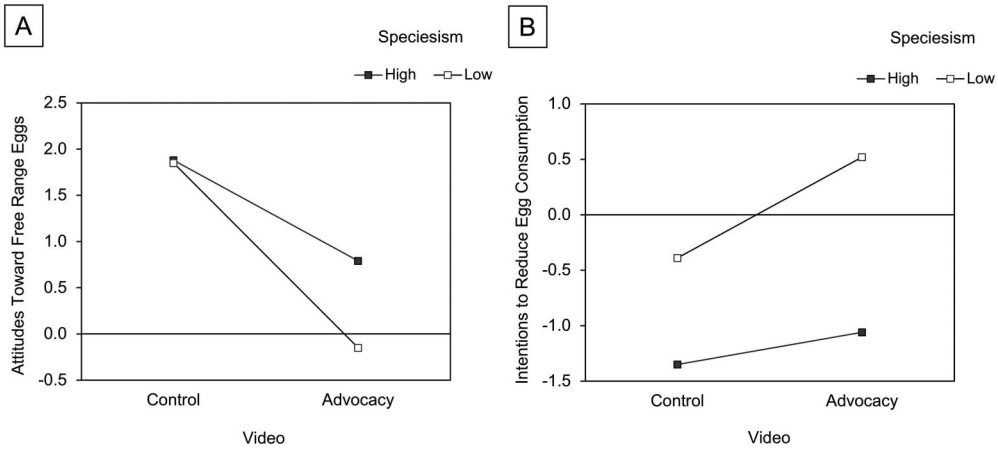

Figure 2. Advocacy × speciesism interactions: Regression slopes.

Note: Panel A = advocacy × speciesism interaction on attitudes toward free-range eggs; Panel B = advocacy × speciesism interaction on intentions to reduce egg consumption (see Tables 2–4). Speciesism: high = + 1 *SD* above the mean; low = –1 *SD* below the mean.

women but not on men regarding attitudes toward chickens suffering. After watching the advocacy video, only women showed higher levels of agreement that chickens suffer in the egg industry and that it is important to reduce egg consumption compared with the control condition. The finding adds to the literature on gender differences in consumption of animal products and attitudes toward animals, providing further evidence that men and women respond differently to animal advocacy (Dowsett et al., 2018). Moreover, it expands on previous research by providing evidence that these gender differences are not limited to attitudes toward meat but also apply to attitudes toward chickens suffering and egg consumption: that is, food animals used and animal products consumed by people who do not eat meat (see also Ioannidou et al., 2023).

Furthermore, speciesism moderated the effects of the advocacy video on attitudes toward free-range eggs and on intentions to reduce egg consumption. Participants high in speciesism showed a smaller reduction in their belief that free-range eggs represent higher animal welfare after watching the advocacy (versus control) video than participants low in speciesism. In addition, only participants low in speciesism showed significantly stronger intentions to reduce egg consumption after watching the advocacy video when compared with the control condition. The findings add to our understanding of speciesism showing that people high in speciesism are not only generally less concerned about animal welfare and animal product consumption but may also be less receptive to advocacy efforts raising concerns about some of these issues, in this case the suffering of layer chickens.

In contrast, we did not find social dominance orientation (SDO) to moderate any of the advocacy video's effects. Whereas SDO showed the expected bivariate correlations (positive correlations with speciesism and egg consumption, negative correlations with attitudes toward chickens suffering and with intentions to reduce egg consumption and increase plant-based food consumption), the advocacy video was not less effective in participants high in SDO than in participants low in SDO.

The significant moderation effects of gender identity and speciesism suggest that some types of animal advocacy may work only for some people. This indicates that personality and individual differences have practical implications for effective animal advocacy and for organizations focused on informing and educating the public about animal welfare issues and garnering support for addressing them (Hopwood et al., 2020; Sebo, 2019; Smillie et al., 2023). Regarding advocacy for layer chickens and reduction of egg consumption, for example, the present findings suggest that advocacy focused on animal suffering may be more effective addressing women and people low in speciesism than men and people high in speciesism. Therefore, animal advocacy organizations and initiatives may want to focus their efforts on these groups and tailor their messages accordingly (e.g., Hopwood et al., 2020; Rosenfeld, 2023).

Limitations and Future Directions

The present study has some limitations. First, it was largely exploratory, so future studies need to replicate our findings before firm conclusions can be drawn. Second, despite a recruitment process aiming for greater diversity, our final sample was predominantly female, with only 24% of participants self-identifying as male. Future studies could reexamine our findings with a greater proportion of male participants. Third, gender identity was assessed with a single item asking how participants self-identified. Whereas this single-item assessment is widely used in gender identity research and regarded as a valid self-assessment (Wood & Eagly, 2015), future research may expand on this assessment and include measures of male versus female gender-role identification (Rosenfeld & Tomiyama, 2021). Forth, whereas the control video – a lifestyle video on plant-based cooking – did not mention chickens or eggs, its advocating plant-based recipes may have influenced how some participants felt about animal products, so future research may want to use a control video with a completely unrelated topic (cf. Caldwell, 2017). Finally, the study examined one specific animal advocacy intervention (an advocacy video focused on chickens suffering in the egg industry) and only three individual differences variables (gender identity, SDO, and speciesism). Future studies may profit from expanding the range of individual differences examined and examining different animal advocacy interventions or interventions focused on different animals.

Despite these limitations, the present findings extend previous findings indicating that individual differences in gender identity affect animal advocacy effectiveness (Dowsett et al., 2018) and present the first evidence that individual differences in speciesism do the same. Therefore, the findings contribute to the understanding of the role that personality and individual differences play in human–animal relations and have relevance for practical efforts of animal advocacy to improve these relations, increase animal welfare, and reduce the use of animal products.

Disclosure Statement

No potential conflict of interest was reported by the authors.

References

Animal Aid. (2018). *Dyer's free range egg farm*. https://www.youtube.com/watch?v = RxGeORSwc0Y

Animal Charity Evaluators. (2016). *Question bank: Diet questions*. https://animalcharityevaluators.org/for-charities/develop-a-survey/questions/#diet-questions

Ashton, M. C. (2022). *Individual differences and personality* (4th ed.). Academic Press.

Caldwell, K. (2017). Which kinds of pro-vegetarian videos are best at inspiring changes in diets and attitudes? *Mercy for Animals*. https://mercyforanimals.org/kinds-of-viral-videos-are-best-at-inspiring

Caviola, L., Everett, J. A. C., & Faber, N. S. (2019). The moral standing of animals: Towards a psychology of speciesism. *Journal of Personality and Social Psychology*, *116*(6), 1011–1029. https://doi.org/10.1037/pspp0000182

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). LEA.

Dhont, K., & Hodson, G. (2014). Why do right-wing adherents engage in more animal exploitation and meat consumption? *Personality and Individual Differences*, *64*, 12–17. https://doi.org/10.1016/J.PAID.2014.02.002

Dhont, K., Hodson, G., Costello, K., & MacInnis, C. C. (2014). Social dominance orientation connects prejudicial human–human and human–animal relations. *Personality and Individual Differences*, *61–62*, 105–108. https://doi.org/10.1016/j.paid.2013.12.020

Dhont, K., Hodson, G., & Leite, A. C. (2016). Common ideological roots of speciesism and generalized ethnic prejudice: The Social Dominance Human–Animal Relations Model (SD–HARM). *European Journal of Personality*, *30*(6), 507–522. https://doi.org/10.1002/per.2069

Dhont, K., Hodson, G., Leite, A. C., & Salmen, A. (2020). The psychology of speciesism. In K. Dhont & G. Hodson (Eds.), *Why we love and exploit animals: Bridging insights from academia and advocacy* (pp. 29–49). Routledge.

Dhont, K., Hodson, G., Loughnan, S., & Amiot, C. E. (2019). Rethinking human–animal relations: The critical role of social psychology. *Group Processes & Intergroup Relations*, *22*(6), 769–784. https://doi.org/10.1177/1368430219864455

Dowsett, E., Semmler, C., Bray, H., Ankeny, R. A., & Chur-Hansen, A. (2018). Neutralising the meat paradox: Cognitive dissonance, gender, and eating animals. *Appetite*, *123*, 280–288. https://doi.org/10.1016/j.appet.2018.01.005

Faunalytics. (2017). *An experimental investigation of the impact of video media on pork consumption*. https://faunalytics.org/wp-content/uploads/2017/12/Animal-Equality-Report-Final.pdf

Gosling, S. D., Sandy, C. J., John, O. P., & Potter, J. (2010). Wired but not WEIRD: The promise of the internet in reaching more diverse samples. *Behavioral and Brain Sciences*, *33*(2–3), 94–95. https://doi.org/10.1017/S0140525X10000300

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

Graça, J., Calheiros, M. M., Oliveira, A., & Milfont, T. L. (2018). Why are women less likely to support animal exploitation than men? The mediating roles of social dominance orientation and empathy. *Personality and Individual Differences*, *129*, 66–69. https://doi.org/10.1016/j.paid.2018.03.007

Gunther, O. E., MacInnis, C. C., Hodson, G., & Dhont, K. (2023). Addressing behavior and policy around meat: Associating factory farming with animal cruelty "works" better than zoonotic disease. *Anthrozoös*, *36*(6), 1099–1113. https://doi.org/10.1080/08927936.2023.2243738

Herzog, H. A., Betchart, N. S., & Pittman, R. B. (1991). Gender, sex role orientation, and attitudes toward animals. *Anthrozoös*, *4*(3), 184–191. https://doi.org/10.2752/089279391787057170

Herzog, H. A., Grayson, S., & McCord, D. (2015). Brief measures of the Animal Attitude Scale. *Anthrozoös*, *28*(1), 145–152. https://doi.org/10.2752/089279315X14129350721894

Herzog, H. A., & Mathews, S. (1997). Personality and attitudes toward the treatment of animals. *Society & Animals*, *5*(2), 169–175. https://doi.org/10.1163/156853097X00060

Ho, A. K., Sidanius, J., Kteily, N., Sheehy-Skeffington, J., Pratto, F., Henkel, K. E., Foels, R., & Stewart, A. L. (2015). The nature of social dominance orientation: Theorizing and measuring preferences for intergroup inequality using the new SDO_7 scale. *Journal of Personality and Social Psychology*, *109* (6), 1003–1028. https://doi.org/10.1037/pspi0000033

Hopwood, C. J., & Bleidorn, W. (2019). Psychological profiles of people who justify eating meat as natural, necessary, normal, or nice. *Food Quality and Preference*, *75*, 10–14. https://doi.org/10.1016/j.foodqual.2019.02.004

Hopwood, C. J., Bleidorn, W., Schwaba, T., & Chen, S. (2020). Health, environmental, and animal rights motives for vegetarian eating. *PLoS ONE*, *15*(4), e0230609. https://doi.org/10.1371/journal.pone.0230609

Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist*, *60*(6), 581–592. https://doi.org/10.1037/0003-066X.60.6.581

Ioannidou, M., Lesk, V., Stewart-Knox, B., & Francis, K. B. (2023). Moral emotions and justifying beliefs about meat, fish, dairy and egg consumption: A comparative study of dietary groups. *Appetite*, *186*, 106544. https://doi.org/10.1016/j.appet.2023.106544

McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin*, *114*(2), 376–390. https://doi.org/10.1037/0033-2909.114.2.376

Monteiro, C. A., Pfeiler, T. M., Patterson, M. D., & Milburn, M. A. (2017). The Carnism Inventory: Measuring the ideology of eating animals. *Appetite*, *113*, 51–62. https://doi.org/10.1016/j.appet.2017.02.011

Piazza, J., Ruby, M., Loughnan, S., Luong, M., Kulik, J., Watkins, H., & Seigerman, M. (2015). Rationalizing meat consumption. The 4Ns. *Appetite*, *91*, 114–128. https://doi.org/10.1016/j.appet.2015.04.011

Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology*, *67*(4), 741–763. https://doi.org/10.1037/0022-3514.67.4.741

Rosenfeld, D. L. (2023). Masculinity and men's resistance to meat reduction. *Psychology of Human–Animal Intergroup Relations*, *2*, e9645. https://doi.org/10.5964/phair.9645

Rosenfeld, D. L., & Tomiyama, A. J. (2021). Gender differences in meat consumption and openness to vegetarianism. *Appetite*, *166*, 105475. https://doi.org/10.1016/j.appet.2021.105475

Rozenbaum, M. (2023, March 15). *The reality of chicken research*. Understanding Animal Research. https://www.understandinganimalresearch.org.uk/news/the-reality-of-chicken-research

Salmen, A., & Dhont, K. (2023). Animalizing women and feminizing (vegan) men: The psychological intersections of sexism, speciesism, meat, and masculinity. *Social and Personality Psychology Compass*, *17*(2), e12717. https://doi.org/10.1111/spc3.12717

Sebo, J. (2019). Effective animal advocacy. In B. Fischer (Ed.), *The Routledge handbook of animal ethics* (pp. 530–542). Routledge.

Smillie, L. D., Ruby, M. B., Tan, N. P., Stollard, L., & Bastian, B. (2023). Differential responses to ethical vegetarian appeals: Exploring the role of traits, beliefs, and motives. *Journal of Personality*. https://doi.org/10.1111/jopy.12866

Tabachnick, B. G., & Fidell, L. S. (2014). *Using multivariate statistics* (6th ed.). Pearson.

Wonders, T. (2017). *Easy plant-based meal recipes.* https://www.youtube.com/watch?v=2hzcbsrtL30

Wood, W., & Eagly, A. H. (2015). Two traditions of research on gender identity. *Sex Roles*, *73*(11), 461–473. https://doi.org/10.1007/s11199-015-0480-2