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# Ethical Motivation and Vegetarian Dieting: The Underlying Role of Anti-speciesist Attitudes

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**ABSTRACT** The most common motivation people have for becoming vegetarian is ethical concern about using animals for food. One ideology called *speciesism*—which entails assigning different moral worth to different species of animals—is thought to play a central role in promoting ethical vegetarianism. Following a vegetarian diet provides a means of opposing speciesism, proclaiming to oneself and the public that humans should not embody an inherently higher moral status than other animals. Yet the extent to which speciesism and dietary motivations exert direct effects on the decision to go vegetarian remain unknown. Through two preregistered studies, I investigated links between speciesism, ethical dietary motivation, and vegetarian status. In study 1 ( $n = 576$ ), I found that ethical motivation partially mediated the link between speciesism and vegetarian versus meat-eater status. However, the direct effect of speciesism on vegetarian status remained large, such that rejection of speciesism was a much stronger predictor of participants' vegetarian status than was their reported level of ethical dietary motivation. In study 2 ( $n = 201$ ), I found that although vegans reported having greater ethical dietary motivation than vegetarians did, this effect disappeared when controlling for speciesism. Thus, vegans' greater rejection of speciesism explained why they were more ethically motivated than vegetarians were. These studies suggest that beliefs about speciesism may predict certain eating behaviors more robustly than ethical motivation does. Accordingly, in studying eating behavior, it may be valuable to consider not only what motivations people report for their food choices but also the ideological notions they bring to the table.

**Keywords:** ethics, human–animal interaction, morality, speciesism, vegetarianism



The most common motivation vegetarians have for forgoing meat is ethical motivation—that is, a drive to consider the well-being of animals in deciding what to eat (Rosenfeld, 2018). Numerous studies have generated insights into the ideological factors that

may lead people to become vegetarian out of ethical motivation (e.g., Caviola, Everett, & Faber, 2018; De Backer & Hudders, 2015; Pfeiler & Egloff, 2018; Rothgerber, 2014; Vesper, Taylor, & Singer, 2015). One ideology called *speciesism*—“the assignment of different moral worth based on species membership”—is thought to play a central role (Caviola et al., 2018, p. 1). Studies have also documented links between ethical motivation and degree of animal-product avoidance, finding that whereas vegetarians are more ethically concerned about animals than are omnivores, vegans (who eschew not only meat but also egg and dairy) are even more ethically concerned than are vegetarians (Lindeman & Väänänen, 2000; Rosenfeld, 2018, 2019a; Rothgerber, 2015a, 2015b; Ruby, 2008). However, the extent to which people’s ideologies with respect to human–animal relations shape the motivations that drive these types of food choices remains largely unknown. Does speciesism exert a direct force on people’s decisions to eschew animal products, or might ethical dietary motivation serve to mediate this link?

In his (1975) seminal book, *Animal Liberation*, philosopher Peter Singer argues that speciesism has resulted in systemic disregard for animals’ interests. Through speciesism, people deem different species of animals to be deserving of varying degrees of moral consideration, such that one might deem it unjust to harm a cute puppy yet permissible to eat a cow as meat (Singer, 1975). Central to speciesism is an in-group bias toward the interests of one’s own species (Singer, 1975), embodying the belief that humans are inherently superior to other animals (Caviola et al., 2018). Thus, it is unsurprising that greater endorsement of speciesism is associated with greater endorsement of other ideologies, such as social dominance orientation, right-wing authoritarianism, and system justification; greater prejudicial attitudes such as racism and sexism; and less empathic concern toward others (Caviola et al., 2018; Dhont, Hodson, Costello, & MaInnis, 2014).

Speciesism is thought to play a role in food choice—namely, in the realm of meat consumption. Not only is greater belief in human supremacy associated with greater meat consumption (Dhont & Hodson, 2014), but reducing human supremacy beliefs may even reduce speciesism (Bastian, Costello, Loughnan, & Hodson, 2012). People who reject speciesism are more likely to act prosocially toward animals, both in terms of charitably donating to animal causes and avoiding consuming animal products (Caviola et al., 2018; Piazza et al., 2015). People who endorse speciesism, on the other hand, defend meat consumption more strongly, feel less guilty about consuming animal products, and view meatless diets as more infeasible and inaccessible (Graça, Calheiros, & Oliveira, 2016; Piazza et al., 2015). Speciesism, thus, may serve as an ideology that inhibits vegetarian dieting. Accordingly, speciesism permits people to exhibit carnistic beliefs, viewing some animals as edible and others as inedible (Caviola et al., 2018; Joy, 2009; Monteiro, Pfeiler, Patterson, & Milburn, 2017).

In cultures across the world, the majority of people eat meat (European Vegetarian and Animals News Alliance, 2013), highlighting that speciesism is a pervasive ideology. Following a vegetarian diet, however, is a direct way of opposing speciesism, proclaiming to oneself and the public that humans should not embody an inherently higher moral status than other animals (Cole & Morgan, 2011; DeLessio-Parson, 2017; Janssen, Busch, Rödiger, & Hamm, 2016; Menzies & Sheeshka, 2012; Testoni, Ghellar, Rodelli, De Cataldo, & Zamperini, 2017; Torti, 2017; Wrenn, 2017). Rejecting speciesism may instill in one a feeling of self-efficacy in food choice, out of which a sense of ethical motivation may emerge and propel one to eschew meat. This phenomenon may explain why the majority of vegetarians follow their diets out of ethical motivation (Rosenfeld, 2018; Ruby, 2012).

Many studies have highlighted that whether or not vegetarians follow their diets out of ethical motivation offers unique predictive value for their attitudes and behaviors. For example, compared with health-motivated vegetarians, ethically motivated vegetarians exclude more animal products from their diets, are more disgusted by meat, follow their diets more strictly, report having followed their diets for a longer duration, and attribute greater mind to animals (Hoffman, Stallings, Bessinger, & Brooks, 2013; Jabs, Devine, & Sobal, 1998; Rosenfeld, 2019b; Rothgerber, 2014; Rozin, Markwith, & Stoess, 1997). Although definitions of ethical dietary motivation have varied throughout the literature (Rosenfeld, 2019b; Rosenfeld & Burrow, 2017b)—with some studies considering environmental and religious concerns within its scope (e.g., Hoffman et al., 2013)—the current research considers ethical motivation as synonymous with concerns about the wellbeing of animals, as the preponderance of prior studies in this field have done (e.g., Fox & Ward, 2008; Jabs et al., 1998; Janssen et al., 2016; Radnitz, Beezhold, & DiMatteo, 2015; Rozin et al., 1997).

Speciesism is a normative, default ideology, one that often remains low in salience until questioned. I posited that successfully rejecting speciesism demands feeling ethically motivated to go against the pervasive norm of eating meat. In this research, I considered the contrast between ideology and motivation: Whereas ideologies reflect belief systems one has about the world (Jost, Nosek, & Gosling, 2008), motivations are forces that energize people to pursue and achieve goals (Deci & Ryan, 2000). People's beliefs about speciesism, it would follow, may inform the motivations and goals they have when it comes to food and eating. Drawing upon philosophical perspectives on speciesism (Singer, 1975), I reasoned that rejecting speciesism leads one to bring more animals into one's moral circle (Laham, 2009)—namely, to deem animals who are used for meat as worthy of moral consideration. Widening one's moral circle to include farm animals can instill the belief that eating meat is unethical, which in turn can stimulate a sense of ethical motivation to eschew meat. Anti-speciesist attitudes, or believing that all species of animals are equally worthy of moral consideration, may thus be a worldview that causes people to consider the wellbeing of animals in making food choices. In essence, people who reject speciesism may set for themselves a goal to eat in accordance with their ethical views toward animals, which may in turn propel them toward a more vegetarian—and ultimately, vegan—diet.

Through two studies, I tested the link between speciesism, ethical dietary motivation, and vegetarian dieting. I aimed to identify whether speciesism or ethical motivation would uniquely explain more variance in vegetarian eating behaviors, as previous research has yet to examine these factors in tandem. Moreover, I was interested in observing whether adjusting on speciesism or ethical motivation would block out the effect of the other variable in predicting dietary pattern, which would be important to know in designing future research. Given that speciesism and ethical dietary motivation are related constructs, identifying one of them as a more direct, robust predictor of dietary pattern could enable investigators to design studies and analyze data with better insights. In study 1, I focused on speciesism and ethical motivation differences between vegetarians (including vegans) and omnivores. In study 2, to examine within-group heterogeneity among meat-avoiders, I focused on the differences in these constructs between vegans and other vegetarians.

## Study 1

This first study tested the link between speciesism, ethical motivation (operationalized as animal welfare motivation), and vegetarian status. I hypothesized that people who exhibit less speciesism would be more likely to be vegetarian and that greater animal welfare motivation would mediate this link.

## Methods

*Participants:* Six hundred and three adult participants from the United States completed an online survey via Amazon Mechanical Turk (MTurk)<sup>1</sup> in exchange for \$1.00. After excluding 27 participants who failed an attention check—which instructed them to leave their response to one of the survey questions blank (participants who provided a response were excluded)—576 participants (56% female) between the ages of 19 and 72 years ( $M_{\text{age}} = 36.71$ ,  $SD = 11.42$ ) were retained for analyses. Participants responded to the questions “Are you a vegetarian?” and “Are you a vegan?” to which responses were “yes” and “no.” Of the total 576 participants, 54 indicated that they were vegetarian (i.e., they indicated that they were vegetarian and/or vegan—specifically, 18 participants considered themselves vegan), whereas 522 indicated that they were omnivorous (i.e., neither vegetarian nor vegan). A post-hoc sensitivity analysis indicated that this final sample provided 80% power to detect small–medium effect sizes ( $d = 0.40$ ) between vegetarians and omnivores at a significance threshold of  $p = 0.05$ .

*Materials:* 1) *Animal Welfare Motivation:* Animal welfare motivation was assessed with the 2-item animal welfare subscale ( $\alpha = 0.91$ ) of Lindeman and Väänänen’s (2000) Ecological Welfare scale. This measure began with the statement “It is important to me that the food I eat on a typical day:” and was followed with two items: “Has been produced in a way that animals have not experienced pain” and “Has been produced in a way that animals’ rights have been respected.” Responses ranged from 1 (not at all important) to 4 (very important).

2) *Speciesism:* Speciesism was assessed with Dhont and colleagues’ (2014) 8-item speciesism scale ( $\alpha = 0.82$ ). An example item on this scale is “I think it is perfectly acceptable for cattle, chickens and pigs to be raised for human consumption,” to which responses ranged from 1 (strongly disagree) to 7 (strongly agree).

*Procedure:* At the start of the online survey, participants read a consent form inviting them to take part in a study on personality and food choices. The stated purpose of this study was to understand how people think about their food choices. The consent form also included information on the survey’s expected duration, potential benefits and risks of participation, compensation for participation, participant confidentiality, and contact information of the principal investigator, Institutional Review Board, and Ethicspoint. At the end of the consent form was a statement of consent confirming that participants were at least 18 years of age, understood the nature of the study, and consented to take part. Participants indicated consent by ticking a box which stated that they agreed to the terms and wished to participate. After consenting to take part in this research, participants completed the speciesism and animal welfare measures. Then, participants indicated if they were vegetarian and/or vegan and completed demographic questions. This study protocol (#1702006958) was approved by the Institutional Review Board at Cornell University, and informed consent was obtained from all study participants.

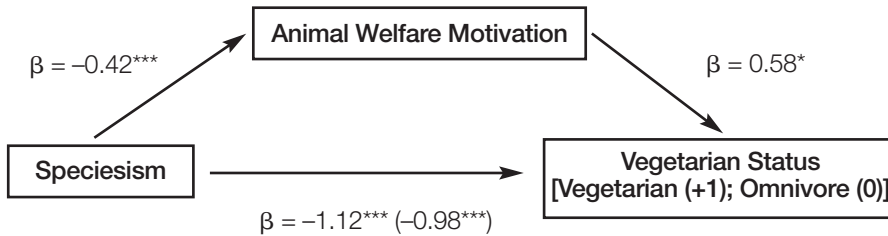
## Results

All confirmatory analyses were preregistered via the Open Science Framework (OSF) after all data had been collected (see [https://osf.io/bkg45/?view\\_only=47eaba4a909b4a33bd43c55ad19e016b](https://osf.io/bkg45/?view_only=47eaba4a909b4a33bd43c55ad19e016b) for preregistration). Data and analysis scripts are available at [https://osf.io/495pw/?view\\_only=341f5fa6ba9441c2ad8f9b396f9d7e9e](https://osf.io/495pw/?view_only=341f5fa6ba9441c2ad8f9b396f9d7e9e). See Table 1 for cell descriptives.

Animal welfare motivation and speciesism correlated negatively ( $r_{(565)} = -0.54$ ,  $p < 0.001$ ). Mediation was tested using the four steps of regression proposed by Baron and Kenny (1986),

**Table 1.** Vegetarians' and omnivores' scores on study 1 outcomes.

Measure	Omnivores ( <i>n</i> = 522) Mean (SD)	Vegetarians ( <i>n</i> = 54) Mean (SD)
Animal Welfare Motivation	2.56 (0.95)	3.48 (0.71)
Speciesism	3.68 (1.20)	2.23 (1.09)

**Figure 1.** Mediation model for the effect of speciesism on vegetarian status through animal welfare motivation (Study 1). \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

along with distribution-of-the-product confidence limits for the indirect effect conducted through the RMediation package in R (Tofighi & MacKinnon, 2011). Ordinary least squares (OLS) regression was employed when the outcome in the model was ethical motivation (a continuous variable), whereas logistic regression was employed when the outcome was vegetarian status (a dichotomous variable). In order to make the logistic regression model's coefficients and standard errors compatible with the OLS model's coefficients and standard errors in computing the indirect effect, I employed Kenny (2008) and Herr's (2013) recommendations for rescaling: for the logistic model, I multiplied the predictor's coefficient and standard error by the standard deviation of that predictor and divided by the standard deviation of the outcome variable. Raw (unscaled) coefficients are presented within the mediation model in Figure 1.

Vegetarian status was dummy coded as 1 and omnivorous status as 0. Lower endorsement of speciesism predicted vegetarian status ( $\beta = -1.12$ ,  $p < 0.001$ , 95% CI [-1.45, -0.83]). Lower endorsement of speciesism predicted greater animal welfare motivation ( $\beta = -0.42$ ,  $p < 0.001$ , 95% CI [-0.47, -0.36]). Greater animal welfare motivation, in turn, predicted vegetarian status ( $\beta = 0.58$ ,  $p = 0.011$ , 95% CI [0.15, 1.05]), controlling for speciesism. The direct effect of speciesism on vegetarian status was reduced when controlling for animal welfare motivation but remained significant ( $\beta = -0.98$ ,  $p < 0.001$ , 95% CI [-1.35, -0.63]). Distribution-of-the-product confidence limits for the indirect effect of speciesism on vegetarian status through animal welfare motivation did not include zero (95% CI [-1.44, -0.18]), suggesting that animal welfare motivation partially mediated the link between speciesism and vegetarian status.

### Discussion

Animal welfare dietary motivation partially explained why people who reject speciesism are more likely to be vegetarian. Although significantly reduced, the direct effect of speciesism on vegetarian status remained large when controlling for animal welfare motivation: animal welfare motivation reduced the direct effect of speciesism by only 13%. Thus, while ethical dietary motivations to promote the wellbeing of animals may play a direct role in leading people to become vegetarian, the extent to which people endorse speciesism appears to be a much stronger predictor of their vegetarian status.

From these findings, I reasoned that variations in the extent to which vegetarians restrict their animal-product consumption might not be explained directly by dietary motivation but instead might reflect their beliefs about speciesism to a much greater extent. An example suitable for testing this theory is the contrast between vegetarians and vegans: whereas vegetarians eschew meat but consume egg and/or dairy, vegans eschew all forms of animal products (Ruby, 2012). Vegetarians and vegans tend to follow their diets for different reasons: several studies have found that vegans are more ethically motivated than are vegetarians (Fiestas-Flores & Pyhälä, 2017; Haverstock & Forgays 2012; Izmirlı & Phillips, 2011; Lund, McKeegan, Cribbin, & Sandøe, 2016; Rosenfeld, 2019a). Might this difference in ethical motivation between vegetarians and vegans be explained by vegans' greater rejections of speciesism?

In testing this question, I considered that the animal welfare motivation measure used in study 1 captures how people think about their food choices in general, not about their food choices specific to animal-product consumption. Whereas the general attitudes people have toward food and eating can predict their level of animal-product consumption (Arbit, Ruby, & Rozin, 2017; Lindeman & Väänänen, 2000), better insights into food choice processes may be gained from focusing on the motivations people have specifically for eschewing animal products. As such, drawing upon a review of research on what motivates people to eschew meat (Rosenfeld & Burrow, 2017b), I decided to assess the extent to which participants followed their diets for ethical reasons in study 2.

## Study 2

Study 1 was on a sample of diverse dieters, including a fair amount of vegetarians but consisting predominantly of omnivores. Thus, while its results shed light on the roles of speciesism and dietary motivation in predicting vegetarian status, they cannot necessarily be generalized to within-group heterogeneity among vegetarians—that is, how people who following vegetarian diets of varying degrees of restrictiveness might differ from one another. Yet psychologists who study eating behavior are often interested in the psychological correlates of restricting one's animal-product intake to varying extents (Rosenfeld, 2018). As such, this second study involved a sample comprised entirely of vegetarians who identified specifically whether they followed a vegetarian or vegan diet. Given prior findings, I hypothesized that vegans would report having greater ethical motivation to follow their diets than would vegetarians. However, I hypothesized that this effect would disappear when controlling for speciesism, such that vegans' greater rejections of speciesism would explain why they are more ethically motivated than are vegetarians.

As ethical motivation is a latent construct that can be assessed in myriad ways, I operationalized ethical motivation differently in this second study than in study 1 in order to capture multiple facets of this construct throughout the current research. In study 1, ethical motivation was operationalized by a measure of animal welfare motivation. In this study 2, meanwhile, ethical motivation was operationalized by a single item that explicitly measured the extent to one follows one's diet for ethical reasons. Given that definitions of ethical motivation have varied across studies on vegetarianism (Rosenfeld & Burrow, 2017b), I furthermore assessed ethical motivation directly through this single-item statement in order to measure how participants themselves construe ethical motivation in dieting, theorizing that it would be very similar to animal welfare motivation. Prior studies on vegetarianism (e.g., Rothgerber, 2013, 2014) likewise have used this methodology to assess ethical motivation.

Similarly, I operationalized speciesism differently in this second study than in study 1, using Caviola and colleagues' (2018) scale in this study but Dhont and colleagues' (2014) scale in study 1. Whereas Dhont and colleagues' (2014) assessed speciesism using a scale they created for the purpose of their study, Caviola and colleagues' (2018) developed and validated a scale of speciesism through a series of five studies that demonstrated its sound psychometric properties and construct validity. Data for study 1 were collected prior to the introduction of Caviola and colleagues' (2018) scale, whereas data for study 2 were collected afterwards. Thus, given the more extensive validation procedure involved in Caviola and colleagues' (2018) scale, I assessed speciesism using this measure in study 2.

## Methods

*Participants:* Three hundred and eighty-five adult participants from the US completed an online survey via MTurk<sup>2</sup> which was advertised as being for people who refrain from eating meat, in exchange for \$0.40. Of the 385 participants, 216 indicated that they followed a vegetarian ( $n = 145$ ) or vegan ( $n = 71$ ) diet and were retained in this study. An additional 110 participants who indicated that they followed a pescatarian diet and 59 participants who indicated following some other type of diet were excluded from this study. This approach of categorizing participants based on what diet they follow differed from that used in study 1, in which I categorized participants based on whether or not they self-identified as vegetarian/vegan. Then, after excluding 14 participants who failed an attention check—which instructed them to leave their response to one of the survey questions blank (participants who provided a response were excluded)—and one participant who reported being an impossible age, 201 participants (65% female) between the ages of 20 and 77 years ( $M_{\text{age}} = 36.74$ ,  $SD = 11.37$ ) were retained for analyses. Of these remaining participants, 134 were vegetarians and 67 were vegans. A post-hoc sensitivity analysis indicated that this final sample provided 80% power to detect small-medium effect sizes ( $d = 0.42$ ) between vegetarians and vegans at a significance threshold of  $p = 0.05$ .

*Materials:* 1) *Dietary Pattern:* Dietary pattern was assessed with the single-item statement “Which of the following describes your diet most accurately?” Participants were able to select one of four responses. Participants who selected “I do not eat any meat or fish (vegetarian diet)” were categorized as vegetarians, whereas participants who selected “I do not eat any animal products (vegan diet)” were categorized as vegans. Participants who selected “I eat fish, but I do not eat red meat or poultry (pescatarian diet)” were categorized as pescatarians. Participants who selected a fourth response, “None of the above describe my diet accurately,” were categorized as other dieters.

2) *Ethical Motivation:* Ethical motivation was assessed with the single-item statement “I follow this diet for ethical reasons,” with responses ranging from 1 (strongly disagree) to 7 (strongly agree).

3) *Speciesism:* Speciesism was assessed with Caviola and colleagues' (2018) 6-item Speciesism Scale ( $\alpha = 0.87$ ). An example item on this scale is “Humans have the right to use animals however they want to.” Responses ranged from 1 (strongly disagree) to 7 (strongly agree).

*Procedure:* At the start of the online survey, participants read a consent form inviting them to take part in a study on meat avoidance. The stated purpose of this study was to understand how people make food choices, specifically what factors may affect people's decisions to refrain from eating meat. The consent form also included information on the survey's expected



duration, potential benefits and risks of participation, compensation for participation, participant confidentiality, and contact information of the principal investigator and office of human research protection program. At the end of the consent form was a statement of consent confirming that participants were at least 18 years of age, understood the nature of the study, and consented to take part. Participants indicated consent by ticking a box which stated that they agreed to the terms and wished to participate. After consenting to take part in this research, participants first indicated their dietary pattern and then completed the item assessing ethical motivation. Next, participants completed the speciesism measure. Lastly, participants completed demographic questions. This study protocol (IRB#18-001495) was approved by the Institutional Review Board at the University of California, Los Angeles and informed consent was obtained from all study participants.

## Results

All confirmatory analyses were preregistered via OSF after all data had been collected (see [https://osf.io/bh98a/?view\\_only=949c278ceb134d6ab04cf0475edfd76f](https://osf.io/bh98a/?view_only=949c278ceb134d6ab04cf0475edfd76f) for preregistration). Data and analysis scripts are available at [https://osf.io/ytjxu/?view\\_only=e169b4c8a45949adb957e6ed23046980](https://osf.io/ytjxu/?view_only=e169b4c8a45949adb957e6ed23046980).

The relationship between ethical motivation and speciesism observed in this study very closely replicated the relationship between animal welfare motivation and speciesism ( $r = -0.54$ ) observed in study 1. Here, ethical motivation and speciesism correlated negatively ( $r_{(196)} = -0.51, p < 0.001$ ).

First, I tested whether homogeneity of variance—an assumption underlying independent samples  $t$ -tests—existed between vegetarians and vegans for ethical motivation and speciesism. Levene's tests for equality of variance revealed that variances were equal for ethical motivation ( $F_{(1, 200)} = 1.54, p = 0.051, 95\% \text{ CI } [1.00, 2.31]$ ), and speciesism ( $F_{(1, 197)} = 1.23, p = 0.363, 95\% \text{ CI } [0.79, 1.85]$ ). Supporting my first hypothesis, an independent samples  $t$ -test revealed that vegans ( $M = 5.85, SD = 1.52$ ) reported greater ethical motivation than vegetarians did ( $M = 5.26, SD = 1.89, t_{(199)} = 2.22, p = 0.027, d = 0.34, 95\% \text{ CI } [0.07, 1.11]$ ). Moreover, vegans ( $M = 2.15, SD = 1.19$ ) reported lower endorsements of speciesism than did vegetarians ( $M = 2.55, SD = 1.31, t_{(196)} = 2.12, p = 0.036, d = 0.32, 95\% \text{ CI } [0.03, 0.79]$ ). When controlling for speciesism in an analysis of covariance (ANCOVA), vegetarians and vegans no longer differed on ethical motivation ( $F_{(1, 195)} = 1.74, p = 0.189, 95\% \text{ CI } [-0.16, 0.78]$ ), supporting my second hypothesis. Within this ANCOVA, lower endorsement of speciesism predicted vegan status ( $F_{(1, 195)} = 64.41, p < 0.001, 95\% \text{ CI } [-0.87, -0.53]$ ).

## Discussion

Although vegans reported greater ethical motivation than vegetarians did, this effect disappeared when controlling for speciesism. These results suggest that vegans' lower endorsements of speciesism may explain why they are more ethically motivated to follow their diets than vegetarians are. Speciesism, thus, may be a more robust predictor of vegetarian versus vegan status than is ethical dietary motivation.

## General Discussion

Taken together, the findings from these two studies highlight speciesism as a factor that greatly underlies differences in ethical dietary motivation between omnivores and vegetarians and between vegans and other types of vegetarians. In study 1, the direct effect of speciesism was much larger than the direct effect of animal welfare motivation was on vegetarian versus

omnivore status. In study 2, accounting for speciesism explained the difference in ethical motivation between vegetarians and vegans, suggesting that ethical motivation itself might not exert any significant effect on whether people choose veganism over vegetarianism. Thus, beliefs about speciesism may predict certain eating behaviors more robustly than does ethical motivation.

Vegetarians are more concerned about the ethical implications of their food choices than omnivores are, and vegans are even more concerned than are vegetarians (Lindeman & Väänänen, 2000; Rosenfeld, 2018, 2019a; Rothgerber, 2015a, 2015b; Ruby, 2008). The current studies' findings suggest that which of these diets one chooses to follow (omnivorous, vegetarian, or vegan) more strongly reflects one's beliefs about speciesism—that is, whether one believes some species of animals are more worthy of moral consideration than other species are—than one's sense of motivation to make ethical food choices. Future research on vegetarianism may benefit from considering whether speciesism has direct effects on outcomes of interest, above and beyond the effects of dietary motivation. Moreover, in studying correlates of vegetarian dietary motivation, investigators may wish to enter speciesism as a covariate in order to ensure that explained variance in outcomes can be uniquely attributed to differences in dietary motivation.

Given the effects of meat production and consumption on animals, public health, and environmental sustainability (McMichael, Powles, Butler, & Uauy, 2007; Tilman & Clark, 2014), it is important to understand why people make certain food choices and what psychological implications those food choices may have. One might construe the decision to give up meat through various lenses depending on one's dietary motivation. Indeed, numerous studies in recent years have documented unique psychological correlates of choosing vegetarianism out of ethical, rather than health, motivations (e.g., Hoffman et al., 2013; Radnitz et al., 2015; Rosenfeld, 2019b; Rothgerber, 2014). Yet to what extent might differences between vegetarians with varying motivations reflect differences in how they think about speciesism? Might speciesism exert a direct effect on outcomes of interest, such as perception of animal mind (e.g., Cliceria, Spinellia, Dinnellaa, Prescottta, & Monteleone, 2018; Loughnan, Bastian, & Haslam, 2014; Rothgerber, 2014), dietary duration (e.g., Hoffman et al., 2013; Radnitz et al., 2015), disgust toward meat (e.g., Rosenfeld, 2019b; Rothgerber, 2014; Rozin et al., 1997), and so forth? Reconsidering the direct role of ethical dietary motivations in meat avoidance and focusing more on speciesism may enable investigators to test research questions with greater precision.

As the current studies implemented correlational designs, definitive inferences about causality cannot be made. Based on theoretical conceptions of ideology and motivation (Deci & Ryan, 2000; Jost et al., 2008), I imagined that motivation would be a direct precursor to food choice, one that is spurred by beliefs about speciesism. The substantial direct effect of speciesism on vegetarian status and the much smaller indirect effect through ethical motivation observed in study 1 provided significant, yet weak, evidence for this mechanism. Revising my theory in designing study 2, I imagined that speciesism might be a temporally preceding confound, one that directly promotes both ethical motivation and more restrictive dietary choice. Indeed, results suggest that beliefs about speciesism, but not the extent to which people explicitly construed their diets as ethically motivated, predict dietary status. Whereas this finding can suggest that ideologies may affect food choice more directly than do motivations, it may also suggest that implicit beliefs about morality (e.g., speciesism) guide behavior to a greater extent than do beliefs that are reported explicitly (e.g., stating one's dietary motivation). Additional research is needed to disentangle these effects.

A factor to consider in interpreting the current studies' findings is that operationalizations of ethical dietary motivation differed across the two studies. Throughout this paper, I have

conceived ethical motivation to refer to a concern about the wellbeing of animals in deciding what to eat. In study 1, accordingly, animal welfare motivation operationalized ethical motivation in comparing vegetarians with omnivores. In study 2, meanwhile, for the purpose of comparing vegans with other vegetarians, ethical motivation was operationalized as the extent to which participants reported that they follow their diets for ethical reasons. On the one hand, this can be a strength of the current research, as operationalizing ethical motivation in slightly different ways across studies demonstrates that the observed trend is a reliable one. On the other hand, using different operationalizations can be a limitation, as it relies upon the underlying assumption that vegetarians do in fact construe “ethics” as related to concerns about animals. Given that speciesism’s correlations with animal welfare motivation and self-reported “ethical” motivation were nearly identical, and that speciesism accounted for the majority of variance in dietary pattern variations above and beyond these ethical motivation variables across both of these studies, it is likely that both of these operationalizations of ethical motivation captured a similar construct reflecting a concern about the wellbeing of animals. Still, however, additional research examining how people explicitly construe “ethics” in food and eating is needed to confirm this notion.

One limitation of the current research is that participants in study 1 did not receive specific definitions for “vegetarian” and “vegan” when deciding whether or not they identified with these labels. Thus, this method of categorization may reflect identity aspects of vegetarianism more closely than it reflects actual vegetarian eating behaviors—two constructs that are strongly related yet have the potential to diverge (Rosenfeld & Burrow, 2017a). A second limitation of the current research is the potential that participants in study 2 may have misrepresented themselves, reporting that they refrain from eating meat when in reality they eat meat. As is a common limitation of survey research, we as researchers put our good faith in trusting that participants provide honest responses.

While many decades old in the philosophical literature, speciesism is a young concept within the realm of psychology and is ripe for further empirical investigation. The study of speciesism has clear relevance for the vast majority of people around the world: those who eat meat. Yet the current research highlights that beliefs about speciesism can even predict variations in food choice among people who do not eat meat. Ultimately, in studying eating behavior, it may prove insightful to consider not only what motivations people report for their food choices but also the ideological notions they bring to the table.

## Conflicts of Interest

The author declares no conflicts of interest.

## Notes

1. The sample for study 1 was a composite of two samples ( $n$ 's = 300 and 303) collected by Rosenfeld and Burrow (2018). I combined these two samples into one larger sample in order to maximize statistical power.
2. The sample for study 2 was a sample collected by Rosenfeld and Tomiyama (in press).

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