

**The relationship between attitudes to human rights and to animal rights  
is partially mediated by empathy.**

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**Author Note**

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## Abstract

Veganism has become increasingly popular in recent years in many countries including the UK and the USA. Studies have found that vegans tend to be female, lower in Right-Wing Authoritarianism (RWA) and Social Dominance Orientation (SDO), and higher in feminist perspectives (FPS). Study 1 (n=311) investigated the relationships among meat consumption, ethical veganism (using a custom-written scale), RWA, SDO, and FPS, in a series of questionnaires completed online. RWA, SDO, and meat consumption correlated together in one group of variables; FPS and ethical veganism correlated together in a distinct group. In Study 2 participants also completed the Toronto Empathy Questionnaire (TEQ) as a potential mediator variable. The relationship between RWA, SDO, and FPS as predictors, and ethical veganism as target, was partially mediated by empathy. This pattern of results suggests that individuals who hold egalitarian and inclusive views as regards human-human relationships also tend to have similar views as regards human-animal relationships, with empathy as an underlying common factor.

Keywords: ethical veganism, feminism, social dominance, right-wing authoritarianism, animal rights

## Introduction

Ethical veganism has been defined as a philosophy and a way of living which attempts to avoid the exploitation of animals for food, entertainment, clothing, or any other purpose (Vegan Flag, 2019). This distinguishes veganism that is motivated by ethical aspects of concern for animal rights (e.g., McPherson, 2014) from veganism that might be motivated more by concern for healthy eating or for the environment. It should be noted there is no intention to describe non-vegans as non-ethical; the use of the term ethical merely denotes a particular form of veganism. Advocates of animal rights regard non-human species as possessing sentience and feelings and therefore advance the belief that non-human animals have rights which should be respected in the same way as human rights (e.g., Donovan, 1996). Thus, ethical veganism can be regarded as a philosophy and a set of moral values (Greenebaum, 2015) and as an essential part of self-concept (Allen, et al, 2000; Plante, et al, 2019). The number of vegans in the UK increased from 150,000 in 2006 to 542,000 in 2016 – a 360% rise in 10 years (Quinn, 2016). In contrast to ethical veganism, speciesism is the belief system, or ideology, that includes the assumption of human superiority over non-human animals that makes the consumption of certain animals and their products ethically permissible (Caviola, et al, 2019; Joy, 2010; Singer, 1977; Wayne, 2013).

Diet can be viewed on a scale ranging from omnivores at one end, through pollotarians (eating chicken), pescatarians (eating fish), vegetarians, and vegans (Allen, et al, 2000). While this may obscure some individual variation, it provides a framework for analyzing attitudes to diet and their association with ideologies.

Duckitt (2001) proposed a dual-process model of political ideology to explain prejudiced attitudes and behaviours. The model describes two cognitive-motivational systems: Right-Wing Authoritarianism (RWA) and Social Dominance Orientation (SDO). RWA is theorised to be driven by perceived threat and motivates the individual to endorse and support controls over social behaviours, and to defend the values and norms of the ingroup. SDO is driven by a sense of competition between social groups over power or resources and the need to defend ones' ingroup from threat by groups at other levels of the social hierarchy. Both these constructs have been associated with attitudes towards vegetarianism, veganism, and animal rights.

People high in RWA tend to value tradition, adhere to conventional values, and have a high level of respect for authority (Duckitt, 2001). It has historically been acceptable to consume animals for food, entertainment, or clothing, and so people high in RWA might view attempts to promote animal rights as an attack on convention (Duckitt, 2006; Saunders & Ngo, 2017). There is evidence of an association between RWA and an omnivorous diet (Allen et al, 2000; Veser, et al, 2015) and vegetarians have been reported to be 15 times more likely to be politically liberal than conservative (Rosenfeld, 2018), a finding which it seems plausible to assume will also apply to vegans. People higher in RWA have more negative attitudes to vegans and perceive them as a symbolic threat to the cultural and social norms highly valued in RWA (Duckitt, 2006; Judge & Wilson, 2017). Similarly, MacInnis and Hodson (2017, p15) noted that 40% of vegetarians and 50% of vegans reported experiencing everyday discrimination.

Social Dominance Orientation (SDO) is defined as the preference for social hierarchy over egalitarianism, and the belief that it is correct for higher-status groups to enjoy social dominance over lower-status groups (Pratto, et al, 2006). SDO has been conceptually and empirically linked to the belief that humans are superior to other non-human animals (Dhont & Hodson, 2014; Dhont, et al, 2016). In support of this view, those individuals who include meat in their diet are more likely to have higher levels of social dominance orientation (Allen et al, 2000; Hodson & Earle, 2018; Veser, et al, 2015) and Western cultures generally associate meat eating with higher social status and prestige (Barr & Chapman, 2002). People low in SDO have egalitarian views and regard it as desirable for all groups to have equal positions in society. It is easy to extrapolate this to the principle that non-human animals also have rights and should be treated as more equal to humans than is currently the case. Duckitt (2006) notes that ethical vegans stand up for the rights of non-human animals as a legitimate social group worthy of respect and decent treatment. There is evidence that people who reject ideas of dominance and hierarchy have less positive attitudes towards eating meat and lower consumption of meat (Allen et al, 2000). Interestingly, there is also evidence that those who refrain from consuming animal products place more importance on emotional states, consistent with the aspect of low SDO that places a high value on tendermindedness (Allen et al, 2000).

Human domination of non-human animals is also conceptually related to sexism, the view that men are superior to, and entitled to dominate, women. It is observed that women in Western societies are objectified sexually and as commodities (e.g., Fredrickson & Roberts, 1997; Adams, 1990) and it cannot be denied that non-human animals are treated as commodities. The same root cause of male social domination is held responsible for the denial of rights to both women and non-human animals (e.g., Adams, 1991). This general concept of perceived superiority is supported by findings that meat is symbolically associated with masculinity and dominance, whereas femininity and weakness are generally associated with fruit, vegetables, and grains (Beardsworth & Keil, 1991; Fiddes, 1992; Twigg, 1983). Feminism has been associated with vegetarianism, ethical veganism, and concern for animal welfare (Adams, 1991). Empirically, more women than men are vegetarian and vegan (Modlinska, et al, 2020). The traditionally female qualities of empathy and nurture could be extrapolated to apply to non-human animals as well as to dependent humans, and Donovan (1996) associated feminism with ethical veganism because both share moral values of care and nurture for individuals less well able to stand up for themselves.

This literature review so far has illustrated relationships between ethical veganism and each of RWA, SDO, and feminism. Two other relationships should be noted. First, RWA and SDO are frequently observed to be weakly or moderately correlated (e.g., Choma & Hanoch, 2016, Duckitt 2006). Second, Feminism is associated (negatively) with SDO, because people high in SDO prefer social hierarchies and hold anti-egalitarian views (Duckitt, 2001) and feminism is perceived as a threat to established hierarchies. There is evidence that men are higher in SDO than women (e.g., Pratto, et al, 1994).

Empathy may be a common factor mediating the relationship between ethical veganism and the traits of SDO, RWA, and feminism. The Toronto Empathy Questionnaire (TEQ; Spreng, et al, 2009) includes items describing feelings of empathy, compassion, and protectivity towards those less powerful than oneself. These sentiments could clearly apply to concern for animals, and especially so for those who consider non-human animals to be “people”. For example, vegetarians, compared to omnivores, have been shown to ascribe more human-like emotions to animals

(Bilewicz, et al, 2011). The ethical veganism scale (EVS) developed for this study includes items explicitly denoting similarities between animals and humans and placing them on an equal moral footing. It seems plausible that people high in ethical veganism, who consider animals to have similar moral rights to humans, would also score highly on empathy as measured by the TEQ.

Empathy includes concern for those less fortunate, whereas RWA includes aggression towards outgroups when this is sanctioned by authority and convention (Duckitt, 2001). RWA is associated with prejudice towards outgroups based on ethnicity, gender, and sexual orientation (Saunders & Ngo, 2017). Thus, it represents an attitude of relative ill-treatment of outgroup members. This would predict a negative relationship between RWA and empathy. SDO is negatively related to empathy through the concept of tender mindedness, which is conceptually part of empathy, and a key aspect of low SDO (Duckitt, 2001). Empathy includes concern for the welfare and rights of groups with low power in society and the principle that they should not be exploited. Finally, feminist perspectives are related to empathy through the traditionally female qualities of care and nurture for those who are relatively helpless and dependent (e.g., Donovan, 1996). Thus, it appears that all three concepts of RWA, SDO, and feminism would be related to empathy. This pattern of relationships suggests a mediation model that relates RWA, SDO, and feminism to ethical veganism, mediated by empathy. This mediation model was investigated in Study 2.

H1 predicted a pattern of correlations such that diet (meat-consumption), SDO, and RWA, would all be positively correlated; ethical veganism, feminism, and empathy (Study 2 only) would all be positively correlated; and variables in one group would have a negative relationship with variables in the other group. H2 predicted that women, compared to men, would be lower in SDO, higher in ethical veganism and feminist perspectives, and would have a diet lower in the consumption of animal products. In Study 2, H3 predicted a mediation model in which RWA, SDO, and FPS would predict ethical veganism through empathy as a mediator.

## Study 1

### **Method**

#### *Participants*

There were 311 participants from variety of ethnicities and occupations, comprising 194 females (62%), 96 males (31%), 8 choosing the option “it’s complicated” (3%), and the remaining 13 (4%) preferred not to say. The higher proportion of female than male participants is typical in psychological research and possible implications will be addressed in the Discussion. Ages ranged from 18 to over 60, in the following bands: 148 (18-25), 62 (26-30), 26 (31-35), 20 (36-40), 19 (41-45), 8 (46-50), 10 (51-55), 9 (56-60), 2 (over 60), and 7 missing.

Participants were recruited via the social media platforms Facebook, Twitter and Reddit. There were 185 participants who self-defined as ethical vegans, 29 as vegetarians, 8 pescetarians, 4 pollotarians, 78 omnivores, and 7 missing. The abundance of participants identifying as ethical vegans was a result of deliberate attempts to recruit participants from this group.

#### *Design*

A cross-sectional and correlational design was used in which participants completed a series of online questionnaires: RWA, SDO, Feminist Perspectives, and the custom-written Ethical Veganism. Participants were also asked to complete basic demographic information and to categorize their diet.

#### *Materials*

All questionnaires were completed online. Each used a Likert scale to identify levels of agreement with the statements in the questionnaire.

The RWA Scale (Altemeyer, 1981; 1998) measures the value placed on uniformity of social behavior and the willingness to submit to legitimate authorities. Examples of questions include: “Our country needs free thinkers who have the courage to defy traditional ways, even if this upsets many people.” (reverse scored) and “The ‘old-fashioned ways’ and the ‘old-fashioned values’ still show the best way to live”. The items were scored on a range from 1 = very strongly disagree through to 9 = very strongly agree with the midpoint 5 = neither agree nor disagree. The scale consists of

22 items but the first two are not included in the total score. A higher score indicates a greater agreement with the ideas of RWA.

The SDO scale (Ho, et al, 2015) contains 16 items and measures preference for hierarchy and for domination over lower-status groups. Examples of questions include: "Groups at the bottom are just as deserving as groups at the top," (reverse scored) and "It is unjust to try to make groups equal." The items were scored on a range from 1 = strongly disagree to 7 = strongly agree with the midpoint 4 = neither agree nor disagree. A higher score indicates a stronger degree of SDO. The SDO scale comprises two subscales of SDO Trait Dominance and SDO Anti-Egalitarianism.

The Feminist Perspectives Scale (FPS: Henley, et al, 1998) measures a set of attitudes towards women, freedom, and equality. Examples of questions include: "Given the way that men are, women have a responsibility not to arouse them by their dress and actions" (conservative feminism) and "Whether one chooses a traditional or alternative family form should be a matter of personal choice" (liberal feminism). The items were scored on a range from 1 = strongly disagree to 5 = strongly agree with the midpoint 3 = neither agree nor disagree. The entire scale was 60 items long which was deemed to be too onerous for participants, hence only the 20 items comprising the conservative feminism and liberal feminism subscales were retained (these are all the items on the two subscales). The liberal scale was worded in the direction of support for feminist ideals while the conservative scale was worded in the opposing direction; hence items on the conservative scale were reverse scored so that a higher total score indicates a stronger belief in the principles of feminism.

The Ethical Veganism Scale (EVS) is shown in Appendix 1. Examples of questions include: "Animals should have the right to live" and "Animals are individual sentient beings with their own needs, desires and interests". It consists of 14 questions and was custom written for this research project. Items were scored on a range from 1 = strongly disagree to 5 = strongly agree with the midpoint 3 = neither agree nor disagree. Seven items were worded in the direction of lower support for ethical veganism and these items were reverse scored. A higher score indicates more agreement with the principles of ethical veganism.

Participants indicated their dietary orientation on a scale from 1 to 5 with 1 being vegan, i.e., no consumption of animal products, and 5 being omnivore.



Participants also stated their age and gender.

### *Procedure*

Participants who responded to an invitation to participate were given a link to a website which presented an information sheet and asked them to indicate informed consent. Their anonymity was guaranteed. They were asked to complete the EVS, the RWA, the SDO, the FPS, and demographic details. The average time to complete the questionnaires was approximately 10 minutes. On completion, participants were given a debriefing that explained the purpose of the study and invited them to contact the researcher if they had any questions.

The study was given ethical approval by the University of East London Research Ethics Committee, reference ETH1920-0051.

### ***Results and Discussion***

Individuals were included in the analysis if they completed the Ethical Veganism Scale plus at least one other of RWA, SDO, and FPS. Thus, different sample sizes were observed in the correlation table (Table 1), though it is clear that the majority of participants who met the criterion in fact completed all scales. A total of 120 other participants were excluded who failed to complete sufficient items (including those who exited following the information sheet), or who completed the scales at a speed that implies a failure of attention to the items. This may seem like a high level of incomplete submissions, but it is not unusual for an online study.

The total score was calculated for the RWA, SDO (trait dominance and anti-egalitarianism subscales), FPS (liberal and conservative subscales), and EVS, as the sum of responses on the corresponding scale with items reverse scored as appropriate. Missing values on individual items were replaced with the average score for the participant on the relevant scale; this is an unbiased approach to filling in missing data. In cases where there was no data for a scale the scale was omitted from the correlational analysis for the corresponding participant. No values were out-of-range. Diet was scaled from 1-5 with a higher score indicating higher consumption of animal products (1=vegan, 2=vegetarian, 3=pescetarian, 4=pollotarian, 5=omnivore).

Reliability of each scale was good: Cronbach's alpha was 0.92 for the EVS, 0.90 for RWA, 0.78 for SDO trait dominance, 0.86 for SDO anti-egalitarianism, 0.74 for FPS conservative feminism, and 0.69 for FPS liberal feminism.

The EVS was subjected to an exploratory factor analysis using principal components analysis. There was only one factor with an eigenvalue greater than 1, suggesting the scale comprises a single factor.

#### *Hypothesis 1 - correlations among the variables*

Please refer to Table 1 for the means, *SDs*, and correlations among the variables. It is apparent that the variables fall into two groups: the EVS and the FPS (liberal and conservative subscales) are positively correlated with each other; the RWA, SDO (trait dominance and anti-egalitarianism subscales) and diet are all positively correlated with each other; and all variables in one group are negatively correlated with all variables from the other group. Hypothesis 1 was clearly supported.

**Table 1:** Study 1: Means and *SD* of each variable, and correlations between variables.

	Mean ( <i>SD</i> )	RWA	SDO Trait Dom	SDO Anti Egal	FPS Liberal	FPS Conserv	EVS
Diet	2.21 (1.72)	0.34 ** (284)	0.31 ** (303)	0.38 ** (303)	- 0.23 ** (194)	-0.31 ** (194)	- 0.80 ** (304)
RWA	46.2 (23.7)	-	0.59 ** (286)	0.59 ** (286)	- 0.63 ** (193)	-0.72 ** (193)	- 0.38 ** (287)
SDO Trait dominance	17.0 (7.71)		-	0.74 ** (310)	- 0.44 ** (196)	-0.55 ** (196)	- 0.40 ** (310)
SDO Anti- Egalitarian	16.5 (8.42)			-	-0.52 ** (196)	-0.54 ** (196)	-0.53 ** (310)
FPS Liberal	42.8 (4.83)				-	0.60 ** (196)	0.37 ** (196)
FPS Con- servative	45.4 (4.71)						0.41 ** (196)
Ethical Veganism	60.1 (10.8)						

\*\* $p < 0.001$  (two-tailed) \*  $p < 0.05$

*Notes:* There were no statistically significant correlations with Age, so this is omitted. Numbers in brackets under the correlation coefficients are the number of participants contributing to each bivariate correlation; the Feminist Perspectives scale was the last one completed, so participants may have dropped out before completing this scale.

There was a strong negative correlation (coefficient = -0.797) between diet and the EVS. This is consistent with evidence (e.g., Ajzen & Fishbein, 2005) that a behavior, for example diet, can be predicted well from a measure of attitude towards the behavior, in this instance the attitude toward the consumption of animal products as measured by the EVS.

#### *Hypothesis 2 - Gender comparisons*

H2 predicted that women, compared to men, would be lower in SDO, higher in ethical veganism and feminist perspectives, and would have a diet lower in the consumption of animal products. No prediction was made for a difference on RWA as this is not generally reported in the literature.

A series of t-tests for independent-samples were performed to compare female and male participants, and the results are shown in Table 2. Three variables showed a statistically significant gender difference with the alpha value reduced to 0.008 using the Bonferroni correction for six separate tests: these variables were SDO anti-egalitarianism, ethical veganism, and diet (marginal). On the other variables the differences were in the predicted direction though not reaching statistical significance. Hypothesis 2 was partially supported: women, compared to men, were lower in SDO anti-egalitarianism, higher in ethical veganism, and tended to have a diet lower in meat consumption.

**Table 2:** t-tests comparing female and male participants in Study 1 and Study 2.

	Study 1		Study 2	
	t-test	Effect size	t-test	Effect size
Ethical Veganism	$t(288)=3.54,$ $p<0.001$	0.41	$t(209)=2.80,$ $p<0.005$	0.45
Diet (consumption of animal products)	$t(287)=2.18,$ $p=0.015$	0.27	$t(208)=1.78,$ $p=0.039$	0.30
SDO trait dominance	$t(287)=1.94,$ $p=0.027$	0.23	$t(210)=0.92, ns$	0.15
SDO anti-egalitarianism	$t(287)=3.23,$ $p<0.001$	0.38	$t(209)=2.03,$ $p=0.022$	0.32
FPS liberal	$t(181)=1.78,$ $p=0.038$	0.26	$t(205)=0.81, ns$	0.15
FPS conservative	$t(181)=2.27,$ $p=0.014$	0.33	$t(205)=1.45, ns$	0.23

Notes: effect sizes are calculated as Cohen's D. There were few participants selecting gender options other than female or male so these are excluded from the analysis. Women scored higher than men on ethical veganism and feminist perspectives (liberal and conservative). Women scored lower than men on diet and SDO (trait dominance and anti-egalitarianism).

## Study 2

Hypotheses 1 and 2 were tested again on the new participant sample. Hypothesis 3 predicted that empathy would mediate between the predictor variables RWA, SDO, and FPS, and the target variable ethical veganism, in a mediated regression model. Study 2 was similar to Study 1 with the addition of the Toronto Empathy Questionnaire (TEQ). Only the differences from Study 1 have been documented.

## **Method**

### *Participants*

There were 221 participants from variety of ethnicities and occupations, comprising 161 females (73%), 51 males (23%), 3 choosing the option “it’s complicated” (1%), and the remaining 6 (3%) preferred not to say. The higher proportion of female than male participants is typical in psychological research and possible implications will be addressed in the Discussion. Ages ranged from 18 to over 60, in the following bands: 30 (18-25), 56 (26-30), 41 (31-35), 31 (36-40), 21 (41-45), 19 (46-50), 7 (51-55), 8 (56-60), 5 (over 60), and 3 missing. There were 22 participants who self-defined as ethical vegans, 25 as vegetarians, 27 pescetarians, 9 pollotarians, 133 omnivores, and 5 missing.

### *Design and Materials*

This was the same as Study 1 with the addition of the Toronto Empathy Questionnaire (TEQ; Spreng, et al, 2009). This consists of 16 items measuring empathic concern for others. Examples include “Other people's misfortunes do not disturb me a great deal” (reverse scored) and “It upsets me to see someone being treated disrespectfully”. The items were scored on a range from 1 = strongly disagree to 5 = strongly agree with the midpoint 3 = neither agree nor disagree. A higher score indicates a higher degree of empathy.

### **Results and Discussion**

Individuals were included in the analysis if they completed the Ethical Veganism Scale plus at least one other of RWA, SDO, FPS, and TEQ. Thus, different sample sizes were observed in the correlation table (Table 3), though it is clear that the majority of participants who met the criterion in fact completed all scales. A total of 20 other participants were excluded using the same criteria as Study 1.

The total score was calculated for the variables using the same method as Study 1. The total score on the TEQ was calculated as the sum of the items on the scale, with individual items reverse scored as appropriate. Reliability of each scale was good: Cronbach’s alpha was 0.85 for the EVS, 0.81 for the TEQ, 0.83 for RWA, 0.73 for SDO trait dominance, 0.81 for SDO anti-egalitarianism, 0.83 for FPS conservative feminism, and 0.69 for FPS liberal feminism.

*Hypothesis 1 – correlations among the variables*

Please refer to Table 3 for the means, *SDs*, and correlations among the variables. It is apparent that the correlations were similar to Study 1. Hypothesis 1 was well supported: RWA, SDO, and diet were all correlated together; FPS, EVS, and TEQ were all correlated together; and variables in one group were negatively related to variables in the other group.

**Table 3:** Study 2: Means and *SD* of each variable, and correlations between variables.

	Mean ( <i>SD</i> )	RWA	SDO Trait Dom	SDO Anti Egal	FPS Liberal	FPS Conserv	EVS	TEQ
Diet	3.95 (1.46)	0.12 (216)	0.16 * (216)	0.05 (215)	- 0.04 (211)	-0.11 (211)	- 0.58 ** (215)	-0.16 * (209)
RWA	54.8 (24.9)	-	0.55 ** (220)	0.46 ** (219)	- 0.59 ** (215)	-0.77 ** (215)	- 0.34 ** (219)	-0.36 ** (213)
SDO Trait dominance	17.2 (7.60)		-	0.64 ** (220)	- 0.40 ** (216)	-0.53 ** (216)	- 0.22 ** (220)	-0.36 ** (214)
SDO Anti- Egalitarian	15.7 (7.87)			-	-0.47 ** (216)	-0.50 ** (216)	-0.17 * (220)	-0.21 * (213)
FPS Liberal	41.7 (5.10)				-	0.51 ** (216)	0.24 ** (216)	0.23 ** (213)
FPS Con- servative	44.9 (5.75)					-	0.34 ** (216)	0.25 ** (213)
Ethical Veganism	52.3 (8.50)						-	0.29 ** (213)
Toronto Empathy	68.1 (7.22)							-

\*\* $p < 0.001$  (two-tailed) \*  $p < 0.05$

*Notes:* There were no statistically significant correlations with Age, so this is omitted. Numbers in brackets under the correlation coefficients are the number of participants contributing to each bivariate correlation.

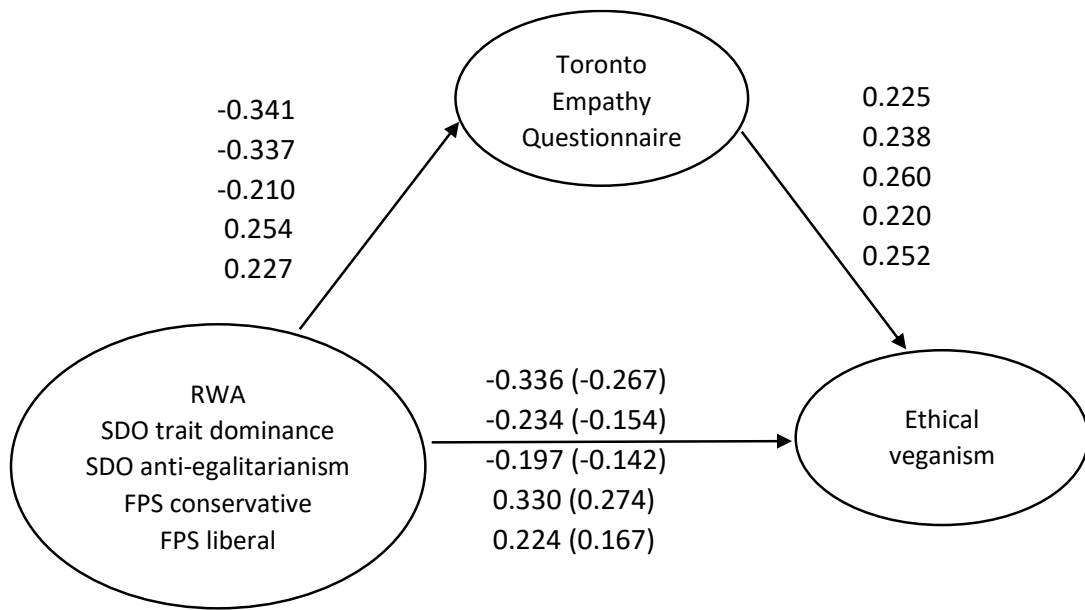
### *Hypothesis 2 – gender comparisons*

H2 predicted that women, compared to men, would be lower in SDO, higher in ethical veganism and feminist perspectives, and would have a diet lower in the consumption of animal products. No gender differences were predicted for either RWA or TEQ as these are not generally reported in the literature. A series of t-tests for independent-samples were performed to compare female and male participants, refer to Table 2. The alpha value was reduced to 0.008 using the Bonferroni correction for six separate tests. The gender differences were all in the predicted direction and were statistically significant on ethical veganism (women scored higher than men) and marginally different on SDO anti-egalitarianism and on diet (on both these variables women scored lower than men). This resembles the pattern of results in Study 1 and offers some support for Hypothesis 2.

### *Hypothesis 3 - mediation models*

A series of mediation models (Figure 1) were examined in which RWA, SDO, and FPS were entered as predictors of EVS, and the TEQ acted as the mediator. The key criteria for a mediation analysis according to Baron and Kenny (1986) were all fulfilled: all predictors were correlated with the mediator variable; the mediator variable was correlated with the target variable; and all predictors were correlated with the target variable (see correlations in Table 3). For each predictor variable, the Direct effect was smaller than the Total effect, and the 95% confidence interval for the Indirect effect did not include zero. The effects and confidence intervals are shown in Table 4 (as recommended by Lee, et al, 2021).

Each predictor had a reduced, but still significant, relationship with the target when the mediator was included in the model, so the conclusion is that empathy partially mediates the relationship between EVA and each of RWA, SDO, and FPS. This supports the hypothesis that there is a connection between attitudes towards human rights and attitudes towards animal rights, and that the connection is partly founded on empathy. The interpretation can be offered that if empathy, or a lack thereof, were not part of RWA, SDO, and FPS, then these traits would have a smaller relationship with attitudes towards animal welfare and rights.



**Figure 1:** mediation model linking RWA, SDO, and feminist perspectives to ethical veganism via the mediator variable TEQ. The numbers represent standardised regression coefficients for RWA, SDO trait dominance, SDO anti-egalitarianism, FPS conservative, and FPS liberal, respectively. The regression coefficient for ethical veganism on the predictor controlling for the TEQ is shown in brackets.



**Table 4:** Total, Direct, and Indirect effects in the mediation analysis to predict ethical veganism with empathy as mediator.

Predictor	Total effect (SE)	Total Effect Confidence Interval	Direct effect (SE)	Direct effect Confidence Interval	Indirect effect (SE)	Bootstrapped CI of indirect effect
RWA	-.1084 (.0210)	-.1498 – -.0670	-.0863 (.0219)	-.1295 – -.0431	-.0221 (.0097)	-.0431 – -.0053
SDO trait dominance	-.2465 (.0705)	-.3855 – -.1075	-.1620 (.0730)	-.3060 – -.0180	-.0846 (.0317)	-.1519 – -.0291
SDO anti- egalitarian	-.1994 (.0685)	-.3344 – -.0645	-.1440 (.0678)	-.2777 – -.0104	-.0554 (.0238)	-.1089 – -.0148
FPS conserv	.4578 (.0901)	.2801 – .6354	.3802 (.0910)	.2008 – .5596	.0776 (.0375)	.0191 – .1618
FPS liberal	.3519 (.1056)	.1438 – .5601	.2620 (.1051)	.0548 – .4693	.0899 (.0383)	.0233 – .1721

Notes: All effects are the non-standardized effects. All confidence intervals are 95%. Refer to Figure 1 for a depiction of the model.

## General Discussion

The results of the correlational analysis in Study 1 and 2 strongly supported Hypothesis 1 which predicted that ethical veganism would be related to higher levels of feminism and empathy and to lower levels of SDO, RWA, and the consumption of animal products. As predicted, SDO and RWA were correlated with each other, and both were related to the consumption of animal products. The gender analysis was broadly as predicted in hypothesis 2: women scored higher than men on ethical veganism, lower on SDO anti-egalitarianism, and lower on consumption of animal products. Women also scored numerically higher on feminist perspectives and lower on SDO trait dominance, though the differences did not reach statistical significance. In accordance with hypothesis 3, the mediation analysis showed that the relationship of ethical veganism with each of RWA, SDO trait dominance, SDO anti-egalitarianism, feminist perspectives liberal and conservative, was partly mediated by empathy.

Looking first at the mediation analysis, it can be inferred that participants showed some consistency between their attitudes to the rights and welfare of other humans and their attitudes to the rights and welfare of animals, and a factor partly responsible for this consistency was empathy. Empathy includes concern for the welfare of others, a tendency to feel what others appear to be feeling, and the urge to help someone in distress. The TEQ presents empathy as primarily an emotional process rather than a cognitive process (of being able to understand what someone else is thinking). It is plausible to assume that the emotional processes that lead to care and concern for other humans would also operate to influence care and concern for non-human animals. The ability to recognise suffering and need, and the desire to offer help and comfort, would operate similarly for other humans and for non-human animals. The connection between emotional empathy and ethical veganism is clear and is rooted in the view that animals are sentient, can suffer, and are worthy of our consideration and respect.

The connection between empathy and each of RWA, SDO, and feminism, can be understood by recognizing that each of these traits addresses attitudes towards the rights and welfare of others. RWA focuses on the outgroup, SDO on groups lower in a social hierarchy, and feminism on women and people with other gender identities compared to men; what they have in common is that they describe attitudes towards equality and well-being. People high in empathy recognise others as worthy of respect and seek to further their well-being and hence in this study they scored high on feminism and lower on RWA and SDO. People high in RWA can show a lack of empathy for members of an outgroup, where discrimination against the outgroup is sanctioned by tradition and custom. SDO is negatively associated with the personality trait of agreeableness (e.g., Ekihammer, et al, 2004). People high in agreeableness are considerate of others' feelings and welfare, they gain personal satisfaction from helping those around them, and they are higher in pro-sociality and empathy (e.g., Song & Shi, 2017), hence the negative relationship between SDO and empathy. Feminists take the view that everyone is penalized by attitudes that fail to promote equality and autonomy for all genders, so a feminist perspective clearly includes concern for others.

It is interesting to note that the results of other studies have shown that SDO can act as a mediator between speciesism and human-human prejudicial attitudes including RWA (e.g., Dhont, et al, 2014; Caviola, et al, 2019). The present study adds to this by observing that empathy can also mediate between human-human attitudes and human-animal attitudes.

The correlation analysis showed that ethical veganism had only weak-to-moderate correlations with the other variables RWA, SDO, and feminist perspectives. In contrast, RWA, SDO, and feminist perspectives all shared moderate-to-strong bivariate correlations, showing consistency among various attitudes towards the rights and autonomy of other humans. It appears that concern for the rights and welfare of non-human animals is somewhat empirically distinct from other ideologies whose contents include elements of egalitarianism and respect for individual freedoms for humans. It may be inferred that animals are not considered by the general population to occupy quite the same status as humans, though of course this view differs for those high in ethical veganism. Claims of human uniqueness have been revised in many fields (e.g., Chapman & Hoffman, 2018) but there remains a persistent view that humans have unique attributes that make them legitimately superior to non-human animals (e.g., Bilewicz, et al, 2011). Often this view is founded on religious beliefs though there are other religions that present a view of equality for all life (e.g., Szucs, et al, 2012). It seems plausible that such beliefs could lie behind the distinction between regard for the rights of humans and non-human animals.

The effects of gender were broadly as predicted. Women, compared to men, were higher in ethical veganism, lower in SDO anti-egalitarianism, and marginally lower in consumption of animal products. The gender comparisons were similar in Study 1 and Study 2. The observation of lower SDO in women than in men is consistent with the literature (e.g., Sidanius, et al, 2006) and with the invariance hypothesis (Sidanius et al., 2006) which proposes that social dominance facilitates the acquisition and maintenance of social and economic power which is of greater reproductive benefit to men than to women. It follows that men, more than women, would seek to reach a position of social dominance and would show stronger support for social hierarchies.

Women were higher in ethical veganism than men but only marginally lower in the consumption of animal products; the gender effect was larger for ethical veganism than diet. The observation of a smaller gender difference on diet than on ethical veganism may seem inconsistent, but it should be noted that the relationship between diet and scores on the Ethical Veganism Scale was strong but not perfect, so clearly there is some distinction between values of respect for non-human animals and actual diet. Perhaps there are individuals in a position of trying, but not always succeeding, to live up to their ethical values in the form of their diet.

It was interesting to note the similarity of scores on Feminist Perspectives between men and women. Although women scored slightly numerically higher, the difference was not statistically significant. It may be a reflection of general progress in developing feminist ideas in society that men scored nearly as high as women in their beliefs and attitudes towards gender equality and personal freedoms. It may also be a reflection of the particular participants, containing a large proportion of vegans who could be assumed to have egalitarian views in general.

Limitations of the study should be noted. The power was less than ideal in the mediation analysis though adequate to find a clear pattern of results. Most participants were women, as is common in psychological research, though this may have had relatively little impact on the results as gender differences on diet and on ethical veganism were only weak to moderate. The men in this study were not very different from the women in their attitudes.

Future research could consider the concept of altruism as an alternative or an addition to empathy. It could be predicted that people higher in altruism would be higher in ethical veganism and empathy, and possibly lower in SDO. This study has addressed ethical veganism, i.e., the moral and philosophical position that animals have equal rights to humans, but there are other vegans motivated by their perception of the potential benefits of veganism to the environment (e.g., Springmann, et al, 2016), and to the climate (UN Food and Agriculture Organization, 2006). Future studies might investigate the relative importance of these factors to the decision to pursue an ethical vegan lifestyle.

Another direction for future research would be to consider beliefs about animal sentience and consciousness. It seems likely that beliefs about animal sentience would

correlate with attitudes of respect for animal welfare, with ethical veganism as a moral and ideological position, and with empathy. The “Bill to make provision for an Animal Sentience Committee with functions relating to the effect of government policy on the welfare of animals as sentient beings” was passed in 2022. It seeks to place on a legal footing the recognition that any vertebrate animal should be regarded as sentient, and to establish a committee to review whether other legislation respects this position. It seems likely that the bill will enhance the position of the UK as a world leader on animal welfare.

It is implicit that both SDO and RWA, in different ways, justify the consumption of animal products. If ethical veganism were to become dominant in society, it would be a direct challenge to the worldview that privileges humans with the right to dominate the natural world (e.g., Joy, 2010; Singer, 1977; Wayne, 2013) either by a higher position in a social hierarchy (SDO) or by traditional and customary practice (RWA). The more widespread and substantial the regard for animal rights within society, the more restrictions and regulations there are likely to be around the farming and harvesting of animal products and the general treatment of non-human animals.

Moves to grant to non-human animals legal recognition of their sentience may give rise to ethical quandaries for those who regard themselves as humane people but who also consume animal products. Omnivores may justify their consumption of meat by expressing beliefs that eating meat is natural, normal, necessary, and nice (e.g., Cole & Morgan, 2011; Loughnan, et al, 2014; Piazza, et al, 2015) but this could present a conflict with the recognition of animal sentience. Any moral conflict between the desire to consume meat and the belief that suffering is caused to animals can potentially be resolved by sourcing from suppliers who have regard to animal welfare (e.g., RSPCA Assured, 2017). Recent research suggests that animal welfare is a growing concern around the world, and that the majority of people now probably believe that animals should be treated with due concern for their welfare, even animals farmed for human consumption (Szucs, et al, 2012).

In conclusion, the present study found that ethical veganism was positively associated with feminism and empathy, and negatively associated with SDO, RWA, and the consumption of animal products. The relationship between ethical veganism and each of RWA, SDO, and feminist perspectives, was partially mediated by empathy. This

supports the association between attitudes towards human-human relations and attitudes to human-animal relations. Nonetheless, it appears that attitudes to human-animal relations are still somewhat less egalitarian, on the whole, compared to attitudes to human-human relations. It appears that animals are still not considered in quite the same ethical domain as humans.

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## Appendix 1

The Ethical Veganism Scale was written for this project and contained 14 items.

Please select the response that most closely reflects your opinion: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.

1. Animals experience pain much like humans.
2. Slavery is ethically wrong for all species.
3. Animals should have the right to live.
4. The only purpose animals have is to satisfy humans (reverse scored)
5. Animals should not be subjected to experimentation or vivisection
6. My pleasure/satisfaction is more important to me than animals (reverse scored)
7. Human beings are superior to all other animals (reverse scored)
8. There is nothing wrong with using animals for entertainment (reverse scored)
9. Animals are sentient beings with their own needs, desires, and interests
10. Humans should live without exploiting animals
11. It is morally acceptable to eat the bodies of animals (reverse scored)
12. Hunting animals should be banned
13. There is nothing wrong with wearing fur (reverse scored)
14. Eating meat is a personal choice (reverse scored)