

Speciesism and Perceptions of Animal Farming Practices as Predictors of Meat Consumption in Australia and Hong Kong

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The present study aimed to determine to what extent perceptions of farming practices and speciesism predict meat consumption among people living in Australia and Hong Kong. Participants were recruited through Facebook advertising and asked to complete a questionnaire that measured speciesism, animal farming perceptions, meat consumption, and meat reduction intentions. Speciesism and perceptions of animal farming practices significantly predicted meat consumption and meat reduction intentions in the Australian sample, but only predicted some of the outcomes in the Hong Kong sample.



Attitudes

Attitudes towards agriculture were measured using a 3-item measure developed for this study on a 7-point agree/disagree scale. This measure was not included as part of the main analyses for this study but was included to provide balance to the AFP measure and as a distractor from the main measures.

Meat Consumption

Participants indicated how many days per week they ate Poultry, Red Meat, and Fish/Shellfish on an 8-point scale, from 0 days to 7 days. Participants then indicated “In the next six months, to what extent do you intend to reduce your meat consumption?” on a 5-point scale from 1 “not at all” to 5 “fully”. Participants also indicated which category best described their eating habits: I am an omnivore. I eat all kinds of meat; I am an omnivore. I eat all kinds of meat with a few restrictions (e.g., I do not eat beef, etc.); I am a redreducitarian. I have substantially reduced my intake of meat compared to my prior intake (at least 25% reduction); I am a partial vegetarian (e.g., I don’t eat red meat, but eat fish or poultry, etc.); I am a full vegetarian. I eat no animals; and I am a vegan. I eat no animals or animal products (e.g., eggs or dairy).

Demographics and Donations

Participants indicated their gender, age, ethnicity, and education, and selected a charity to which the research team would donate \$2 (see [Northrope & Ruby, 2024](#)).

Data Analysis

Both the Speciesism and Animal Farming Perceptions items met our criteria for configural and metric invariance, but not scalar invariance (see [Northrope & Ruby, 2024](#) for full details). Thus, one can confidently interpret relationships between variables across cultures, but directly comparing mean scores in the Australian sample with mean scores in the Hong Kong sample is not advisable.

We tested Hypotheses 1 and 2 by running multiple regressions to determine to what extent speciesism and AFP predict red meat consumption, poultry consumption, fish consumption, and meat reduction intentions. We used independent *t*-tests to test Hypothesis 3, that omnivores endorse speciesism more and score lower on AFP than vegetarians. Given the uneven spread between the dietary groups, both omnivore groups were combined in to one group and vegetarians and vegans were combined into a separate group. We excluded reductarians and partial vegetarians from this analysis, as they can vary wildly in their perceived and actual levels of meat consumption ([Rosenfeld, 2018](#)).

Results

Hypothesis 1 and 2

We completed multiple regressions using speciesism and AFP to predict poultry, red meat, and fish/shellfish consumption, as well as intentions to reduce meat consumption. While it was perhaps unclear how veg*ans participants should answer the question regarding intentions to reduce meat consumption in the next 6 months, most responded that they fully intended to do so. Excluding veg*ans from the intentions to reduce regression did not change the pattern of results (the regressions excluding veg*ans are presented in [Northrope & Ruby, 2024](#)). We conducted analyses separately for the Australian and Hong Kong samples (see [Table 2](#)). In the Australian sample, speciesism scores and AFP scores significantly predicted consumption of poultry, red meat, and fish, and meat reduction intentions. Red meat was most strongly predicted by speciesism, with speciesism explaining twice the variance in red meat scores compared to AFP.

Table 2

Regression Summary Table of Speciesism and Animal Farming Perceptions on Meat Consumption and Meat Reduction Intentions

Predictor	Australian Sample				Hong Kong Sample			
	<i>R</i> ²	β	<i>t</i>	<i>p</i>	<i>R</i> ²	β	<i>t</i>	<i>p</i>
Poultry Consumption	.17				.04			
Speciesism		0.28	4.82	< .001		0.22	2.91	.004
AFP		-0.20	-3.54	< .001		0.02	0.30	.766
Red Meat Consumption	.23				.02			
Speciesism		0.41	7.46	< .001		0.14	1.86	.064

Predictor	Australian Sample				Hong Kong Sample			
	<i>R</i> ²	β	<i>t</i>	<i>p</i>	<i>R</i> ²	β	<i>t</i>	<i>p</i>
AFP		-0.18	-2.11	.036		-0.02	-0.21	.835
Fish Consumption	.08				.06			
Speciesism		0.16	2.57	.011		0.13	1.70	.090
AFP		-0.17	-2.86	.005		-0.18	-2.50	.013
Meat Reduction Intentions	.18				.08			
Speciesism		-0.30	-5.25	< .001		-0.22	-3.03	.003
AFP		0.20	3.51	.001		0.11	1.55	.112

In the Hong Kong sample, Speciesism scores significantly predicted poultry consumption and meat reduction intentions, but not red meat or fish consumption. AFP scores significantly predicted fish consumption but were not a significant predictor of any other outcomes.

Hypothesis 3

We conducted *t*-tests to test for differences in mean scores for speciesism and AFP between omnivores and veg*ans, separately for Australian and Hong Kong samples (see Table 3). Veg*ans scored significantly lower on speciesism and higher on AFP in both samples, with very large effect sizes.

Table 3

*Comparisons of Omnivore and Veg*ans on Speciesism and Animal Farming Perceptions*

Attitudinal Variable	<i>M (SD)</i>		<i>df</i>	<i>t</i>	<i>p</i>	<i>d</i>
	Omnivores	Vegetarians				
Australia	<i>n</i> = 163	<i>n</i> = 54				
Speciesism	3.17 (1.05)	1.77 (0.93)	215	8.69	< .001	1.41
AFP	61.32 (17.98)	81.43 (16.38)	215	-7.28	< .001	1.17
Hong Kong	<i>n</i> = 119	<i>n</i> = 11				
Speciesism	3.05 (1.06)	1.45 (0.71)	128	4.88	< .001	1.77
AFP	53.36 (19.35)	85.10 (18.01)	128	-5.23	< .001	1.70

Discussion

Summary of Findings and Interpretations

The hypothesized relationship between speciesism, meat consumption, and meat reduction intentions was fully supported in the Australian sample. In the Hong Kong sample this was only partially supported, with

speciesism only predicting poultry consumption and meat reduction intentions, but not red meat or fish consumption. The Australian findings are concordant those of [Caviola et al. \(2019\)](#) and [Rosenfeld \(2019\)](#).

Similarly, AFP significantly predicted consumption of red meat, poultry, fish, and meat reduction intentions in the Australian sample, but only fish intake in the Hong Kong sample. While there has been limited previous research in this area, what research has been conducted suggests that those who have higher perceived knowledge of farming practices eat less pork ([Coleman et al., 2018](#)).

Across the outcomes, speciesism and AFP explained 8–23% of the variance in the Australian sample, but only between 2–8% in the Hong Kong sample. Previous research in a Hong Kong sample found that social influence (e.g., how often family and friends ate a particular animal) was a stronger predictor of willingness to eat said animal than in a Canadian sample ([Ruby & Heine, 2012](#)). While the present study did not measure social influence, this may in part explain the differences seen here. Another alternative may be that speciesism is not culturally universal, as the scale used in this study has not previously been validated in different cultural contexts ([Caviola et al., 2019](#)). We created the Animal Farming Perceptions measure for this study, and although it predicted outcomes well among Australian participants, it had little utility in the Hong Kong sample. For both measures, the criteria for metric invariance, but not scalar invariance, were met, suggesting that one can confidently interpret relationships between these variables across cultures, but should exercise caution in directly comparing mean scores in the Australian sample with mean scores in the Hong Kong sample. Participants in Australia and Hong Kong likely have different levels of exposure to animal farming practices. Less than 1% of meat and dairy products consumed in Hong Kong are produced locally ([Yau et al., 2018](#)), whereas in Australia, the majority is locally produced ([Australian Government, 2023](#)). Given the level of secrecy in the animal agriculture industry, it is also difficult to objectively know how often certain farming practices actually occur in Australia and Hong Kong. It may be that the practices do occur more often in either location, which may also explain some of the variance here.

As predicted, omnivores endorsed speciesism more and scored lower on AFP than veg*ans in both samples. This supports previous research which found that vegetarians are less likely to endorse speciesist beliefs when compared to omnivores ([Caviola et al., 2019](#); [Rosenfeld, 2019](#)). It also supports past findings that vegetarians are less willing to ignore information about the problems with eating meat ([Onwezen & van der Weele, 2016](#)).

Strengths

This study has built on previous research looking at how speciesism predicts meat consumption in Western cultures and extended it using a Hong Kong sample. It also expanded on previous studies that relied on participants' perception of their own agricultural knowledge by measuring how often participants thought common animal farming practices occurred. Together this has helped develop a clearer understanding of the predictors of meat consumptions and meat reduction intentions in very different cultural contexts. Further, by preregistering on the Open Science Framework, this study also helped to combat selective reporting and publication bias and to advance the principles of open science.

The speciesism scale was originally developed in American MTurk samples, and the authors note it had not yet been validated in different cultural contexts ([Caviola et al., 2019](#)). To the best of our knowledge, this is the first documented use of the Speciesism Scale in a Hong Kong sample.

Limitations

Firstly, the results of this study are limited by both the sample size and distribution. Most participants in our sample were women. Given that men tend to score higher on speciesism ([Caviola et al., 2019](#)) and tend to consume more meat and endorse more pro-meat attitudes ([Rothgerber, 2013](#)), the findings from this study may not be reflective of predictors of men's consumption of meat. Surprisingly, the mean age of the Australian sample (59.44) was much higher than the mean age of the Hong Kong sample (34.15), which

limits comparisons between the two samples. Due to the anonymous nature of the data collection, it is unclear why the mean age of the Australian sample was so high. Age was not significantly associated with key variables in our sample, with the exception of animal farming perceptions and age in the Hong Kong sample (see [Northrope & Ruby, 2024](#)). Another potential confound was that most participants in both samples were tertiary educated, meaning they may have more knowledge of common farming practices than the general population. Veg*ans were a distinct minority in both samples (54 in Australia and 11 in Hong Kong), which reduces the generalizability of the analyses comparing them to omnivores. Finally, as this study was cross-sectional, it is not possible to draw causal inferences. For example, while vegetarians scored lower on speciesism and higher on animal farming perceptions, it could be that a third factor influences levels of speciesism, animal farming perceptions, and the likelihood of following a veg*an diet, such as family upbringing or greater exposure to animals in childhood.

Conclusion

Reducing meat consumption has benefits not just for animal welfare but also for human health and the environment. This study supports speciesism and animal farming perceptions as important predictors of meat consumption, at least among Australians. Compared to omnivores, veg*ans scored lower on speciesism and higher on animal farming perceptions in both Australia and Hong Kong, suggesting that these omnivore–veg*an differences may not be limited to Western cultural contexts. Future research should continue to investigate correlates of meat consumption in diverse cultural contexts, particularly in non-Western countries where this has been limited previous research. Qualitative research may be needed to further understand details of cultural differences for speciesism that quantitative scales are unable to address. This research may help uncover mechanisms that work in many cultures to encourage more humane, sustainable food choices.

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Competing Interests

The authors have declared that no competing interests exist.

Ethics Statement

The study protocol was approved by the authors' university Human Ethics committee and adhered to the Declaration of Helsinki.

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