

Are farmers conflicted about meat? (#74127)

Created: 09/07/2021 08:14 AM (PT)

Public: 07/25/2022 02:46 AM (PT)

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1) Have any data been collected for this study already?

It's complicated. We have already collected some data but explain in Question 8 why readers may consider this a valid pre-registration nevertheless.

2) What's the main question being asked or hypothesis being tested in this study?

The main research question is whether livestock farmers experience psychological conflict regarding their involvement in meat production and consumption of meat, also known as 'omnivore conflict'. When compared to omnivorous non-farmers and meat-avoiding non-farmers, we expect that livestock farmers will exhibit the lowest level of 'omnivore conflict', followed by omnivorous non-farmers, and finally meat-avoiding non-farmers.

We will also explore whether livestock farmers use the following dissonance-avoidance strategies of detachment, denial of mind, and perception of choice. Detachment refers to farmers keeping their farmed animals at a distance, rather than developing close connections with them. We expect farmers to demonstrate weaker attachments to their farmed animals than to their companion animals. Furthermore, we expect farmers to exhibit similarly strong attachments to their companion animals as the non-farmer groups. We measured attachment to animals in two ways: solidarity with the animal was one way, though this measure is a more "cognitive" measure of attachment and is focused on shared categorization, whereas our other measure focuses on the emotional bond formed between a person and the animal. We expect the two measures to highly correlate and our hypotheses for attachment will relate to both of these measures.

Denial of mind refers to the perception of farmed animals as having lower levels of cognitive abilities in comparison to other types of animals, such as companion animals. We expect that farmers will attribute the lowest levels of mind to farmed animals, followed by omnivorous non-farmers and finally meat-avoiding non-farmers. We predict this based on farmers receiving both financial and consumer benefits from meat, whilst omnivorous non-farmers receive consumer benefits, and meat-avoiding non-farmers receive no benefit.

Perception of choice refers to the justification of eating meat through the belief that there are no alternatives to meat. We expect that farmers will perceive the least amount of choice in the consumption of animal food products in comparison to the non-farmer groups.

Finally, we aim to explore whether these three dissonance-reduction strategies relate to omnivore conflict by shielding farmers from this conflict. We expect that farmers with the lowest levels of omnivore conflict will report less attachment to their farmed animals, attribute lower levels of mind to farmed animals, and perceive less alternatives to consuming animal products, than farmers with higher levels of conflict.

3) Describe the key dependent variable(s) specifying how they will be measured.

Omnivore conflict was measured using Ruby et al.'s (in prep) 6-item Conflicted Omnivore scale and rated on a 7-point Likert scale (1= Strongly disagree to 7= Strongly agree).

Attachment to a nominated companion animal was measured using a reduced 12-item version of the CENSHARE Pet Attachment Survey (Holcomb et al., 1985). Frequency of attachment actions was measured on a 4-point Likert scale (1 = Almost never; 4 = Almost always). Farmers could nominate a working animal if they did not have experience of owning companion animals

Solidarity with the nominated companion animal was assessed using a modified version of the 5-item Solidarity with Animals scale (Amiot & Bastian, 2017) and rated on a 7-point Likert scale, (1 = Strongly disagree; 7 = Strongly agree).

Farmers repeated the attachment and solidarity scales in relation to a nominated farmed animal. The order of the companion animal and farmed animal sections were randomised to control for order effects.

Mind attribution was measured on a scale that compares the perceived mental abilities of cows and dogs, using the 18 mental abilities from Gray et al.'s (2007) Mind Attribution scale. Participants rated whether dogs or cows appeared more capable of the mental ability, using a 5-point Likert scale (1 = Dogs are much more capable than cows; 5 = Cows are much more capable than dogs). Dogs were chosen as the companion animal exemplar as they are the most common type of pet in the UK (Bedford, 2021), whilst cows were chosen as most farmers known to the researcher were dairy farmers.

Perception of choice assessed participants' belief in the existence of alternatives to animal food products and was measured using a modified version of Knight et al.'s (2010) 4-item Perceptions of Choice Scale. Level of agreement was rated using a 7-point Likert scale (1 = Strongly disagree; 7 = Strongly agree).

4) How many and which conditions will participants be assigned to?

Three between-subject conditions: livestock farmers, omnivorous non-farmers, and meat-avoiding non-farmers. All participants currently or previously owned pets. Participants were invited to the survey as either a farmer or a pet-owner and then assigned to conditions based upon their reported dietary classification.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Firstly, we will look at the distributions for each of the dependent variables and use Shapiro-Wilk tests. If the assumption of normality is violated, we will use non-parametric alternatives to the tests outlined below.

We expect that age will be a confounding variable as farmers are typically older (Central Statistics Office, 2018), whilst meat-avoiders are typically younger (Statista, 2020). We will use a One-Way ANOVA and post-hoc Tukey tests to investigate this. If age is found to vary significantly by condition, we will investigate whether age significantly correlates with any dependent variables, if so, we will treat age as a covariate in the relevant analyses.

To examine the first hypothesis and compare the level of omnivore conflict exhibited by the three groups, we will investigate the effect of group on omnivore conflict using a One-Way ANOVA followed by post-hoc Tukey tests.

To examine whether farmers use the strategy of detachment, we will compare the strength of bonds that farmers have with their famed animals compared with their companion animals using a Paired T-test. We will conduct these analyses first for attachment then for solidarity. We will also compare the strength of bonds formed to companion animals by the three groups by investigating the effect of group on attachment to companion animals using a One-Way ANOVA followed by Tukey tests. Then we will repeat this analysis for solidarity to companion animals.

To examine whether farmers use the strategy of denial of mind, we will compare the levels of mind attributed to farmed animals by the three groups using a One-Way ANOVA, followed by post-hoc Tukey tests.

To examine whether farmers use the strategy of perception of choice, we will compare the three groups' perceived choice regarding meat consumption using a One-Way ANOVA, followed by post-hoc Tukey tests.

Finally, to examine whether the three dissonance-reduction strategies relate to omnivore conflict we will conduct Pearson's correlations between omnivore conflict and attachment to farmed animals, omnivore conflict and mind attribution, and omnivore conflict and perception of choice.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We will exclude any farmers that nominate the wrong type of animal for the scale e.g., a companion animal for a farm animal. We will also exclude any farmers that do not have experience of farmed animals and companion animals/working animals.

We will exclude any participants that answer less than three quarters of a scale. Person mean imputation will be used for any missing items for the remaining participants. This method was chosen as it avoids the issues of only using listwise deletion or mean imputation which unreliably estimate variance (Hawthorne & Elliott, 2005).

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

Our sample consists of 72 livestock farmers, 99 omnivorous non-farmers, and 104 meat-avoiding non-farmers. We wanted to aim for 100 participants per group, however we struggled to recruit farmers as this was a third-year project with limited resources, so we relied on convenience sampling and willingness of farmers to participate. We had greater success with the non-farmer groups as a researcher was a member of a university vegetarian and vegan society, furthermore, undergraduate psychology students participated in return for course credit. For the omnivorous non-farmers we recruited 51 participants using convenience sampling and increasing this group through incentivised sampling using Prolific.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

Data has been collected. However, it has not yet been analysed. So, this preregistration is for the analysis only.

We anticipate that the gender distribution of our sample will differ between conditions as livestock farmers are predominantly male (Central Statistics Office, 2018), whilst meat-avoiders are predominantly female (Ruby, 2012). We will use a Chi-Squared test to test if there are significantly different gender ratios between the three groups. We will not examine the role of gender if the gender distribution is so greatly skewed to prevent meaningful comparisons (e.g., almost no females in our farmer sample).