The 'me' in meat: Does affirming the self make eating animals seem more morally wrong?

Stefan Leach, Robbie M. Sutton, Karen M. Douglas, and Kristof Dhont

School of Psychology, University of Kent, UK

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Author Note

Stefan Leach: https://orcid.org/0000-0003-4065-3519

Robbie M. Sutton: https://orcid.org/0000-0003-1542-1716

Karen M. Douglas: https://orcid.org/0000-0002-0381-6924

Kristof Dhont: https://orcid.org/0000-0001-6060-8083

Abstract

People typically extend limited moral standing to animals reared for food. Prominent perspectives in the literature on animal-human relations characterize this phenomenon as an outcome of moral disengagement: in other words, a strategy that protects people from moral self-condemnation. To provide a direct test of this hypothesis, we exposed people to a self-affirmation manipulation, and hypothesized that this would lead them to be more critical of their own meat eating and be more appreciative of animals' minds and suffering. Three experiments tested this idea in meat-eaters from the United Kingdom. Two initial experiments (n = 244, n = 247) found that affirming the self made eating animals seem more morally wrong. However, a subsequent pre-registered experiment (n = 719) failed to replicate this effect. In addition, this experiment found no effects of the affirmation procedure on specific beliefs about eating animals that participants consume compared to animals they do not consume. A mini-meta analysis of all the experiments found only weak evidence in support of the idea that affirming the self makes eating meat seem more morally wrong. There was no evidence that the affirmation procedure affected beliefs about animal minds.

Keywords: Meat, Animals, Morality, Self-affirmation

The 'me' in meat: Does affirming the self make eating animals seem more morally wrong?

Meat consumption and factory farming raise important moral questions about animal welfare (Dhont & Hodson, 2020; Joy, 2010; Singer, 2009). The increasing popularity of vegetarian and meat-free substitutes (Ruby, 2012; Sadler, 2004) suggests that moral concerns surrounding animal welfare are gaining traction (see also Dhont et al., 2019; Dhont & Hodson, 2020). However, and at the same time, people have a tendency to disengage from these concerns. A growing body of work is predicated on the idea that this is driven by a need to preserve a positive self-image (Bastian & Loughnan, 2017; Loughnan & Davies, 2020; Rothgerber, 2020). We provide the most direct test of this view to date by examining whether affirming the self makes people more critical of meat consumption and more appreciative of animals' minds and suffering.

1.1. Meat eating and moral disengagement

Moral disengagement refers to the psychological removal of self-sanctions from moral behaviour (Bandura, 1999). Scholars propose that moral disengagement surrounding meat eating and animal welfare is prevalent (Bastian & Loughnan, 2017; Joy, 2010; Loughnan & Davies, 2020; Piazza et al., 2015; Rothgerber, 2020). People typically rationalize the indirect harms caused by meat eating by virtue of it being nice, necessary, normal, and natural. Piazza et al. (2015) identified these rationalizations as the 'four N's' of meat consumption and found that the more people endorsed these justifications the less they saw eating meat as morally problematic. Other work suggests that people tend to morally disengage by minimizing the harms inflicted on animals reared for food. These animals are assumed to possess less sophisticated minds compared to other animals (Bastian et al., 2012); leading people to be less concerned about their welfare (Bratanova et al., 2011; Leach et al., 2020; Leite et al., 2019). Taken together, this work shows that moral disengagement surrounding meat eating is characterized by reduced concern for the welfare of food animals, and skepticism about their mental sophistication.

Moral disengagement can serve to protect individuals from self-condemnation by making behaviours seem more permissible (Bandura, 1999). This is important to people because maintaining

a positive view of the self is desirable and adaptive (Alicke & Govorun, 2005; Aquino & Reed II, 2002; Sedikides & Gregg, 2008; Sherman & Cohen, 2006; Steele, 1988; Taylor & Brown, 1988). Many scholars have argued that disengagement from the moral issues surrounding meat eating is caused by threats to peoples' self image (Bastian & Loughnan, 2017; Joy, 2010; Loughnan & Davies, 2020; Piazza et al., 2015; Rothgerber, 2020). This threat is thought to be aggravated by the 'meat paradox': people care about animals but are complicit in their suffering and death (Bastian & Loughnan, 2017; Loughnan & Davies, 2020).

A basic premise of these accounts is that eating meat conflicts with broader prohibitions against harm and can therefore present an unfavorable view of the self. It is for this reason that people are thought to minimize the moral issues surrounding meat eating and animal welfare. For example, Piazza et al. (2015) argue that common justifications (e.g., "A lot of other people eat meat") can persuade others of the legitimacy of one's actions which, in turn, could make it easier to avoid self-condemnation. Bastian et al. (2012) argued that people underestimate food animals' minds, and therefore their capacity to be harmed, for similar reasons. The strongest form of this perspective states that moral disengagement is specifically caused by a desire to protect the self and not by other mechanisms such as expectancy violation or visceral reactions to harm (Bastian & Loughnan, 2017). Conceptualizing the psychology of meat eating in these terms implies that the desire to avoid self-condemnation is a driving force behind moral beliefs about meat eating, animal minds, and animal welfare.

1.2. Implicating the self in moral disengagement about meat eating

Research has made considerable headway in implicating the self in moral disengagement about meat eating and animal welfare. In one study, meat eaters judged a cow as less mentally sophisticated, and therefore less able to suffer, if they were led to believe it was destined to be butchered (vs. live out its life on the farm; Bastian et al., 2012). In another study, participants who had recently eaten beef jerky (vs. nuts) reported less moral concern for cows (Loughnan et al., 2010). This latter finding, especially, is consistent with the idea that moral disengagement is driven by

threats to the self. If ever the morality of eating animals and their capacity to be harmed is likely to be self-relevant it is after having just eaten meat.

Though the desire to protect the self is a plausible explanation of these results, other explanations remain viable. For example, people could downplay animals' capacity to be harmed after considering how they are butchered because they are averse to harm and are motivated to minimize it (Cushman et al., 2012). Likewise, shifts in moral concern for animals that occur post meat-eating could be due to people inferring their attitudes after-the-fact from their behavior. The idea here is that when asked about meat eating and animal welfare, a person might consider their recent choices and infer from them that they do not care much about food animals (Bem, 1967; Loughnan et al., 2010). These are not mutually exclusive accounts of why people believe what they do about meat eating and food animals. It is likely that each explanation, including the self-protective account, explains some part of the phenomena. These arguments do, however, suggest that there is a need for further data on how self-protective processes are related to beliefs about meat eating and farm animals. One way to move forward is by addressing the self-concept directly, either by manipulation or measurement.

Self-affirmation theory (Sherman & Cohen, 2006; Steele, 1988) suggests that perceptions of the self change as a function of whether the current domain of focus affords a positive view of the self. As a result, threats to the self can be ameliorated by affirming a domain of self-integrity that is unrelated to the present threat (Harris & Napper, 2005; Reed & Aspinwall, 1998; Sherman et al., 2000). This perspective suggests that if the need to protect the self is driving moral disengagement, then moral judgements ought to fluctuate as a function of whether people have recently affirmed the self. This can be tested by having participants affirm an important value or source of integrity that is peripheral to the threat at hand (McQueen & Klein, 2006). Specifically, bringing attention to a personal domain of value allows people to retain a sense of integrity in the face of threats to a different domain. For example, affirming the self makes people more likely to admit personally contributing to climate (Sparks et al., 2010) and to be less defensive when apologizing for offending

or hurting someone (Schumann, 2014). If people are more prone to acknowledging that their

behaviour may be morally problematic under these conditions, the self-concept is directly implicated

(Sherman & Cohen, 2006).

1.3. Present research

The present research investigates the role of the self in beliefs about eating meat, animal

minds, and animal welfare. We focus on these judgements because they are pathways through which

threats to the self can likely be minimized. We exposed an experimental group of participants to a

self-affirmation procedure (Sherman & Cohen, 2006). We examine whether, compared to control

participants, this causes them to indicate that eating animals is morally wrong, ascribe mental

capacities to animals, and appreciate their suffering. Our reason is that these findings would directly

implicate the desire to defend a positive self-concept in perceptions of animals and meat

consumption.

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2. Experiments 1a & 1b: Initial Data

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Experiments 1a and 1b provided an initial indication of whether fluctuations in the self affect

moral beliefs about eating meat. Using a classic affirmation paradigm, these experiments

investigated if affirming the self affected moral judgements about eating meat. Participants wrote

either about a time when they expressed a central value or when someone else expressed a

peripheral value (McQueen & Klein, 2006). Participants then briefly considered the moral issues

surrounding meat eating and judged how morally wrong it is to eat meat, the extent to which food

animals possess minds, and the extent to which they suffered in slaughterhouses. In addition,

Experiment 1b explored the potential boundary conditions of these effects by examining how

affirming the self affected moral beliefs that presumably posed less of a threat to the self. We chose

to examine beliefs about prostitution here because prostitution is a moralized behaviour that

participants are presumably unlikely to have engaged in and can therefore judge without tacitly

threatening the self. We expected participants who have affirmed the self (compared to participants

who have not) to judge that eating meat is more morally wrong, that food animals possess more

sophisticated minds, and that food animals suffer more in slaughterhouses. We also expected the affirmation procedure to more strongly affect moral judgements about eating meat compared to moral judgements about prostitution.

2.1. Method

The raw data and analysis scripts are available via the *Open Science Framework* (https://osf.io/jp6s7/)*.*

2.1.1. Participants and Design

Samples. We aimed to recruit 250 participants for each experiment. Participants were from the United Kingdom and recruited from the crowdsourcing platform *Prolific* in exchange for £0.45. Experiment 1a consisted of 253 participants and Experiment 1b of 252 participants. Participants were pre-screened to be meat-eaters. Some participants nevertheless indicated they did not eat meat (n_{exp1a} = 4, n_{exp1b} = 5; "I do not eat meat") or any animal products (n_{exp1a} = 1, n_{exp1b} = 4; "I do not eat meat or animal products") and were therefore excluded. The final sample sizes were 244 (150 female; M_{age} = 35.93, SD_{age} = 11.91) and 247 (176 female; M_{age} = 36.27, SD = 12.09). No data were analyzed prior to reaching the full sample size.

Statistical power. We subscribe to the conventional apha level (α = .050) and employ two-tailed tests. A power analysis conducted via the pwr package for R (Champely, 2020) suggested that the final samples (n_{exp1a} = 244, n_{exp1b} = 247) afforded 80% power to detect an effect of affirmation of the following magnitude: d = .36. The combined sample (n_{total} = 491) afforded 80% power to detect an effect of affirmation of the following magnitude: d = .25. A power analysis conducted via the Superpower package for R (Lakens & Caldwell, 2019) suggested that Experiment 1b afforded 80% power to detect a two-way interaction of the following magnitude: η_p^2 = .035.

Design. Participants in both experiments were randomly assigned to one of two conditions in a between-participants design (affirmation: affirmed vs. non-affirmed). Experiment 1b included an additional within-participants factor (judgement: eating meat vs. engaging in prostitution). The research was approved by an internal ethical review board in compliance with British Psychological

Society's code of ethics and conduct. All participants provided informed consent prior to participation. We report all measures, manipulations, and exclusions.

2.1.2. Procedure and Materials

The procedure was largely identical for both experiments. We begin by describing the procedure for Experiment 1a. Participants completed a conventional self-affirmation value-ranking task (e.g., McQueen & Klein, 2006), in which they ordered ten values from most to least important (living in the moment, politics, relationships with friends and family, loyalty and integrity, religious values, sense of humour, contributions to society, democracy and equal rights, creativity, and intellectual curiosity). Further details on the distribution of selected values can be found in the Supplementary Material. Participants in the self-affirmation condition then wrote about a time in which their highest-ranked value was particularly important to them and how it affected their behaviour. Participants in the non-self-affirmation condition wrote about a time in which their lowest-ranked value could be important to someone else and how it could affect their behaviour. Participants were then prompted to briefly consider the moral issues surrounding meat eating. Then, participants judged the moral wrongness of eating meat ("How morally wrong[bad] is it to eat meat?", $as > .94$)[1], the extent to which farm animals used for food are capable of six mental capacities ("To what extent are farm animals capable of thought [planning/remembering/fear/pain/ pleasure]?"; $as > .83$) and the extent to which animals in slaughterhouses suffer ("To what extent do farm animals in slaughterhouses suffer?"). We chose the mental capacities as they reflect general aspects of mind that are theoretically important and empirically grounded (e.g., H. M. Gray et al., 2007). All items were anchored from 1 (not at all) to 7 (very much). Finally, participants identified their dietary habits ("I eat meat" vs. "I do not eat meat" vs. "I do not eat any animal products").

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[1] Participants in Experiment 1a also judged the importance of reducing their meat consumption on a single-item measure ("How important is it that I make an effort to reduce meat consumption?"), from 1 (*not at all*) to 7 (*very much*). Participants who affirmed a central value believed that it was more important to reduce their meat consumption ($M = 4.77$, $SD = 1.75$) compared to participants who had not affirmed a central value ($M = 4.29$, $SD = 1.91$), $t(242) = 2.03$, $p = .044$, $d = 0.26$, 95% CI [0.01, 0.51].

The procedure for Experiment 1b was largely identical. Participants completed the same affirmation task, then briefly considered the moral issues surrounding meat eating and judged how morally wrong it is to eat meat, the extent to which food animals possess minds, and the extent to which food animals suffered in slaughterhouses. The measures were identical to those in Experiment 1a. In addition, participants were asked to briefly consider the moral issues surrounding prostitution and to judge the moral wrongness of engaging in prostitution ("How morally wrong[bad] it is to engage in prostitution?", a = .97), from 1 (not at all) to 7 (very much). The order of the topics (meat eating vs. prostitution) was randomized. Participants then identified their dietary habits in the same manner as in Experiment 1a. At the conclusion of both studies, participants were debriefed, thanked, and paid.

2.2. Results and Discussion

To provide the most reliable estimates we present meta-level coefficients derived from analyzing the data across both experiments (Goh et al., 2016). Further details on study-level effects are available in the Supplementary Material. Effect sizes are estimated from standardized mean differences (Cohen's d) and weighted via an inverse-variance method (Schwarzer et al., 2015). Affirming a central value made eating meat seem more morally wrong. Affirmed participants reported that eating meat was more morally wrong (Experiment 1a: M = 3.25, SD = 1.65; Experiment 1b: M = 3.27, SD = 1.68) than non-affirmed participants (Experiment 1a: M = 2.82, SD = 1.65; Experiment 1b: M = 2.86, SD = 1.57), d = 0.26, 95% CI [0.08, 0.44], Z = 2.84, p = .005.

Next we tested if affirming the self affected judgements about animal minds and suffering. We found no evidence that affirmed (Experiment 1a: M = 5.22, SD = 1.02; Experiment 1b: M = 5.25, SD = 1.08) and non-affirmed (Experiment 1a: M= 5.26, SD = 1.09; Experiment 1b: M = 5.21, SD = 1.04) participants differed in the degree to which they believed food animals possessed minds, d < 0.01, 95% CI [-0.17, 0.18], Z = 0.04, p = .971. Nor did we they find any evidence that affirmed (Experiment 1a: M = 4.95, SD = 1.36; Experiment 1b: M = 4.87, SD = 1.59) and non-affirmed (Experiment 1a: M = 4.87, SD = 1.52; Experiment 1b: M = 4.73, SD = 1.58) participants differed in the

extent to which they believed animals suffered in slaughterhouses, d = 0.07, 95% CI [-0.11, 0.25], Z = 0.80, p = .425.

Finally in Experiment 1b, we examined how affirming the self affected beliefs about a behaviour that presumably posed less of a threat to the self--prostitution. An Analysis of Variance with 2 (affirmed vs. non-affirmed) x 2 (meat eating vs. prostitution) revealed no strong evidence that the affirmation procedure differentially affected moral judgements towards meat eating compared to prostitution, F(1, 245) = 3.61, p = .058, η_p^2 = .01. Further tests suggested that there was no evidence in support of the idea that affirming the self (M = 3.95, SD = 2.09), compared to not affirming the self (M = 4.17, SD = 2.01), affects moral judgements of prostitution, t(245) = -0.81, p = .416, d = -0.10, 95% CI [-0.35, 0.15].

The results from Experiments 1a and 1b provide some initial evidence of a causal link between perceptions of the self and the propensity to believe that meat eating is morally problematic. The data were inconclusive with regards to whether affirming the self affects how people perceive animal minds and suffering. Finally, we found some weak evidence in support of the idea that affirming the self more strongly affects moral beliefs that pose a threat to the self (about meat eating) compared to beliefs that do not pose a threat to the self (about prostitution).

3. Experiment 2: Direct Replication and Extension

Experiment 2 aimed to provide more definitive evidence by testing if the effect of affirming the self on judgements about eating animals replicates in a new and larger sample. We did this by exposing participants to the same affirmation procedure and then measuring the same beliefs as in Experiments 1a and 1b: whether it is morally wrong to eat meat, and the extent to which animals reared for food possess minds and suffer in slaughterhouses. Our first prediction was that we would observe a similar effect as that obtained in Experiments 1a and 1b: that affirming the self makes eating meat (in general) seem more morally wrong.

In addition, Experiment 2 provided a more stringent test of whether affirming the self makes eating animals seem more morally wrong by reducing threats to the self. It achieved this by eliciting

two additional beliefs: whether it is morally wrong to eat an animal that participants themselves consume (e.g., pigs) and whether it is morally wrong to eat an animal that participants themselves do not consume (e.g., donkeys). On the basis that it is threatening to the self to judge one's own actions as morally problematic, our second prediction was that affirming the self should make eating pigs seem more morally wrong. On the basis that it is especially threatening to judge one's own actions (vs. actions that one does not perform) as morally problematic, our third prediction was that affirming the self should make eating pigs seem more morally wrong than it does eating donkeys. Support for this third prediction would therefore be strongly indicative of a self-protective motivation. Absence of support for the third prediction, in the context of support for the first and second prediction, would not rule out a self-protective motivation. The defences that people erect to justify their consumption of meat might generalize to animals that do not form part of their own diet. However, it would leave open alternative accounts that would need to be addressed in future research projects.

3.1. Method

Experiment 2 was pre-registered. The approved (Stage 1) protocol, raw data, and analysis scripts are available via the *Open Science Framework* (https://osf.io/jp6s7/)*.*

3.1.1. Stimulus pretest

Prior to conducting the main test, we sought to identify a pair of suitable animals, one that is typically eaten and one that is not, to serve as stimulus targets. One-hundred self-identified meat eaters from a university in the United Kingdom (70 female; M_{age} = 19.15, SD_{age} = 0.90) reported their beliefs about cows, pigs, sheep, tapirs, wildebeests, and donkeys. These beliefs included: consumption behaviour ("Do you eat meat or edible products made from [animal]?"; yes vs. no), moral beliefs about eating the animal ("How morally wrong it is to eat [animal]s?", "How morally bad is it to eat [animal]s?", "Do [animal]s deserve to be protected from being eaten?", "If meat from a [animal] was on the menu at a restaurant, would you avoid ordering it to reduce the number of [animal]s being killed?"; as > .78), and beliefs about the animals' mind, ("To what extent are

[animal]s capable of thought [planning/remembering/fear/pain/ pleasure]?"; *as* > .82). All items were anchored from 1 (not at all) to 7 (very much). We employed the following criteria to select the final pair of animals: i) one animal should be eaten by a majority or all of participants, ii) one animal should be eaten by a minority or no participants, and, iii) beliefs about the sophistication of the animals' minds should not differ. On the basis of these criteria, we selected pigs and donkeys. Almost all participants ate pigs (93/100) whilst almost no participants ate donkeys (3/100). Pigs were perceived to be less morally wrong to eat (*M* = 3.01, *SD* = 1.11) than donkeys (*M* = 3.40, *SD* = 1.21), *t*(99) = -2.82, *p* = .006, *d* = -0.28, 95% CI [-0.48, -0.08]. Importantly, this meant that the mean ratings were roughly two standard deviations or more away from either response pole, suggesting that ceiling and floor effects should not emerge in Experiment 2. There was no evidence that pigs were perceived to possess more, or less, sophisticated minds (*M* = 5.08, *SD* = 1.22) than donkeys (*M* = 5.05, *SD* = 1.22), *t*(99) = -0.27, *p* = .787, *d* = -0.03, 95% CI [-0.17, 0.22]. Further descriptive statistics for all animals are provided in the Supplementary Material.

3.1.2. Participants and Design

Sample size justification. We aimed for greater than 90% power when testing the effect of self affirmation on moral beliefs about eating animals. We subscribed to the conventional alpha level (α = .050) and employed one-tailed tests. We employed one-tailed tests because we see no basis for predicting the reverse pattern of results. We assumed that the true effect of self affirmation on moral beliefs about animals is of the magnitude we observed in Experiments 1a and 1b (*d* = 0.26). Given these parameters, a power analysis conducted via the *pwr* package for R (Champely, 2020) suggested that a sample of 750 would afford greater than 97% power to detect the expected effect of self affirmation on moral beliefs about eating meat. When testing the moderating effects of self affirmation on moral beliefs about eating animals that participants eat (vs. do not eat), we assumed that the true effect of self affirmation on moral beliefs about animals that participants eat is the same as the effect on general beliefs about meat eating (*d* = 0.26). We assume that the true effect of self affirmation on moral beliefs about animals that participants do not eat is zero (*d* = 0.00). The

expected results correspond to a two-way interaction of the following magnitude: $\eta_p^2 = .017$.

Simulating 10000 samples via the Superpower package for R (Lakens & Caldwell, 2019) suggested

that 750 participants would provide greater than 92% power to detect the two-way interaction

between affirmation (affirmed vs. not affirmed) and animal (eaten vs. not eaten). The data from

Experiments 1a and 1b indicate that the effect of affirmation on judgements about animal minds and

suffering are likely to be very small ($d < 0.07$). We did not use these estimates in our sample-size

determination as we did not have the resources to acquire a sample that would be adequately

powered to detect an effect of this magnitude ($n > 7000$ to achieve greater than 90% power).

We aimed to recruit 825 adults from the United Kingdom via *Prolific.* This included 75

additional participants (+10%) above and beyond the target sample size of 750 to allow for additional

exclusions. We based this on the number of participants in Experiments 1a and 1b who reported that

they do not eat meat (3%), and the number of participants in Experiment 2's pre-test who reported

that they do not eat specific animals (presented above; 10%).

Sample. We achieved the target sample of 825. Participants were pre-screened via *Prolific's*

filters to exclude those who do not consume meat. Thirty-five participants nevertheless indicated

they did not eat meat ($n = 29$; "I do not eat meat") or any animal products ($n = 6$; "I do not eat meat

or animal products") and were therefore excluded. In addition, 72 participants indicated that they

either did not consume meat or products made from pigs or did consume meat from donkeys and

were therefore excluded. The final sample size was 721 (408 female; $M_{age} = 39.57$, $SD_{age} = 14.50$). No

data were analyzed prior to reaching the full sample size.

Statistical power. A power analysis conducted via the pwr package for R (Champely, 2020)

suggested that the final sample afforded greater than 96% power (one-tailed, α = .050) to detect an

effect of self affirmation on moral beliefs about eating meat of the following magnitude: $d = 0.26$.

Simulating 10000 samples via the Superpower package for R (Lakens & Caldwell, 2019) suggested

that the final sample afforded greater than 90% power (one-tailed, α = .050) to detect a moderating

effect of self affirmation on moral beliefs about eating animals that participants eat (vs. those they do not eat) of the following magnitude: $\eta_p^2 = .017$.

Design. Participants were randomly assigned to one condition in a 2 between (affirmation: affirmed vs. non-affirmed) x 2 within (animal: eaten vs. not eaten) design. The research adhered to the same ethical guidelines outlined in Experiments 1a and 1b (see section 2.1.1.).

3.1.2. Procedure and Materials

We utilized the same affirmation paradigm as in Experiments 1a and 1b (see McQueen & Klein, 2006). Participants were then prompted to briefly consider the moral issues surrounding meat eating and afterwards to judge: the moral wrongness of eating meat ("How morally wrong[bad] it is to eat meat?", $a = .94$), the extent to which farm animals used for food are capable of six mental capacities ("To what extent are farm animals capable of thought [planning/remembering/fear/pain/ pleasure]?", $a = .86$), and the extent to which animals in slaughterhouses suffer ("To what extent do farm animals in slaughterhouses suffer?"). These judgements were elicited directly after the affirmation procedure and were separated from the judgements about specific animals (described below). This ensured the general judgements were not contaminated by specific judgements and allowed us to directly replicate Experiments 1a and 1b.

After these measures, participants briefly considered the moral issues surrounding eating pigs and judged the moral wrongness of eating pigs, and then briefly considered the moral issues surrounding eating donkeys and judged the moral wrongness of eating donkeys. Moral judgements were measured on four items ("How morally wrong it is to eat [animal]s?", "How morally bad is it to eat [animal]s?", "Do [animal]s deserve to be protected from being eaten?", "If meat from a [animal] was on the menu at a restaurant, would you avoid ordering it to reduce the number of [animal]s being killed?", $as > .91$), anchored from 1 (not at all) to 7 (very much). The order of the animals (pigs vs. donkeys) was randomized.

Finally, participants were asked about their dietary habits. Participants identified their dietary habits ("I eat meat" vs. "I do not eat meat" vs. "I do not eat any animal products") and if they eat

pigs and donkeys ("Do you eat meat or edible products made from [animal]?"; yes vs. no). At the

conclusion of the study, participants were debriefed, thanked, and paid.

3.2. Results

      Confirmatory Analyses. We tested our first prediction--affirming the self makes eating meat

(in general) seem more morally wrong--in two ways. First, we tested if the data from the present

experiment supported this prediction. In this experiment, we found no indication that participants

who had undergone the affirmation procedure (M = 2.64, SD = 1.50) believed that eating meat was

more morally wrong than participants who had not (M = 2.57, SD = 1.40), $t(719)$ = 0.58, $p_{one\text{-}tailed}$ =

.281, d = 0.04, 95% CI [-0.10; 0.19]. Next, we examined if the full data (Experiments 1-2) supported

the prediction. We tested this by estimating the standardized mean difference (Cohen's d) weighted

via an inverse-variance method (Schwarzer et al., 2015). We pre-registered a more stringent alpha

level for this test (α = .005; Benjamin et al., 2018). Tested against this criterion, the tendency for the

affirmation procedure to make eating meat seem more morally wrong was not statistically significant

across the experiments, d = 0.13, 95% CI [0.02, 0.24], Z = 2.29, $p_{one\text{-}tailed}$ = .011.

Figure 1

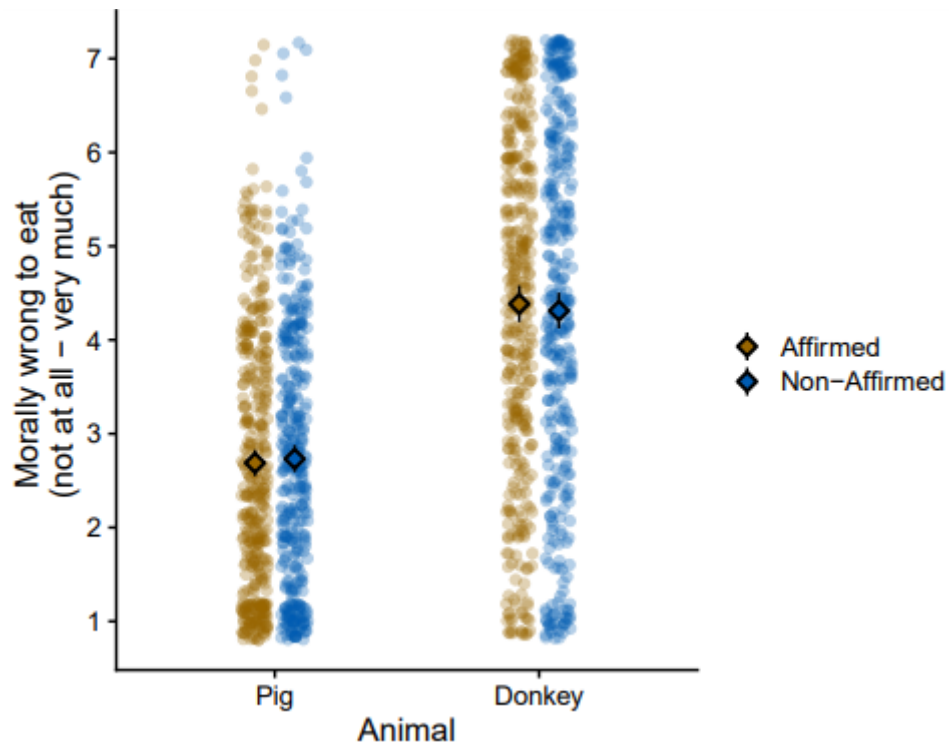*The effects of affirmation on moral judgements about meat eating*
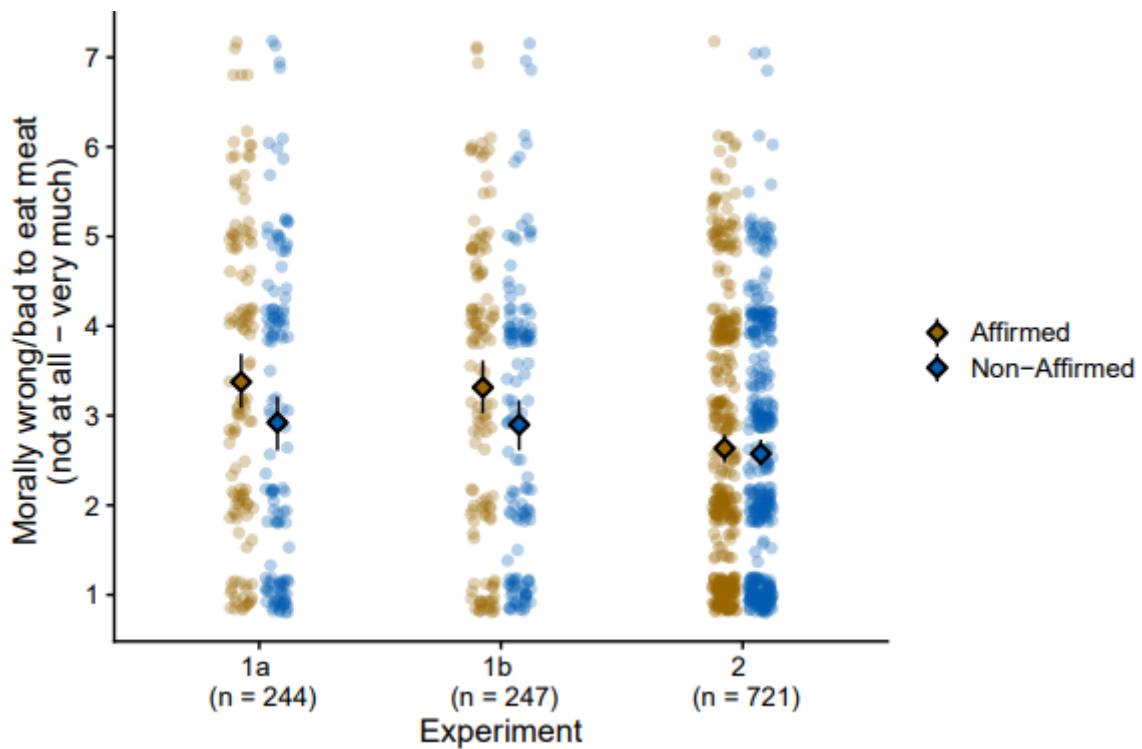
Note. Higher scores reflect more morally wrong/bad to eat. The figure depicts jittered data points (points), means (diamonds), and 95% CIs (whiskers).

Moving on, we tested our second prediction--affirming the self makes eating pigs seem more morally wrong--and third prediction--affirming the self makes eating pigs seem more morally wrong than it does eating donkeys. We found no indication that the affirmation procedure, compared to a control procedure, made eating pigs seem more morally wrong, $t(719) = -0.41$, $p_{one-tailed} = .659$, $d = -0.03$, 95% CI [-0.18; 0.12]. There was no evidence that the affirmation procedure made eating pigs seem more morally wrong than eating donkeys, $F(1, 719) = 0.83$, $p = .363$, $\eta_p^2 < .01$. Further descriptive statistics are presented in Table 1.

Figure 2

The effects of affirmation on moral judgements about eating animals that participants eat (pigs) and

do not eat (donkeys)

Note. Higher scores reflect more morally wrong to eat. The figure depicts jittered data points

(points), means (diamonds), and 95% CIs (whiskers).

Additional Analyses. We also examined if the affirmation procedure affected beliefs about

animal minds and suffering. Looking across all the available data, we found no evidence that

affirming the self affected beliefs about animal minds, d = -0.01, 95% CI [-0.12, 0.10], Z = -0.20, p =

.843; nor did we find any evidence that affirming the self affected beliefs about the extent to which

animals suffer in slaughterhouses, d = 0.07, 95% CI [-0.04, 0.19], Z = 1.29, p = .197.

4. General Discussion

Prominent perspectives suggest that people minimize the moral issues surrounding meat eating and animal welfare so as to preserve a favourable view of the self (Bastian & Loughnan, 2017; Joy, 2010; Loughnan & Davies, 2020; Piazza et al., 2015; Rothgerber, 2020). We tested this idea in three experiments by having participants complete a self affirmation task and predicted that this ought to make eating animals seem more wrong. We also tested if the potential effects of this task extended to beliefs about animals that are eaten (i.e., pigs) and to animals that are not eaten (i.e., donkeys); and to beliefs about animal minds and animal suffering. The evidence only weakly supported the idea that affirming the self makes eating meat seem more morally wrong: the effect aggregated across all experiments was small (d = .13), and did not achieve statistical significance against the pre-registered alpha level of .005. We found no evidence that affirming the self affected specific beliefs about the moral wrongness of eating animals that participants themselves consume and do not consume, nor about their mental capacities.

The present findings do not undermine the fact that people tend to deny moral standing and sentience to food animals. There is reliable evidence to suggest that people readily justify the harms inflicted on food animals (Piazza et al., 2015) and that food animals garner less moral concern (Krings et al., in press; Leite et al., 2019), and are perceived to possess less sophisticated minds, compared to other comparable animals (Bastian et al., 2012; Bratanova et al., 2011; Possidónio et al., 2019). The importance of these findings for how we relate to animals remains.

The present findings do, however, speak to whether the self is implicated in moral disengagement surrounding meat eating and animal minds. Prior work demonstrates that moral beliefs shift when the inconsistency between eating meat and caring for animals is brought into focus (Bastian et al., 2012; Loughnan et al., 2010; Rothgerber, 2014). For example, Loughnan et al., (2010) found that meat-eaters reported that cows were less worthy of moral concern after having eaten beef jerky compared to nuts. Such results suggest that the need to represent the self in positive terms is implicated in moral beliefs about eating animals (Bastian & Loughnan, 2017; Loughnan &

Davies, 2020). We present evidence that manipulating the need to represent the self in positive terms has little or no effect on moral beliefs about eating meat, animal minds, and animal suffering. This suggests that perceptions of the self may not be as strongly tied to such beliefs as previously thought. In doing so, the work suggests that alternative explanations of the phenomena--in terms of aversion to harm (Cushman et al., 2012) and non-motivated self-knowledge (Bem, 1967; Loughnan et al., 2010)--may need to be taken more seriously. This does not mean that perceptions of the self are not implicated in moral disengagement surrounding meat eating and animal welfare. The self-protective explanation may ultimately remain the most convincing account of why people morally disengage when the inconsistency between eating meat and caring for animals is made salient (Bastian et al., 2012; Loughnan et al., 2010). This does, however, suggest that strong claims about the links between perceptions of the self and the tendency to morally disengage from the issues surrounding meat eating and animal welfare need to be made cautiously.

Affirmation procedures show some promise in applied contexts. For example, augmenting otherwise threatening health messages with brief affirmations increases their effectiveness (Arpan et al., 2017). Such results prompt a discussion about whether the present findings lend themselves to similar applications. Attempts to translate the present work to such applications seem premature. Our results tentatively suggest that one instantiation of an affirmation procedure might lend itself to shifting general beliefs about eating meat. More data is needed to reduce the uncertainty surrounding this effect. If this effect can be convincingly demonstrated, further work would then be needed to confirm that similar shifts could be obtained with affirmations that are communicated in more applied settings--such as alongside animal welfare messages. Finally, those interested in drawing on scientific research to inform interventions need to consider their likely effectiveness. Our results suggest that the effect of the present affirmation procedure is unlikely to be large. Although small effects can have tangible benefits in the aggregate (Funder & Ozer, 2019), the relative costs and benefits of such an intervention need to be weighed against potential alternatives (see e.g., Hansen et al., 2019).

In closing, we would like to take a moment to reflect on the value, in our view, of the registered report format in advancing psychological science. Prior to submitting the registered report, we found some initial support for our main hypothesis in Experiments 1a and 1b. Nevertheless, the results from Experiments 1a and 1b were somewhat unconvincing and suggested that a replication attempt would be beneficial but require a substantial investment of resources. The registered report format allowed us to propose this replication and ultimately commit these resources with the guarantee that the results would be published. The format therefore allowed us to detach the test from the results and in doing so freed us from the disincentives associated with attempting to publish a set of potentially inconclusive or null results. The benefits of this format are evident. Experiment 2 failed to replicate the results of Experiment 1a and 1b, gave us a more reliable aggregate estimate of the magnitude and robustness of the effect, and ultimately changed the report, from one titled: "*The 'me' in meat: Affirming the self makes eating animals seem more morally wrong*" to "*The 'me' in meat: Does affirming the self make eating animals seem more morally wrong?*".

In sum, we tested if moral beliefs about meat eating, animal minds, and animal suffering were causally related to the need to protect the self by examining the effects of an affirmation procedure on such beliefs. We found only weak support for the idea that affirming the self makes eating meat seem more morally wrong. We found no evidence that affirming the self affected any other beliefs including those related to eating specific animals, animal minds, and animal suffering. The work suggests that claims about why people are prone to deny moral standing and sentience to food animals need to be made cautiously.

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