



Research report

Efforts to overcome vegetarian-induced dissonance among meat eaters



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ABSTRACT

Meat eaters face dissonance whether it results from inconsistency (“I eat meat; I don’t like to hurt animals”), aversive consequences (“I eat meat; eating meat harms animals”), or threats to self image (“I eat meat; compassionate people don’t hurt animals”). The present work proposes that there are a number of strategies that omnivores adopt to reduce this dissonance including avoidance, dissociation, perceived behavioral change, denial of animal pain, denial of animal mind, pro-meat justifications, reducing perceived choice, and actual behavioral change. The presence of vegetarians was speculated to cause meat eating to be a scrutinized behavior, remind meat eaters of their discomfort, and undermine the effectiveness of these strategies. It was therefore hypothesized that exposure to a description of a vegetarian would lead omnivores to embrace dissonance-reducing strategies. Supporting this hypothesis, participants who read a vignette about a vegetarian denied animal mind more than participants who read about a gluten-free individual. It was also hypothesized that omnivores would be sensitive to individual differences between vegetarians and would demonstrate using dissonance-reducing strategies more when the situation failed to provide cognitions consonant with eating meat or to reduce dissonant cognitions. Four experiments supported this prediction and found that authentic vegetarians, vegetarians freely making the decision to abandon meat, consistent vegetarians, and anticipating moral reproach from vegetarians produced greater endorsement of dissonance-reducing strategies than their counterpart conditions.

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Introduction

Most individuals hold animals in positive regard. The majority of Americans have pets, on which they spent \$52 billion dollars in 2012. Exposure to friendly animal characters in movies, television, books, as toys, stuffed animals, etc., plays a central role in the early experiences of children (Melson, 2001). On the other hand, the vast majority of individuals in western societies eat animals regularly, and many do not consider a meal complete without animal protein (Sobal, 2005). In short, people believe that it is wrong to hurt animals, yet in the case of Americans at least, eat 240 pounds per capita of them each year (see Herzog, 2011). How can we psychologically reconcile these two positions, what researchers have recently called the “meat paradox” (Bastian, Loughnan, Haslam, & Radke, 2012; Loughnan, Haslam, & Bastian, 2010)? At the heart of the meat paradox is the experience of cognitive dissonance whether one adopts classic dissonance theory focusing on inconsistency (Festinger, 1957: “I eat meat; I don’t like to hurt animals”), the new look dissonance emphasizing aversive consequences (Cooper & Fazio, 1984:

“I eat meat; eating meat harms animals”), or self-consistency/self-affirmation approaches emphasizing threats to self-integrity (Aronson, 1968; Steele, 1988: “I eat meat; compassionate people don’t hurt animals”). Highlighting the magnitude of the paradox, an examiner of intellectual growth in young children commented nearly a century ago that “there is probably no moral field in which the child sees so many puzzling inconsistencies as here” (Isaacs, 1930).

The general purpose of the present research is to elaborate on and investigate the dissonance-reducing processes that enable omnivores to maintain the practice of consuming animal flesh with minimal compunction. It is not the first study to identify dissonance reduction as a factor in the perpetuation of meat consumption – the concept has been used to explain why meat eaters deny animal mind (Bastian et al., 2012; Loughnan et al., 2010), and others have referenced dissonance to describe what occurs in the minds of meat eaters who experience guilt over their behavior (e.g., Hoogland, de Boer, & Boersema, 2005; Mayfield, Bennett, Tranter, & Wooldridge, 2007). But the present work is unique in its attempts to articulate a comprehensive range of techniques that omnivores utilize to reduce dissonance from eating meat. After explaining these dissonance-reducing techniques, I then demonstrate how this framework is useful in explaining reactions that vegetarians produce in meat eaters, not in terms of overt retaliatory

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behaviors but in the form of subtle perceptual and judgmental changes.

In identifying strategies that omnivores employ to reduce the discomfort they experience from eating animals, the present work drew upon not only dissonance theory but also upon several more general theories describing mechanisms that enable individuals to act in immoral or non-normative ways: Bandura's (1990, 1999) *theory of moral disengagement*, which suggests that while actions are typically governed by an individual's moral standards, there are processes that disengage these self-sanctions and allow for inhumane conduct; and Sykes and Matza's (1957) work on *techniques of neutralization*, justifications of deviant behavior that allow disapproval from others or from violating internalized norms to be blunted in advance.

Although having a different focus and explaining different phenomenon, the processes proposed by these scholars from different disciplines converge on three basic mechanisms enabling problematic behavior: (1) hiding or avoiding the injury, possibly by making the victim invisible; (2) denying one's role/responsibility in causing the harm; and (3) denigrating the victim. Applying these principles to a dissonance framework, with inspiration from theoretical work by Joy (2011) and Plous (1993) and empirical work by Rothgerber (2012) on the psychological justification of meat eating, I identified eight mechanisms that omnivores employ to reduce the discomfort they experience from eating animals, including *avoidance, dissociation, perceived behavioral change, denial of animal pain, denial of animal mind, pro-meat justifications, reduction of perceived choice, and behavioral change*. The first three strategies (i.e., avoidance, dissociation, and perceived behavioral change) are derived from the hiding injury/denying responsibility mechanisms. These strategies are apologetic and essentially seek to avoid recognizing and confronting the issue; in these cases, the individual acts more ambivalently, without rationalizations, and merely attempts to proceed without confronting the issue. The fourth–sixth strategies (i.e., denial of animal pain, denial of animal mind, and pro-meat justifications) are derived from the denigrating the victim mechanism. These strategies are unapologetic and unabashedly embrace the practice of meat consumption through various justifications; in these instances, the individual does not evade the issue and is prepared to explain why the practice is acceptable. The seventh and eight strategies (i.e., reduction of perceived choice and behavioral change) are derived from dissonance theory and represent well-known ways of eliminating inconsistency across a multitude of domains.

Dissonance-reducing strategies

Avoidance

In Festinger's (1957) classic formulation of cognitive dissonance, he argued that people will actively avoid situations and information that would likely increase dissonance. Perhaps because it is so overwhelming and may induce psychic numbing (Slovic, 2007), 67% of respondents indicated that they do not think about animal suffering in factory farming when they purchase meat (Signicom, 1997; see also Mayfield et al., 2007). More generally and outside the realm of purchasing decisions, the very topic of factory farms is considered taboo (Iacobbo & Iacobbo, 2006). That is, avoidance has moved from a personal strategy to a cultural norm.

Individuals have much assistance in avoiding unpleasant thoughts about the treatment of animals used in food. The sheer physical isolation of factory farms from the rest of society fulfills Bandura's (1999) observation that harming others is made easier when their suffering is not visible. Avoidance has also been culturally enabled by institutions and legal guidelines in our society that make gaining information about farm animal welfare nearly impossible (see Joy, 2011). Finally, socialization practices encourage American chil-

dren to believe that meat originates from happy farm animals living in peaceful settings; as a result, children believe that farm animals are less likely to ever be unhappy relative to pets and wild animals (Plous, 1993).

Dissociation

Individuals can also psychologically alter how much meat they perceive themselves to consume by dissociating the animal from the food product. According to Adams (1990), one way that individuals render animals absent from their consciousness is to change language about them as food products. Words like bacon, hamburger, and sirloin become substitutes for the animal flesh people consume, allowing omnivores to maintain the illusion that animals are not involved. As Bandura (1999) notes, such euphemistic labeling is often used to disguise objectionable activities.

Supporting this dissociation strategy, many consumers do not like to think that meat comes from a live animal (Mayfield et al., 2007), and this explains why the more meat resembles the actual animal, in terms of being red, bloody, and fatty, the more individuals are disgusted by it (Kubberod, Ueland, Tronstad, & Risvik, 2002). Pieces of meat that clearly remind consumers that they were from an animal (e.g., eyes, tongues, brains, etc.) are unwillingly handled by consumers (Kubberod et al., 2002). Explicit reminders of the animal origins of meat led shoppers to purchase less meat or prefer free range and organic meat (Hoogland et al., 2005).

Perceived behavioral change

As a substitute to actual change, individuals may convince themselves and others that they avoid meat consumption. This is an attempt to eliminate the cognition "I eat meat" despite evidence to the contrary. At least a dozen studies have documented that some people claim they are vegetarian but then simultaneously acknowledge that they eat red meat, chicken, and/or fish (see Rothgerber, 2014; Ruby, 2012). For example, a survey of 10,000 American adults found that 60% of "vegetarians" admitted that they had eaten animal flesh within the last twenty-four hours (Time/CNN/Harris Interactive Poll, 2002). Others take a less drastic approach than attempting to pass as vegetarians and convey that they consume less meat than they actually do. For example, when they believed they were about to view a PETA video, women reported eating less meat than otherwise (Rothgerber, in press).

Denial of animal pain

It is also possible that the omnivore is less apologetic and, instead of trying to distort how much meat they consume or redefine what they are actually consuming, may acknowledge that they regularly eat animals. At this point, the individual may try to eliminate the dissonant cognition "I hurt animals" with "Animals don't really experience pain, at least as humans do." Indeed, one of the attempted refutations against utilitarian arguments for vegetarianism is that it overstates the amount of pain that animals experience (Gruzalski, 1983). Rothgerber (2012) found that the more respondents endorsed statements such as "Animals don't really suffer when being raised and killed for meat" and "Animals do not feel pain the same way humans do," the more meat they reported consuming. Without animal pain, there is no injury, and as Sykes and Matza (1957) articulate, the denial of injury breaks the link between acts and their consequences, thus enabling the individual to act without compunction.

Denial of animal mind

Because pain is strongly associated with the act of killing that precedes eating animals, it reasons that this dimension would be salient, but there is also a more general denial of animal capacity that may occur to reduce dissonance. In referring to the dehumanization, Bandura (1999) notes (proving the point), "it is easier to bru-

talize people when they are viewed as lower animal forms” (p. 200). Perceived dissimilarity between animals and humans has been identified as an important mechanism to justify meat consumption (Bilewicz, Imhoff, & Drogosz, 2011). In a series of experiments, eating animals, expecting to eat them, and being made to think about certain animals as food sources led to greater perceived mental differences between humans and animals (Bastian et al., 2012; Bratanova, Loughnan, & Bastian, 2011; Loughnan et al., 2010). The discrepancy between “I eat animals” and “I don’t like to hurt animals” seems less important when the capacity of animals is diminished.

Pro-meat justifications

Instead of derogating the living animal, individuals may also justify meat consumption by endorsing pro-meat justifications. Rothgerber (2012) found that the more participants endorsed pro-meat taste statements (e.g., “I enjoy eating meat too much to ever give it up”), hierarchical justifications (e.g., “It’s acceptable to eat certain animals because they’re bred for that purpose”), and religious justifications (e.g., “God intended for us to eat animals”), the greater their reported meat consumption. These perceptions allow individuals to act on a moral imperative and maintain their view of themselves as moral actors who do not inflict harm on others (Bandura, 1999).

Reduced perceived choice

It is possible that individuals may accurately assess how much meat they consume, view this food as involving animals that experience pain and have capacity, yet still not experience dissonance if they perceive themselves as having no choice in the matter. Early in dissonance theory it was discovered that lacking the freedom to avoid a dissonant act would serve as an important consonant cognition (Linder, Cooper, & Jones, 1967), and the new look dissonance incorporates this also as it posits that in order for dissonance to occur, the individual must feel personally responsible for bringing about the aversive event (Cooper & Fazio, 1984). This may explain why meat eaters strongly believe that it is unhealthy to forego meat consumption and why the more this view is endorsed, the more individuals reported eating meat (Rothgerber, 2012). By convincing themselves that meat is necessary for survival, the individual does not feel responsible for harming animals. Without responsibility, disapproval of self or others is sharply reduced as a restraining influence (Sykes & Matza, 1957).

Vegetarians as reminders

For critics of meat consumption, actual behavioral change is the most socially preferable dissonance-reducing option. However, this alternative is unpopular partially because people report liking the taste of meat too much to abandon it (Rothgerber, 2012), and abstaining from meat may not be possible because of a lack of environmental resources or social networks (see Ruby, 2012) – Festinger (1957) himself identified satisfying behaviors and behaviors not possible to change as contributing to resistance to behavioral change. As a result of this and the prevailing carnist ideology (Joy, 2011), vegetarianism remains a relatively infrequent practice in the United States, accounting for 4% of the population (Stahler, 2012). Estimates in other western nations are generally low as well, ranging from 9% in Germany to less than 2% in Denmark and France (European Vegetarian Union, 2007).

Most vegetarians do not think about or define themselves simply in terms of their physical behavior, but rather come to approach their diet as the basis for substantive identity (Jabs, Sobal, & Devine, 2000). It is also likely that omnivores do not view vegetarians as people similar to everyone else except for their decision to avoid animal flesh (see Joy, 2011). Instead, vegetarians are perceived to have a unique philosophical outlook that includes choices to avoid meat

because of a belief system that killing animals for food is unethical. The rejection of traditional values that is associated with vegetarians helps explain why the symbolic foods of holidays are notable sources of tension between vegetarians and family members (Beardsworth & Keil, 1991, 1997; Jabs et al., 2000) and why some parents interpret their children’s vegetarianism as a rejection of their upbringing (Beardsworth & Keil, 1991, 1997). In short, it is what vegetarians signify that threatens omnivores.

As a result, vegetarians may find interactions with omnivores to be strained, especially when diet moves to the forefront of conversation. In her book *Living among Meat Eaters: The Vegetarian’s Survival Handbook*, theorist Carol Adams offers vegetarians advice on how to navigate unpleasant reactions from omnivores. Her central thesis is that relations with meat eaters can be difficult for vegetarians because every meat eater is a “blocked” vegetarian who would rather avoid examining their behavior. From the present perspective, one might replace the more argumentative term blocked with “conflicted,” i.e., experiences dissonance over their behavior. Without referencing the term, Adams (2001) describes the antecedents and consequences of dissonance throughout her work. For example, she notes that “many people find vegetarians threatening because there is a part of them that wants to avoid animal flesh for a lot of reasons, but another part doesn’t want to stop eating meat” (p. 82). Adams (2001) speculates that vegetarians threaten omnivores’ feelings of self-worth, that they make meat eating become an examined behavior, that they challenge reasons given for consuming meat, and that they propel meat eaters to focus on vegetarians’ inconsistencies to avoid reflecting on their own. In short, she suggests that the mere presence of vegetarians reminds omnivores of their behavior, causing guilt, anger, and a host of other negative emotions. This activation of meat eating as a meaningful category is an unusual occurrence because as members of a very large majority, omnivores almost never define themselves in these terms (see Joy, 2011).

But vegetarians not only encourage reminders of dissonance, they threaten to make it harder to alleviate the dissonance and to morally disengage from the harm inflicted upon animals used for food. That is, what the present work also makes explicit is that vegetarians are particularly threatening because they undermine the dissonance-reducing strategies used by omnivores. For example, because of their distinctive diet, vegetarians make eating animals more salient and may prompt omnivores to consider motives for vegetarianism, hindering avoidance and making dissociation, and denial of animal pain/mind more difficult. The presence of authentic vegetarians may cause imposters attempting perceived behavioral change to worry about being discovered and may make self-deception difficult. Finally, vegetarians undercut the notion that omnivores have no choice but to consume meat for their well-being and survival.

If true, then being exposed to or made to think about vegetarians should increase dissonance derived from eating meat by reminding omnivores of their own inconsistencies, by making salient the aversive consequences of meat consumption, or by increasing threats to self-integrity and in addition, by making it difficult to remove the dissonance. In neutralization (Sykes & Matza, 1957) terms, vegetarians make meat eaters feel like deviants, and so they set in motion the various neutralization techniques described earlier. Whatever the origin, the threats raised by vegetarians should increase the endorsement of dissonance-reducing cognitions. Discomfort from meat eating may also be reduced by critiquing or focusing on deficiencies of the vegetarian (i.e., condemning the condemner, Sykes & Matza, 1957). If vegetarians can be devalued because of individuating characteristics, omnivores may avoid focusing on themselves and the source of their discomfort. Therefore, it was also predicted that vegetarians would increase endorsement of dissonance-reducing strategies more so if their actions or attributes did not provide consonant or reduce dissonant cognitions over eating meat. These ideas were tested in five experiments varying

Table 1
Overview of study characteristics.

Study	Activation of dissonance	Dissonance reducing measure
1	Mere exposure to vegetarian	Belief in animal mind
2	Exposure to authentic vegetarian (as opposed to imposter)	Reported meat consumption
3	Exposure to vegetarian freely choosing behavior (as opposed to one having no choice)	Belief in animal pain; necessity of meat
4	Exposure to consistent vegetarian (as opposed to inconsistent one)	Meat-eating justification scale
5	Anticipated moral reproach from vegetarian	Discomfort; belief in animal mind

in the source of dissonance and in the dissonance-reducing strategy available to participants. Table 1 provides a summary of the experiments.

Overview of study methods

To diversify the ages and experiences beyond that found in typical university samples, the present research was conducted through an internet platform. The participants in the five studies presented here were recruited through Amazon Mechanical Turk (MTurk-<http://www.mturk.com/mturk/>), an online labor market where requesters post jobs (i.e., HITs) and workers choose which jobs to do for pay. There are numerous studies that show correspondence between the behavior of workers on MTurk and behavior offline or in other online contexts (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). Buhrmester et al. (2011) noted several advantages to MTurk: participants are slightly more demographically diverse than standard internet samples and significantly more diverse than typical American university samples; realistic compensation rates do not affect data quality; and the data obtained are at least as reliable as those obtained via traditional methods, a conclusion shared by Mason and Suri (2012) in a review.

For all five studies, a brief recruitment notice for a study on attitudes toward animals was posted on MTurk along with a link to the SurveyMonkey website hosting the survey. Participants were paid \$0.50 for their participation. Before beginning the survey, participants read an informed consent giving an overview of the study procedures including provisions for anonymity and their rights as participants. The surveys were each accessible for fifteen days, with the first study being posted on September 1, 2013. The experi-

ments were conducted via a single link within the same HIT to prevent respondents from participating in multiple studies.

In each study, respondents indicated being from one of two countries, the United States or India, with the percent of Indian participants ranging from 1% to 19% across the five studies. Because vegetarianism is much more widely practiced and socially accepted in India than in the United States, it is likely that the dynamics of vegetarian-induced dissonance may differ between these cultures. As might be expected because of their differing perceptions of vegetarians, none of the effects were statistically significant for Indian participants across the five studies although the very small sample sizes make such findings tentative and unreliable. Because the rationale for the study predictions were predicated upon dynamics in western societies, the text itself will only include sample information and results based on the American participants; the results were generally unchanged even with the inclusion of the Indian participants. Tables 2–6 report the means, standard deviations, *F* and *p* values, and effect sizes for the experiments.

In addition, because the study included a large number of dependent measures increasing the chances of Type 1 error, a MANOVA was first conducted for each study to test whether there was an overall effect before analyzing each outcome measure individually. In every instance, the MANOVA produced significant results.

Study 1: Mere vegetarian presence and belief in animal mind

The first study attempted to demonstrate the effect of minimal exposure to a vegetarian on the specific dissonance-reducing strategy of denying animal mind. Participants were presented with a vignette describing an individual following a vegetarian or gluten-

Table 2
Belief in animal mind following mere exposure to vegetarian, Study 1.

Measure	Exposure to vegetarian		Exposure to Gluten-Free Ind.		F value	Cohen's d
	Mean	SD	Mean	SD		
	(n = 40)		(n = 50)			
H-A emotional sim	2.61	1.05	3.24	1.08	7.95**	0.59
H-A mental sim	3.54	1.11	3.95	0.72	4.38*	0.44

Note: + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$. H-A emotional (mental) sim = Human animal emotional (mental) similarity.

Table 3
Reported meat and vegetarian consumption following exposure to authentic or imposter vegetarian, Study 2.

Measure	Exposure to vegetarian		Exposure to imposter		F value	Cohen's d
	Mean	SD	Mean	SD		
	(n = 37)		(n = 39)			
Veg meals, # of	9.54	5.48	6.70	5.20	5.45*	0.53
Veg meals, % of	42.08	32.27	25.77	28.39	5.49*	0.54
Veg meals, frequency	3.84	1.80	2.95	1.80	4.68*	0.49
Beef frequency	2.89	1.88	4.40	1.91	12.18***	0.80
Chicken frequency	4.78	1.80	5.50	1.50	3.62+	0.43
Pork frequency	2.95	1.60	3.68	1.77	3.57+	0.43
Fish frequency	2.84	1.69	3.40	1.65	2.18	0.34

Note: + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

Table 4

Belief in animal mind and the necessity of eating meat following exposure to a freely choosing vs. constrained vegetarian, Study 3.

Measure	Exposure to vegetarian Freely choosing behavior		Exposure to vegetarian with reduced choice		F value	Cohen's d
	Mean	SD	Mean	SD		
	(n = 45)		(n = 32)			
Denial animal pain	2.64	0.97	2.19	0.92	4.33*	0.48
Necessity of meat	4.33	1.21	3.57	1.51	5.86*	0.56

Note: + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

free diet and then judged animals on their emotional and mental similarity to humans. It was expected that exposure to a vegetarian would increase dissonance, and this dissonance would be reduced by whatever means were afforded by the situation, in this case, denying human–animal similarity.

Method

Ninety individuals responded to the survey. Fifty percent were males. The mean age of participants was 34.5 (SD = 11.8).

The (*gluten-free*) vegetarian condition included the following description:

“John is a 19 year old sophomore at a large state university. He is a political science major from the suburbs of Washington DC. John has many friends of both genders and loves to go out with them on weekends. John (*follows a gluten-free diet and never eats food containing gluten because gluten makes him feel badly*) is a vegetarian and never eats beef, chicken, pork, or fish because of moral and health reasons. John's favorite sport is basketball, and he likes all kinds of music. John hopes to work in a political campaign following graduation and perhaps run for political office one day.”

To assess the extent to which participants believed animals shared emotional states similar to humans, a scale was derived from the work of Bilewicz et al. (2011). Specifically, participants were asked

to indicate the human–animal emotional similarity of six emotions on a scale ranging from 1 (only humans have this emotion) to 7 (animals and humans have this emotion to the same degree). The six emotions included nostalgia, happiness, melancholy, excitement, guilt, and panic ($\alpha = .88$). To assess the extent to which participants thought animals possessed certain mental capacities, a scale was created from Bastian et al. (2012). Participants were asked to indicate the extent to which they thought animals in general possessed four mental capacities (self-control, morality, memory, and planning) on a scale ranging from 1 (animals definitely do not possess) to 7 (animals definitely do possess). Reliability was .67 between the four items.

Results and discussion

Exposure to a vegetarian led to greater perceived human–animal similarity relative to exposure to a gluten-free individual, $F(2,87) = 4.33$, $p = .016$, $\eta^2 = .09$. Specifically, participants exposed to a vegetarian were more likely to perceive emotions as unique to humans than were those exposed to a gluten-free individual, $F(1,88) = 7.95$, $p = .006$. In addition, those presented with a vegetarian target were less likely to believe animals possessed mental capacities than were those exposed to a gluten-free individual, $F(1,88) = 4.38$, $p = .039$.

The results support the hypothesis that the mere presence of a vegetarian will increase dissonance experienced from consuming

Table 5

MEJ following exposure to a consistent or inconsistent vegetarian, Study 4.

Measure	Exposure to authentic vegetarian		Exposure to imposter		F Value	Cohen's d
	Mean	SD	Mean	SD		
	(n = 35)		(n = 34)			
Overall MEJ	4.10	0.75	3.44	0.61	15.99***	0.97
Pro-meat	4.60	1.10	3.46	1.34	14.84***	0.93
Hierarchical just.	4.07	1.26	3.27	1.16	7.34**	0.66
Health justification	4.48	1.47	3.51	1.58	6.93*	0.64
Denial	2.70	1.04	2.15	0.92	5.58*	0.56
Religious just.	3.50	1.58	2.88	1.52	2.78+	0.40
Avoidance	4.56	1.45	4.31	1.43	0.51	0.17
Dichotomization	4.50	1.14	4.04	1.18	2.67	0.40
Dissociation	4.48	1.42	3.98	1.35	2.20	0.36
Fate	4.04	1.08	3.38	1.22	5.59*	0.57

Note: + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.**Table 6**

Discomfort and belief in animal mind following anticipated moral reproach from vegetarian, Study 5.

Measure	Moral reproach from vegetarian		No moral reproach		F value	Cohen's d
	Mean	SD	Mean	SD		
	(n = 33)		(n = 45)			
Negative emotions	2.41	1.47	1.81	1.10	4.08*	0.46
Human–animal sim.	4.18	1.66	5.02	1.09	7.34**	0.60

Note: + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

animal flesh. In the present study, participants seemed to attempt to reduce this conflict by increasing beliefs in human–animal dissimilarity, the effect of which is to minimize the discrepancy between eating animals and not liking to hurt them.

Study 2: Imposters and reported meat consumption

Of course in many everyday situations, mere exposure to a vegetarian may be unusual; typically, other information about the individual will be evident or forthcoming. The next studies tested the general proposition that meat eaters would be sensitive to variations among vegetarians, specifically the hypothesis that some vegetarians would be more threatening and result in greater residual dissonance than other vegetarians who may possess characteristics that themselves may reduce dissonance. To the extent that meat eaters can attend to certain characteristics of vegetarians that may reduce dissonance, they would have no need to endorse other dissonance-reducing strategies.

In the second experiment, participants were presented with information about a strict vegetarian or about an imposter, an individual who publicly disguised his/her failure to fulfill key membership criteria (in this case, someone claiming to be vegetarian who yet ate meat and fish regularly). Imposters are understood as not being committed to the cause. They likely make false claims about group membership to fulfill some social needs or for self-presentational purposes. It has been suggested that imposters are resented by the group upon whom false claims are made, in part because they impair the strategic effectiveness of the group largely by undercutting their message (Hornsey & Jetten, 2003; Warner, Hornsey, & Jetten, 2007). Because vegetarian imposters are less likely to endorse the vegetarian message, they are less likely to make meat eaters feel defensive about their behavior and less likely to activate dissonance in them. In fact, vegetarian imposters were rated as being marginally *more* likeable by meat eaters than were authentic vegetarians (Hornsey & Jetten, 2003). Therefore, it was hypothesized that exposure to an authentic vegetarian relative to an imposter should lead to greater attempts to reduce dissonance, in this case by underreporting one's meat consumption.

Method

Seventy-seven individuals responded to the survey while it was posted. Sixty-one percent were females. The mean age of participants was 35.6 (SD = 11.2).

In the (*imposter*) strict vegetarian condition, participants read the following description:

"Katie is a 19 year old sophomore at a large state university. She is a political science major from the suburbs of Washington DC. Katie has many friends of both genders and loves to go out with them on weekends. Katie likes to tell people she is a vegetarian. In fact, she (*eats meat and fish all the time and never sticks with her claim about being vegetarian.*) is dedicated to this diet and never eats beef, chicken, pork, or fish under any circumstances. Katie's favorite sport is basketball, and she likes all kinds of music. Katie hopes to work in a political campaign following graduation and perhaps run for political office one day."

To assess current vegetarian consumption, participants were asked to indicate in an average week how many of their meals (including breakfast, lunch, and dinner) were completely vegetarian, that is contained no meat (beef, chicken, pork) or fish and to indicate in an average week the % of their main meals that were completely vegetarian. They were also asked how often they ate vegetarian meals from 1 (*very infrequently*) to 7 (*very frequently*). These three items were significantly correlated (number per week-percent: $r(76) = .68, p < .001$; number per week-frequency: $r(76) = .80,$

$p < .001$; percent-frequency: $r(76) = .67, p < .001$. To assess how often participants consumed various meats, specifically those involving beef, chicken, pork, and fish, respondents were asked: "How often do you eat ____?" with response options ranging from 1 (*very infrequently*) to 7 (*very frequently*) for each animal product.

Results and discussion

Exposure to a strict vegetarian led participants to report different consumption patterns than exposure to an imposter, $F(7,68) = 2.15, p = .050, \eta^2 = .18$. Specifically, participants exposed to a strict vegetarian reported eating more vegetarian meals in an average week than did those exposed to an imposter, $F(1,75) = 5.45, p = .022$, reported eating a greater percent of vegetarian meals in an average week, $F(1,74) = 5.49, p = .022$, and indicated that they more frequently consumed vegetarian meals than those exposed to an imposter, $F(1,75) = 4.68, p = .034$. Those presented with a strict vegetarian target were less likely to report eating beef, $F(1,75) = 12.18, p = .001$ and were marginally less likely to report eating chicken, $F(1,75) = 3.62, p = .061$ and pork, $F(1,75) = 3.57, p = .063$ than were those exposed to an imposter. There were no differences in reported fish consumption between the two groups, $F(1,75) = 2.18, p = .144$.

The results generally supported the hypothesis that exposure to a strict vegetarian would activate greater dissonance than exposure to an imposter as evident in reports of vegetarian and meat consumption. It seems more likely that a strict vegetarian would be committed to the philosophy that eating animals is unethical and because of the threat such beliefs pose to meat eaters, participants were more likely to overreport consumption of vegetarian meals, underreport consumption of beef, and marginally underreport consumption of chicken and pork as a way to alleviate guilt and internal conflict.

Study 3: Freely choosing vegetarianism and belief in animal pain/necessity of meat

Because the imposter used in study 2 was described as regularly consuming animal flesh, this study may share an interpretation with the first study, that vegetarians cause greater endorsement of dissonance-reducing strategies than non-vegetarians. In study 3, the context was manipulated so that it clearly contained two authentic vegetarians: the first one described as freely choosing to become a vegetarian and the second described as being forced to adopt vegetarianism because of food allergies. The second individual acts under greatly constrained circumstances, and consequently, their behavior may not reflect their dispositions or beliefs. In the case of the former individual though, dietary behavior cannot be attributed to external factors. It is clear that they have intentionally chosen to be vegetarian, and they would more likely be viewed as subscribing to a unique philosophical outlook that killing animals for food is wrong. As such, the freely choosing vegetarian should activate greater dissonance in meat eaters, and this dissonance should be diminished in ways provided by the situation, in this case, denying that animals feel pain and believing that individuals have no real choice but to consume animal flesh for proper health.

Method

While the survey was posted, 77 individuals responded. Fifty-seven percent were females. Participants' mean age was 36.8 (SD = 10.9).

In the (*restricted*) free choice vegetarian condition, participants read the following:

“John is a 19 year old sophomore at a large state university. He is a political science major from the suburbs of Washington DC. John has many friends of both genders and loves to go out with them on weekends. John is a vegetarian and never eats beef, chicken, pork, or fish (*because of food allergies*) because of moral and health reasons. (*That is, he has no real choice but to avoid meat because of his medical condition.*) That is, it is his choice not to eat meat. John’s favorite sport is basketball, and he likes all kinds of music. John hopes to work in a political campaign following graduation and perhaps run for political office one day.”

To assess how much participants denied that animals experienced pain, they were asked the following three items: “Animals don’t really suffer when being raised and killed for meat,” “Animals do *not* feel pain the same way humans do,” and “Meat is processed so that animal pain and discomfort is minimized and avoided,” all scored on a 6-point Likert scale (1 = *strongly disagree*; 6 = *strongly agree*). The items were aggregated to form a single measure ($\alpha = .68$). To assess the extent to which participants perceived meat to be necessary for good health, participants were asked the following three items: “Meat is essential for strong muscles,” “We need the protein we can only get in meat for healthy development,” and “We need meat for a healthy diet.” All items were scored on a 6-point Likert scale (1 = *strongly disagree*; 6 = *strongly agree*) and reliability was high ($\alpha = .94$).

Results and discussion

Exposure to a vegetarian freely choosing their diet led participants to report different beliefs about animals and meat than exposure to a vegetarian following their diet because of restricted choice, $F(2,74) = 3.55$, $p = .034$, $\eta^2 = .09$. Specifically, those exposed to a vegetarian freely choosing their diet denied animal capacity for pain more and believed more in the necessity of eating meat than those exposed to a vegetarian following their diet because of restricted choice, $F(1,75) = 4.33$, $p = .041$, and $F(1,75) = 5.86$, $p = .018$, respectively.

The results support the hypothesis that an individual freely deciding to become a vegetarian without situational inducements activates more dissonance than a vegetarian essentially forced into the behavior for factors beyond their control. Judgments that animals feel less capacity for pain and that humans require meat for good health may be interpreted as motivated reactions to counter the message triggered by the unconstrained vegetarian.

Study 4: Consistency of vegetarian and justifications for eating meat

The previous two studies demonstrate that certain types of vegetarians produce greater endorsement of strategies designed to reduce dissonance. Specifically, strict and freely choosing vegetarians activate more dissonance presumably because they signify greater commitment to the philosophy that eating animals is unethical and remind meat eaters of their own inconsistencies to a greater degree. Another option when vegetarians are presented faultless in their dietary description is for omnivores to attempt to resist processing the implications of the threatening vegetarian by instead attacking them on personal grounds. Sykes and Matza (1957) anticipated such a possibility when they noted that to diffuse blame, the individual “shifts the focus of attention away from his [*sic*] own deviant acts to the motives and behaviors of those who disapprove of his [*sic*] violations. His [*sic*] condemners, he [*sic*] may claim, are hypocrites, deviants in disguise, or impelled by personal spite” (p. 668). Study 4 kept the dietary description of the vegetarian targets constant but manipulated how consistently they promoted animal welfare outside of diet, thus indirectly varying how easy it would

be to attack the vegetarian. It was hypothesized that an inconsistent vegetarian would be easier to attack and that such attacks would enable meat eaters to avoid processing their own potentially dissonant state. As a result, they would have less need to endorse dissonance strategies relative to a situation in which they were exposed to a vegetarian consistently acting on behalf of animal welfare.

Method

During the fifteen days the survey was posted, 68 individuals responded. Of the total sample, 50% were females. The mean age of participants was 34.6 ($SD = 9.6$).

In the consistent (*inconsistent*) vegetarian condition, participants read the following:

“Katie is a 19 year old sophomore at a large state university. She is a political science major from the suburbs of Washington DC. Katie has many friends of both genders and loves to go out with them on weekends. Katie is a vegetarian and never eats beef, chicken, pork, or fish under any circumstances. She never wears leather, fur, or buys any products made from animals. (*Even though she is a vegetarian, she wears leather, fur, and sometimes buys products that are made from animals*). Katie’s favorite sport is basketball, and she likes all kinds of music. Katie hopes to work in a political campaign following graduation and perhaps run for political office one day.”

To assess the extent to which participants used different strategies to justify meat consumption, the 27-item meat-eating justification (MEJ) scale (Rothgerber, 2012) was administered to participants. The main analysis focused on overall MEJ ($\alpha = .83$), but analysis was also conducted on the nine MEJ sub-strategies: dissociation, avoidance, pro-meat attitude, denial, hierarchical justification, dichotomization, religious justification, health justification, human destiny/fate justification. All items were scored on a 6-point Likert scale (1 = *strongly disagree*; 6 = *strongly agree*) indicating agreement with the statements.

Results and discussion

Exposure to a consistent vegetarian led participants to report higher MEJ strategies than exposure to an inconsistent vegetarian, $F(9,59) = 2.75$, $p = .009$, $\eta^2 = .30$. A one-way ANOVA indicated that those exposed to a consistent vegetarian scored higher on overall MEJ than those exposed to an inconsistent vegetarian, $F(1,67) = 15.99$, $p = .000$. All individual strategies yielded effects in the predicted direction. Results for each individual strategy are presented in Table 5. These results support the hypothesis that meat eaters will focus on shortcomings of vegetarians – even beyond adherence to their diet – as a way to silence their own guilt related to consuming meat. When exposed to a vegetarian acting inconsistently on behalf of animal welfare, participants felt less need to justify eating meat; presumably, the inconsistencies served to alleviate their dissonance.

Study 5: Anticipated moral reproach and discomfort/belief in animal mind

The first four studies demonstrate that dissonance-reducing strategies to the meat paradox are endorsed following exposure to (1) a vegetarian as opposed to an individual from another diet group and (2) a vegetarian possessing characteristics that make it more difficult to detract from their message as opposed to a vegetarian allowing others to focus on their deficiencies. While important, these demonstrations only offer indirect support for a dissonance-based explanation; that is, while consistent with the notion that vegetarians induce dissonance among meat eaters, they do not provide explicit evidence that participants reacted as they did to

reduce the experience of cognitive dissonance. Such direct evidence would only be provided by exposing meat eaters to a threatening situation involving vegetarians and assessing their emotional states in addition to the endorsement of dissonance-reducing strategies.

A fifth experiment followed this general procedure. In the study, threat caused by vegetarians was made salient for some participants who were asked to anticipate moral reproach from vegetarians (see Minson & Monin, 2012). Following judgments about how vegetarians would evaluate them personally and as a group, those in the treatment condition reported on their emotional state and then made judgments of human–animal emotional similarity (see study 1). It was hypothesized that anticipated moral reproach would activate dissonance among meat eaters, as evidenced by emotional states of tension and discomfort, and that participants would seek to alleviate these emotional states by perceiving greater human–animal dissimilarity relative to a control condition, who made these judgments absent anticipated moral reproach.

Method

During the fifteen days the survey was posted, 78 individuals responded. Of the total sample, 54% were females. The mean age of participants was 35.4 ($SD = 11.5$).

Following Minson and Monin (2012, study 2), in the anticipated moral reproach condition participants were asked the following questions using a response on a 7-point scale ranging from extremely immoral to extremely moral: “I would say I am. . .,” “If they saw what I normally eat, most vegetarians would think I am. . .,” “Most non-vegetarians are. . .,” and “Most vegetarians think that most non-vegetarians are. . .” These questions were intended as a moral threat by forcing participants to contemplate the discrepancy between how they evaluated themselves and how they expected to be evaluated by vegetarians. Two different scores were calculated from each participant’s morality ratings. The first represented the difference between how moral participants expected vegetarians to see them relative to how moral participants perceived themselves. The second represented the difference between participants’ estimates of how vegetarians judged the morality of non-vegetarians relative to how the participants themselves judged the morality of non-vegetarians. These two scores were significantly correlated, $r(33) = .57, p = .001$ and were averaged to create an overall score of anticipated moral reproach, with higher scores indicating greater anticipated moral reproach.

After these questions (or immediately in the control condition), participants were asked to indicate how much they were experiencing eight emotions (on a 7-point scale ranging from *not at all* to *a great deal*). Four of the emotions were distracters; the four emotions relating to possible dissonance included anxiety, nervousness, tension, and discomfort. These items were combined into a single measure of emotion because of strong consistency ($\alpha = 0.91$). Finally, after indicating their emotional state, participants completed the measure of human–animal emotional similarity ($\alpha = 0.88$) that was used in the first study.

Results and discussion

There are two ways to analyze the results; the first is by considering effects based on how strongly individuals anticipated moral reproach, and the second by examining the effect of being exposed to (or not being exposed to) anticipated moral reproach. In the first case, those who reported anticipating the most moral reproach from vegetarians marginally reported experiencing the most negative emotions, $r(33) = 0.33, p = .060$. In the second case, exposure to anticipated moral reproach produced stronger outcomes than exposure to a control condition, $F(2,74) = 4.64, p = .013, \eta^2 = .11$. Specifically,

a one-way ANOVA indicated that those exposed to anticipated moral reproach scored higher on negative emotions and lower in perceived human–animal similarity than those in the control condition, $F(1,75) = 4.08, p = .047$ and $F(1,76) = 7.34, p = .008$. In addition, there was evidence that some of the connection between anticipated moral reproach and human–animal dissimilarity could be explained by negative emotional states: When controlling for emotional state, anticipated moral reproach only led to marginally greater perceptions of human–animal dissimilarity, $F(1,74) = 3.68, p = .059$.

These results provide strong support for the hypothesis that vegetarians create in meat eaters emotional states such as anxiety and tension that are associated with the experience of cognitive dissonance. Consistent with the other studies, vegetarians led to perceptions that would make consuming animal flesh more palatable, in this case, that they share less emotional similarity with humans.

General discussion

On the whole, the five studies lend support for a cognitive dissonance framework that offers one way to understand the experience of meat eaters, especially when it comes to resolving the meat paradox, i.e., the simultaneous desire to treat animals well but then eating them as food. Across the five studies, meat eaters attempted to handle reminders that they consumed animals with a variety of mechanisms ranging from denying animals the capacity for pain, to denying their emotional and cognitive states, to endorsing pro-meat justifications, to reducing perceived choice in eating meat, and to the more apologetic underreporting of how much meat they consume. These effects were initiated by relatively minor manipulations including simply stating that an individual followed a vegetarian diet. Moreover, vegetarians did not advocate for their diet or do anything to overtly criticize omnivores. While perceived superiority in vegetarians by meat eaters is correlated with negative evaluations (Minson & Monin, 2012), it is difficult to imagine the vegetarian targets presented here as seeming to be morally superior.

Studies 2–4 demonstrate that meat eaters will attend to characteristics of vegetarians that may mitigate the threat. So, while vegetarians are generally threatening, they are not all equal in their likelihood of triggering dissonance. Whenever possible, meat eaters may focus on derogating vegetarians to minimize dissonance, thus eliminating the need to endorse one of the other dissonance reducing strategies. Clearly though, vegetarians can produce cognitions and judgments among omnivores that have nothing to do with vegetarians themselves, i.e., their dispositions, attributes, etc.

The present results provide empirical verification for Adams’s (2001) claims that vegetarians produce a host of negative reactions within meat eaters because they activate the inner conflict surrounding meat consumption. In this sense, the findings may help explain the strain and tension between vegetarians and non-vegetarians most acutely experienced by vegetarians. Such conflict, it is suggested here, is not personal or based on individuating characteristics of the actors involved. Rather, discomfort is brought on by what vegetarians represent: a reminder of eating meat, the associated guilt accompanying this reminder, and threat to strategies designed to help omnivores feel better about consuming meat. The scrutiny that vegetarians receive from omnivores, such as questions designed to broadcast any inconsistencies (e.g., “But aren’t plants alive too?” “What do you feed your pets?” “Do you wear leather?”), are not likely motivated by personal cruelty but by personal distress and serve as a mechanism to reinforce the status quo.

The present results also contribute to research demonstrating that reducing meat consumption is not a straightforward task. One version of this approach, mere exposure to pro-vegetarian arguments, has been challenged by research suggesting that individuals are biased processors of information about meat consumption because eating

animal flesh may serve to reinforce notions of masculinity (Rothgerber, 2012; Rozin, Hormes, Faith, & Wansink, 2012). A separate account of persuasion that this study casts doubt upon could be described as the vegetarian version of the contact hypothesis, that more frequent exposure to vegetarians will assist omnivores in reducing or eliminating meat consumption. While such encounters may potentially bring about change (for contact to be successful, a number of conditions must be fulfilled), the present findings suggest that such exposure to vegetarians may only harden pro-meat sentiment though defensiveness and the justifications it produces. The chief barrier to reducing meat consumption is not necessarily a lack of contact with vegetarians, but how to help omnivores work through their defensiveness. Future research attempting to assist in reducing meat consumption should examine how to help meat eaters move beyond resorting to justifications and how to resolve dissonance in more positive ways. Again, it should be noted that it seems insufficient to simply raise the problems associated with meat consumption. For despite recent attention to these adverse consequences, meat consumption is on the rise. Indeed, the present findings may suggest that the negative meat campaign may be backfiring by ultimately increasing dissonance, which is alleviated by justifications that only promote greater meat consumption. This conclusion should be considered carefully though because it is unclear whether exposure to pro-vegetarian arguments produces the same, more, or less dissonance than exposure to vegetarians.

The present results are also highly relevant to better understanding the experience of vegetarians. There has not been a great deal of research on how vegetarians are affected by interactions with omnivores (but see Beardsworth & Keil, 1991, 1997; Jabs, Devine, & Sobal, 1998; Jabs et al., 2000), a potential oversight considering that these experiences may help determine whether one sustains adherence to a meatless diet. The importance of having social networks (e.g., family, friends, membership groups) is an important factor in maintaining a vegetarian diet (Jabs et al., 1998); for example, 95% of their vegetarian sample was involved in a group that explicitly supported vegetarianism. The present work implies that one reason social networks may be important to vegetarians is because of the likely tension experienced in social interactions with omnivores. This tension is significant enough that many vegetarians reported feeling restricted in social settings because of their vegetarianism (Jabs et al., 2000). Some respondents decreased interactions with family members, particularly in events involving food.

Because the conflict within meat eaters is intrapersonal not interpersonal, even well-intentioned or sympathetic omnivores may fail to appreciate their role in contributing to awkward, tense social situations with vegetarians. The negativity would be compounded to the extent that vegetarians misattribute perceived hostility from omnivores; to the degree that vegetarians better understand how dissonance affects meat eaters, they may be better prepared to negotiate these interactions. As it currently stands, in-depth interviews with former vegetarians revealed that one of the primary reasons they returned to eating meat was a lack of support from friends and family (Barr & Chapman, 2002). While the intergroup dynamics between vegetarians and meat eaters may seem benign relative to a number of group identities – membership cuts across family lines, friendships are highly common across group membership, social life is not segregated along meat eating status, no history of violence between the groups, etc. – it is precisely some of this intimacy that creates opportunities for social dissatisfaction. It is imaginable that to some degree, dissonance-influenced interactions with omnivores may propel vegetarians into two concurrent yet seemingly opposite directions, the first being to more highly value and identify with their vegetarianism, the trait causing them social discomfort, and the second to hide this trait from others to avoid social discomfort, i.e., attempts at “passing” by withholding infor-

mation about their dietary status to others (Jabs et al., 2000). Future research exploring the developmental aspects of vegetarianism should examine whether these seemingly contrary preferences can co-exist and more generally, take into account relations with and reactions by omnivores.

Although not its main objective, the present results also suggest that the dynamics of vegetarian-induced dissonance may vary across cultures. Future research is needed to examine the extent to which the current findings can be generalized beyond American participants, to populations where meat consumption and the presence of animal rights organizations are more modest. Finally, it bears mentioning that the present conclusions are based on a series of studies adopting very similar methodologies and which therefore, share limitations. Participants were placed into intentionally artificial situations with little personal meaning. Showing that the independent variables mattered when other factors were held constant does not necessarily indicate that they would affect judgments and perceptions in the real world with many competing stimuli. In addition, participants faced a situation in which they had limited choice in how they managed the situation. In short, how individuals would respond in a more natural environment with a range of cognitive and behavioral options is an unresolved question.

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