

Meat-related cognitive dissonance: The social psychology of eating animals

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Abstract

As the practice of eating animals as meat faces increased scrutiny for its ethical, health, and environmental implications, a subfield devoted to its psychology has begun to flourish. Researchers have been especially interested in understanding how individuals morally care for animals and wish them no harm yet simultaneously eat them as food. Merging theories of cognitive dissonance, moral disengagement, and neutralization, the current review aims to provide a framework of *meat-related cognitive dissonance* (MRCD) that explains this belief-behavior inconsistency. First, we evaluate the existing research on mechanisms that (a) prevent MRCD from occurring and (b) reduce MRCD once it has occurred. Second, we highlight promising avenues for further research on MRCD. The purpose of this review, ultimately, is to synthesize findings from this emerging area of research and to highlight its exciting future directions for the field of social psychology.

1 | INTRODUCTION

As the practice of eating animals as meat faces increased scrutiny for its ethical, health, and environmental implications (Foer, 2009; Pew Commission, 2008; United Nations [UN], 2006), a subfield devoted to its psychology has begun to flourish. Researchers have been especially interested in understanding how individuals effortlessly maintain behavior that many—including in some cases the individuals themselves—deem to be morally troublesome without enduring chronically heightened dissonance and guilt. In its links to basic science, eating animals implicates emotion regulation, motivated reasoning, cognitive dissonance, and moral decision-making. Understanding this basic science, moreover, is critical to addressing pressing societal concerns about the overconsumption of animals. Social psychology, we assert, is well poised to advance knowledge on this theoretically intriguing, societally

important topic. The purpose of the current review is to synthesize findings from this emerging area of research and to highlight its promising future directions.

2 | AMBIVALENCE AND INCONSISTENCY ARISING FROM EATING ANIMALS

Eating meat may seem like a simple, automatic, and unconflicted behavior; most people are not vegetarians—nor do they intend to become so. However, mounting evidence suggests that individuals are deeply conflicted when it comes to eating animals, as their expressed attitudes and behavior toward animals are frequently misaligned.

On the one hand, people express moral concern for animals. Animal suffering is generally held to be disturbing (Allen et al., 2002) and if caused by human actions, deemed deserving of punishment (Vollum et al., 2004). Nearly all Americans claim that animals deserve protection from harm and exploitation, and one-third believe that animals warrant the “exact same rights as people to be free from harm and exploitation” (Gallup, 2015). Majorities want farm animals to be well cared for (Grimshaw et al., 2014), are concerned about their treatment (Gallup, 2015), view modern production systems as cruel and unnatural (Clark et al., 2016), are concerned that factory-farmed animals are treated inhumanely (Clark et al., 2016), and support laws protecting farm animals from cruelty (Zogby, 2003), with nearly half supporting a ban on factory farming and one-third supporting a ban on animal farming entirely (The Sentience Institute, 2017).

Behavior, however, runs afoul of these pro-animal sentiments. An early study poignantly underscores the inconsistency: Although 90% of respondents disapproved of the use of inhumane slaughter methods, only 41% disapproved of eating meat produced from such methods (Braithwaite & Braithwaite, 1982). Rates of vegetarianism are low, estimated at 5% in the United States (Gallup, 2018) and similarly low across Europe (European Vegetarian Union, 2007). Eating animals, in contrast, is an overwhelming norm, with meat consumption reaching record highs in the United States in 2018 (United States Department of Agriculture [USDA], 2018).

The notion that individuals care for animals and wish them no harm yet simultaneously eat them has been termed the *meat paradox* (Loughnan et al., 2010) and has framed much of the psychological approach to meat consumption. Recently, Rothgerber (2020a) has proposed a framework to explain this belief-behavior inconsistency, based on the concept of *meat-related cognitive dissonance* (MRCD). This framework has roots in cognitive dissonance theory (Festinger, 1957), which involves three components: (1) an inconsistency exists and (2) generates an aversive arousal (i.e., the cognitive dissonance state) that will then (3) motivate inconsistency-reduction strategies (Vaidis & Bran, 2018). According to Rothgerber’s (2020a) framework, a meat-related cognitive dissonance state occurs when one (a) recognizes one’s behavior as a meat-eater and (b) realizes that eating meat may cause some form of harm (e.g., to animals, the environment, personal health, etc.). Because the existing literature has been primarily structured around the meat paradox, here we focus on animal welfare-related triggers and cognitions.

The MRCD framework implicates both basic and applied psychology, applying classical dissonance theory to what is increasingly recognized as an important social issue. It does not seek to advance dissonance theory per se, but rather offers a rich exposition of dissonance reduction as related to meat consumption. In doing so, the framework borrows insights from Bandura’s (1990, 1999) theory of moral disengagement and Sykes and Matza’s (1957) work on techniques of neutralization. Bandura (1990, 1999) suggested that while an individual’s moral standards typically govern their actions, cognitive processes can disengage these self-sanctions and allow for inhumane conduct. Sykes and Matza (1957) examined justifications of deviant behavior that neutralize self-disapproval and condemnation from others. Processes proposed by these models converge on three basic guilt-reducing mechanisms enabling problematic behavior: (1) hiding or avoiding the injury, (2) denying one’s role/responsibility in causing harm, and (3) denigrating the victim. The MRCD framework also assimilated and elaborated on (a) strategies identified by Bastian and Loughnan (2017), who articulated how “active” dissonance reduction mechanisms facilitate “passive” dissonance avoidance, and on (b) techniques identified by Joy (2011), who

conceptualized meat consumption through the notion of *carnism*: a dominant ideology conditioning people in a culture to consume certain animals (e.g., chickens)—but not others (e.g., dogs)—as food.

The MRCD framework proposes numerous mechanisms individuals employ to suppress moral inconsistencies inherent in eating animals when carnism's status as a dominant ideology becomes threatened. Here, we focus on dissonance-reduction strategies related directly to meat and/or animals outside of general self-affirmation, as consideration of one's engagement in prosocial behavior is not unique to MRCD. The mechanisms delineated here represent our comprehensive understanding to this point, but this does not preclude the identification of additional MRCD reduction strategies in the future.

We share the assumption held by Bastian and Loughnan (2017) that it is unlikely that individuals engage in dissonance reduction every occasion they eat meat. We also agree that eating meat is a ritualized, ingrained habit often accompanied by little to no conscious reflection. Without salient triggers, decreased cognitive dissonance accompanies chronic meat-eating. Three such triggers include being reminded of meat production, being exposed to information about the welfare of farm animals, and connecting these animals to meat served on a plate. As shown in Figure 1, the MRCD framework proposes that because of MRCD's unpleasant psychological consequences, meat-eaters are motivated to prevent it from occurring and achieve this aim through three strategies: avoidance, willful ignorance, and dissociation. Each strategy is considered in turn. Following this, we review strategies to reduce MRCD once it has occurred and then highlight key future directions.

3 | MECHANISMS TO PREVENT MRCD

3.1 | Avoidance

Because MRCD produces an unpleasant emotional state, meat-eaters are motivated to *avoid* enduring it by refraining from acknowledging animal welfare, environmental, or health concerns with meat consumption. This follows from Festinger's (1957) premise that individuals actively avoid situations and information that increase dissonance. Avoidance has become a cultural norm protected by powerful institutions (Bastian & Loughnan, 2017). For example, avoidance is supported by the physical isolation of factory farms, by institutions that make gaining information about farm animal welfare nearly impossible (e.g., legal guidelines protecting the privacy and secrecy of factory farms; Foer, 2009), and by media socializing children to view meat as originating from happy animals living on peaceful farms (Plous, 1993). If individuals allow themselves exposure to information about farmed animals, social pressure discourages spreading this knowledge to others, as the very topic of factory farms is considered taboo (Iacobbo & Iacobbo, 2006).

3.2 | Willful ignorance

Given these socially ingrained protections, it is not surprising that individuals know so little about the treatment of animals eaten as meat (Mayfield et al., 2007; Te Velde et al., 2002; Worsley et al., 2015). Compared to vegetarians, meat-eaters display less knowledge of typical farming practices and underestimate the degree of suffering inflicted on livestock (Hestermann et al., 2018). The MRCD framework interprets this ignorance as largely motivated—as a *willful ignorance* intended to prevent individuals from experiencing aversive arousal from MRCD. In several investigations, interviewees explicitly claimed they were uninformed of farming practices and animal welfare because they wished to remain ignorant (Knight et al., 2003; Onwezen & van der Weele, 2016) and because they knew that such information would make it more emotionally difficult to purchase meat (Knight & Barnett, 2008; Miele, 2010; Te Velde et al., 2002). Moreover, the less that respondents know about various animal use procedures, the more they support these procedures (Knight et al., 2003). In this sense, willful ignorance is a second line of

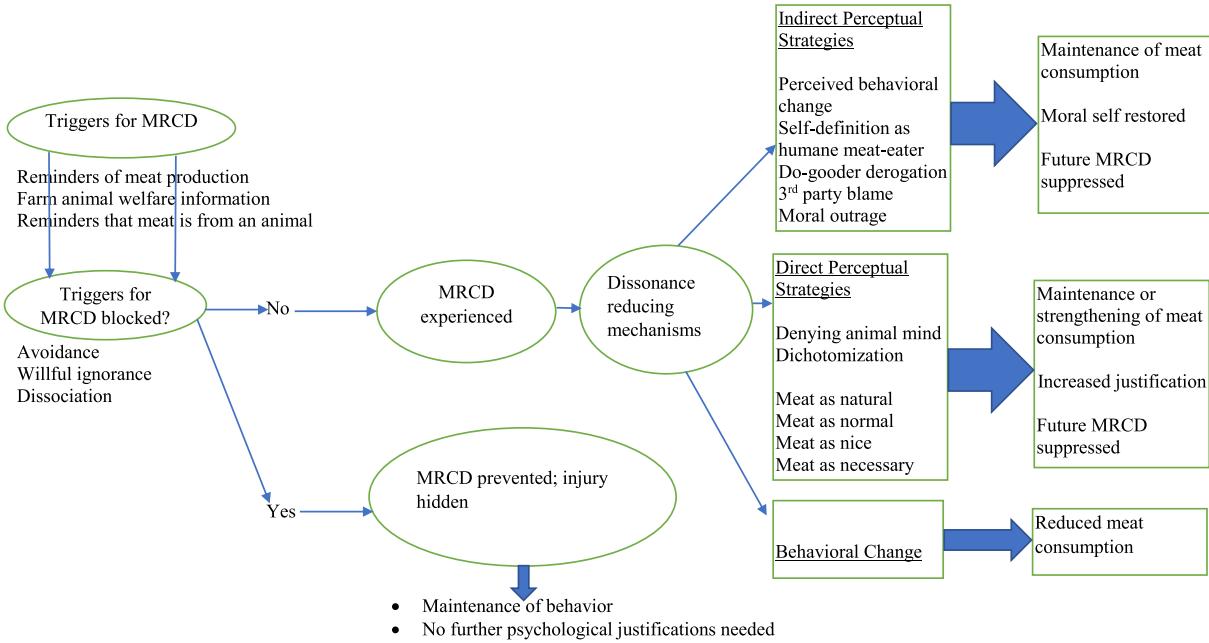


FIGURE 1 The MRCD Framework (adapted from Rothgerber, 2020a)

defense against exposure to information about farm animal welfare, serving as an individual-level counterpart to the structural forces enabling avoidance of MRCD.

3.3 | Dissociation

Individuals can also prevent MRCD by pretending that no animal is involved during meat consumption. This disconnect is accomplished by *dissociating* the animal from the food product. One way that individuals render animals absent from their consciousness is to change language about them as food products (Adams, 1990; Plous, 1993; Serpell, 1986), substituting “bacon,” “hamburger,” and “sirloin” for the animal flesh (i.e., pig, cow) people consume. The need for verbal concealment decreases the further the species is from a human being; thus, “chicken” and “fish” are called by their actual animal names (Serpell, 1986).

Supporting this dissociation strategy, pieces of meat that clearly remind the consumer that they were from an animal—e.g., by being bloody or resembling body parts, such as eyes, tongues, or brains—generate more disgust (Kubberod, Ueland, et al., 2002) and are unwillingly handled by consumers (Kubberod, Ueland, Rødbotten, et al., 2002). Consumers resist thinking that meat comes from a live animal (Mayfield et al., 2007) and are less likely to purchase meat when explicitly reminded about meat’s animal origins (Hoogland et al., 2005). When dissociation is disrupted experimentally—for example, by depicting meat as having a head as opposed to minced—people report less willingness to eat the animal, more disgust, and greater empathy and perceived animal capacity (Kunst & Hohle, 2016; Tian et al., 2016).

4 | MECHANISMS TO REDUCE ONGOING MRCD: INDIRECT AND DIRECT COGNITIVE CHANGE

Although the MRCD prevention mechanisms reviewed above provide a shield against entering a dissonance state, they are less effective once MRCD has been triggered. Through what strategies, then, do meat-eaters reduce an active state of dissonance?

Of the two broad ways to reduce dissonance in classical dissonance theory (Festinger, 1957)—decreasing discrepant cognitions or increasing consonant cognitions—it seems unlikely that individuals would choose the former, based on the earlier-reviewed research. For this would involve the individual either (a) convincing themselves that they do not care about the well-being of animals or (b) changing their eating behavior to be consistent with their pro-animal beliefs (i.e., giving up meat).

Rather than changing behavior, individuals are likely to reduce MRCD through cognitive change by adding consonant cognitions in the form of motivated justifications, rationalizations, and other strategic attitudes that explain away the troubling nature of eating animals (what Bastian & Loughnan [2017] referred to as “active” dissonance reduction strategies). Once MRCD has been activated, these consonant cognitions take two distinct forms: indirect and direct strategies.

4.1 | Indirect strategies

Through indirect strategies of dissonance reduction, individuals can exclude their self from meat-eating or otherwise bolster their moral identity, including by denigrating or blaming other parties. By disconnecting the self from the moral implications of eating meat, individuals reduce MRCD and protect themselves from their morally conflicting behavior (Bastian & Loughnan, 2017). We consider five such strategies.

4.1.1 | Perceived behavioral change

Dissonance may be reduced by convincing oneself and others that one does not consume a large amount of meat, thus minimizing the perceived moral troubles of one's eating behavior. In one study, simply expecting to watch a documentary about the ethics of meat production led women (but not men) to lower their reported meat consumption (Rothgerber, 2019). Attesting to the motivated nature of self-report, personal claims of reduced meat consumption (e.g., Neff et al., 2018; The Sentience Institute, 2017) exceed behavioral data provided by the USDA.

This *perceived behavioral change* strategy may even affect whether people self-identify as vegetarian. Numerous studies have documented that many people who claim they are vegetarian simultaneously acknowledge that they eat meat (see Rothgerber, 2014a). Although some of this discrepancy may arise from genuine confusion about what defines a vegetarian, it likely also reflects motivated self-identification that serves to reduce guilt.

4.1.2 | Self-definition as a humane meat-eater

In a related MRCD reduction strategy, one may proclaim that even if one eats meat that *comes* from animals, the meat that one eats does not *harm* animals because it is humanely produced (see Singer & Mason, 2006). Because such *humane meat eaters* are less likely to perceive their diet as something that they need to adhere to strictly (Rothgerber, 2015), identifying with the humane meat movement may flexibly reduce dissonance among individuals who still consume meat regularly.

4.1.3 | Do-gooder derogation

Through upward social comparison, individuals can feel threatened by those they perceive as taking moral positions that they themselves are unwilling to adopt (Monin et al., 2008; O'Connor & Monin, 2016). By symbolically rejecting the moral permissibility of eating animals, vegetarians seemingly qualify as "moral rebels" (Zane et al., 2016) and are subject to denigration. They threaten the carnist ideology facilitating meat consumption (see Joy, 2011) and reject traditional values that associate holidays (e.g., Thanksgiving) with emblematic animal-based foods (Beardsworth & Keil, 1991, 1992; Jabs et al., 2000).

Indeed, vegetarians are evaluated as or more negatively than are commonly studied targets of prejudice, with only drug addicts being evaluated more negatively (MacInnis & Hodson, 2017). Moreover, nearly half of meat-eaters freely generate negative associations of vegetarians (Minson & Monin, 2012). Consistent with their concept of "do-gooder derogation," Minson and Monin (2012) found that priming meat-eaters to evaluate vegetarians' perceived moral superiority enhanced meat-eaters' endorsements of vegetarians' negative qualities. Manipulating such anticipated moral reproach from vegetarians also leads meat-eaters to report greater dissonance-related negative emotions (Rothgerber, 2014b). Vegetarian-induced dissonance, notably, is reduced when critiquing or focusing on deficiencies of the vegetarian (e.g., vegetarians who eat meat occasionally, Rothgerber, 2014b).

4.1.4 | Third-party blame

While devaluing vegetarians distracts individuals from considering their own moral shortcomings, another MRCD-reducing strategy is to obscure personal responsibility for the mistreatment of farmed animals by placing *third-party blame* on other entities in the food system. Consumers generally claim that they are powerless to improve animal welfare standards (Harper & Henson, 2001); only a small minority believe that farm animal welfare is primarily a

matter for consumers (European Commission, 2015). Individuals instead can place responsibility on governments for failing to implement effective laws and on retailers for failing to offer humanely produced meat (Harper & Henson, 2001; Miele, 2010; Te Velde et al., 2002).

4.1.5 | Moral outrage

Individuals may also reduce MRCD by expressing *moral outrage* at third-party transgressors in the food system or even at others who mistreat animals outside the food context. Such moral outrage is partially motivated by an effort to assuage personal guilt and to cast dispersions on others (Rothschild & Keefer, 2017). One may express defensive outrage over the treatment of farmed animals to restore a moral identity, thus reducing MRCD by recognizing that while one's eating behavior is problematic, it is not truly controllable. This is related to the phenomenon of distancing, a way of coping with ethical dissonance by hiding one's own moral violation while pointing to other people's moral failings (Barkan et al., 2015). When reminded of meat's problematic nature, meat-eaters express greater moral outrage at a third party responsible for animal abuse, an effect negated by self-affirmation (Rothgerber, Rosenfeld, Keiffer, et al., 2020). Expressing moral outrage may enable meat-eaters to feel less guilt and to uphold the integrity their moral identity (Rothgerber, Rosenfeld, Keiffer, et al., 2020).

4.2 | Direct strategies

Although indirect MRCD reduction strategies can alleviate negative arousal from eating meat and protect the moral self, they do not constitute endorsements of either meat-eating or speciesism (the assignment of different moral worth based on species membership; Caviola et al., 2018). Thus, indirect strategies do not provide meat-eaters with increased justifications for their behavior. In contrast, direct strategies involve an unabashed defense of meat-eating without apology. Several recently developed scales outline and assess various justifications individuals endorse to defend meat-eating (e.g., Graça et al., 2015, 2016; Monteiro et al., 2017; Piazza et al., 2015; Rothgerber, 2013). For present purposes, the consonant cognitions that these scales identify can be grouped into two categories: those focused on animals themselves as entities separate from meat, and those focused on meat itself. Endorsement of these justifications helps individuals feel less conflicted about eating meat, hence facilitating continued consumption (Piazza, 2020).

4.2.1 | Animal-based reduction: denial of animal mind and dichotomization

One common means of reducing MRCD is to *deny animal mind*—that is, to claim that farm animals do not think, feel, and suffer the same way as humans do. If targets are less capable of suffering, then harming them seems less morally troublesome (Gray et al., 2012). Denying certain animals mind reduces the aversive arousal brought on by eating them. In this view, speciesism is strategically malleable to suit an individual's motivational needs.

Several experiments directly support this notion. For example, eating meat during an experiment, being reminded of a link between meat and animal suffering, and expecting to consume an animal in the imminent future all have led participants to deny animals sensory and intellectual capacity (Bastian et al., 2012; Loughnan et al., 2010). Speciesism scores increase among people who are reminded of the shared similarity between pigs and humans (Rothgerber, Rosenfeld, Pierce, et al., 2019). When Tian et al. (2016) induced dissonance by breaking the dissociation between animal and meat, participants attributed less mind to cows; in Rothgerber (2014b), exposing participants to committed vegetarians produced a similar lowering of perceived animal capacity.

These experiments reinforce findings that meat-eaters perceive less human-animal similarity (Bilewicz et al., 2011) and believe that animals possess lower mental capacities (Ang et al., 2019) than do vegetarians. They are also supported by work showing that the more meat-eaters experience ambivalence toward meat, the more they downplay the ability of animals to possess emotional and intellectual states (Buttlar & Walther, 2018), and that greater meat consumption is related to denying animal pain and suffering (Monteiro et al., 2017; Rothgerber, 2013). Together, these strategic cognitions help eliminate aversive consequences for behavior and thus enable meat-eaters to resolve conflicts between eating animals and being concerned for animal welfare; in Bandura's (1999) terminology, they help individuals achieve moral disengagement through denigrating the victim. When this process is disrupted and individuals think about psychological attributes of animals, they report greater disgust at the thought of eating animals (Ruby & Heine, 2012).

Another animal-centered strategy to reduce dissonance involves a more subtle form of debasement that allows individuals to maintain positive connections with selected animals while justifying consuming others. *Dichotomizing* animals into those we love and those we eat explains myriad inconsistencies in the way animals are treated—including why Americans express outrage at dogs being eaten in some cultures while simultaneously disregarding the moral worth of chickens, cows, and pigs in their own culture (Caviola et al., 2018; Herzog, 2010; Joy, 2011). Recent evidence suggests that the aforementioned denial of animal mind among meat-eaters applies only to animals that individuals consume, not to other animals such as pets (Ang et al., 2019). Subtly creating different categories of animals based on human eating behavior is notably a key mechanism to facilitate meat consumption among children (Anderson & Henderson, 2005; Plous, 1993; Stewart & Cole, 2009).

4.2.2 | Meat-based reduction: meat as natural, normal, nice, and necessary

Some dissonance-reduction strategies focus on meat itself, with or without recognizing the animals involved; they direct attention to meat consumption, rather than meat production. Four prominent pro-meat justifications are claims that eating meat is *natural, normal, nice, and necessary* (Joy, 2011; Piazza et al., 2015). The meat-as-natural rationalization focuses on human relationships with animals and depicts the relationship—whether it be through religious or evolutionary forces—as one characterized by human dominance and animal subordination (Piazza et al., 2015; Rothgerber, 2013). The meat-as-normal justification works on social support and social norms, which can act as consonant cognitions against dissonance (Cooper, 2007; McKimmie et al., 2003; Stone & Cooper, 2001; Stroebe & Diehl, 1981) and help placate guilt by social reassurance. MRCD can be lessened, therefore, to the extent that individuals view meat-eating as a normal human activity, a deeply ingrained habitual behavior that largely transcends culture. The meat-as-nice justification emphasizes gustation and that meat is simply too delicious to avoid. The meat-as-necessary justification argues that meat is nutritionally essential for optimal well-being, thus abdicating the individual from responsibility for harming animals. Lacking the freedom to avoid a dissonant act serves as an important consonant cognition (Linder et al., 1967), and the New Look model of dissonance posits that individuals must feel personally responsible for the aversive event for dissonance to occur (Cooper & Fazio, 1984). Without responsibility, disapproval of self or others is sharply reduced as a restraining influence (Sykes & Matza, 1957). Endorsement of these four pro-meat justifications is associated with greater meat consumption, less willingness to try meat alternatives, greater commitment to continue eating meat, and less meat-related guilt (Graca et al., 2015; Piazza et al., 2015; Rothgerber, 2013).

4.3 | The temporality of cognitive strategies

The indirect and direct cognitive strategies work dynamically to diminish MRCD in two ways: In the immediacy, they neutralize it by excluding or bolstering the moral self (indirect) or by justifying meat consumption (direct); in

the long term, the effect of these indirect or direct defenses is to help insulate the individual from future MRCD. That is, once these mechanisms are used to reduce an ongoing MRCD, there should be some continued protection as dissonance gradually declines in the absence of a trigger. Like Bastian and Loughnan (2017), the MRCD framework assumes that once dissonance is reduced, other strategies to reduce it likely are not needed. In addition, we note that boundaries between categories of MRCD avoidance and reduction are distinct but not entirely strict. That is, reduction strategies could be useful to avoid experiencing MRCD in the first place, and avoidance strategies could reduce MRCD once it is experienced.

5 | FUTURE DIRECTIONS

Although research on the psychology of eating animals has grown considerably in the last decade, many questions still await empirical investigation, ranging from the more theoretical to the more practical. Below, we highlight key future directions.

5.1 | Meat polarization

To curtail meat consumption, activists have increasingly pursued advertising campaigns to increase awareness of animal suffering and to link animal agriculture with climate change. These efforts increase the perceived moral costs of eating animals and likely cause meat-eaters to experience greater aversive arousal from their eating behavior. This may produce a polarizing, unintended effect: Individuals less attached to eating animals will lower their meat consumption to reduce MRCD, whereas individuals more attached to eating animals will increase their meat consumption as a consequence of greater commitment to, and accessibility of, the direct cognitive distortions they employ to reduce MRCD. The notion that moral justifications of eating animals makes the behavior become more attractive is a critical premise of the MRCD framework (also see Bastian, 2019; Hestermann et al., 2018), and one that needs further testing. Considering that the moralization of eating animals may produce polarizing effects can help explain American societal trends that overall per capita meat consumption is at a record high (USDA, 2018) while consumption of plant-based meat substitutes is simultaneously increasing (<https://www.marketsandmarkets.com/PressReleases/meat-substitutes.asp>).

5.2 | Reducing meat consumption

The MRCD framework makes two general propositions concerning interventions to reduce meat consumption: (1) any tactic that prompts individuals to consume less meat—irrespective of whether it appeals to health, environmental, or ethical reasons—is desirable, as reductions in one's meat consumption should reduce one's motivated use of cognitive strategies and likely in turn improve attitudes toward speciesism, reduce the perceived necessity of meat-eating for health, and reduce denial of animal agriculture's environmental impact; and (2) actors and stakeholders wishing to curtail meat consumption would benefit from confronting and delegitimizing the specific mechanisms by which meat-eaters bolster their meat-eating when its permissibility is questioned. There have been few published interventions testing this latter approach. In one, Wang and Basso (2019) found that thinking of pigs in humanizing terms—a manipulation countering speciesism and the denial of animal mind—led individuals to have less favorable attitudes toward pork, to feel more guilty about consuming pork, and to be less likely to buy or eat pork.

Research on interventions has generally found disrupting meat consumption to be a difficult endeavor. A review of 24 studies reporting on 59 interventions concluded that neither providing information on health or

environmental consequences of eating meat nor highlighting animal suffering in meat production had any influence on eating behavior (Bianchi et al., 2018). Some interventions, such as individual lifestyle counseling (Schiaffon et al., 2015) and daily text messaging (Carfora et al., 2017), have shown short-term success, but the feasibility of some of these efforts is unclear, as is the extent to which their success is reliant on younger participants, who are likely more open to dietary change; others (e.g., Palomo-Vélez et al., 2018) show the promise of certain appeals but do not measure actual behavioral change.

There is likely efficacy in targeting different MRCD strategies in different populations. For example, framing messages about the environmental impact of eating meat around individuals' values can impact attitudes toward meat consumption (Graham & Abrahamse, 2017), and tailoring information to participants' appropriate stage of self-regulated behavioral change can reduce meat consumption (Klöckner & Ofstad, 2017).

Next, we consider MRCD-related interventions on the basis of two components: individual differences and dissonance motivation.

5.2.1 | Individual differences

Given the importance of which particular mechanisms are employed to negotiate MRCD, future research should investigate individual differences among meat-eaters that may predict these choices. Gender serves as a model example, as numerous studies have found that gender is the strongest predictor of attitudes toward animals and consumption of animals (e.g., Gossard & York, 2003; Vollum et al., 2004), with women expressing more disgust and more negative attitudes toward eating meat than men (Kubberod, Ueland, et al., 2002; Kubberod, Ueland, Rødbotten, et al., 2002). Women find it more difficult to justify eating animals; give less endorsement to direct cognitive strategies that reduce MRCD; and prefer prevention and indirect strategies such as avoidance, dissociation, and perceived behavioral change (Rothgerber, 2013, 2019). Conversely, men prefer to reduce MRCD by endorsing pro-meat justifications and denying animal mind (Piazza et al., 2015; Rothgerber, 2013).

Although individual-differences approaches have begun to inhabit the literature on eating animals (e.g., Graca et al., 2015; Hopwood & Bleidorn, 2019; Onwezen & van der Weele, 2016; Pfeiler & Egloff, 2018), little is known beyond gender about what predisposes some individuals to reduce MRCD behaviorally, to engage in indirect or direct cognitive strategies, or to choose one prevention strategy over another. Individuals who endorse ideologies such as right-wing authoritarianism, social dominance orientation, and political conservatism are more likely to hold negative animal welfare attitudes, to justify the exploitation of other species, to tolerate animal cruelty, and to report high levels of meat consumption (Dhont & Hodson, 2014; Dhont et al., 2016; Hoffarth et al., in press); thus, differences in values likely affect how individuals negotiate MRCD, but this remains untested. To the extent that MRCD involves deeming that one's behavior falls short of personal or normative standards, and that culture affects these standards, it seems likely that MRCD is experienced differently depending on one's cultural background. For example, following exposure to visual stimuli making the animal origin of meat explicit leads French—but not Chinese—participants to rate cows as being lower in agency-related mental states (Tian et al., 2016). What specifically triggers MRCD may differ culturally, as has been shown in differential cultural sensitivity to dissociation (Kunst & Palacios Haugestad, 2018; Mayfield et al., 2007). It is also possible that culture shapes the relative popularity of strategies aimed at resolving MRCD.

In terms of interventions, when targeting women, individuals holding values encouraging empathy toward animals, and individuals less attached to eating meat, actors and stakeholders working to decrease meat consumption should likely target prevention and indirect cognitive strategies, specifically trying to remind individuals that they consume regular amounts of meat derived from an animal that is treated inhumanely. Increasing MRCD in this population may be more likely to prompt behavioral change than in other populations, as the cost of maintaining dishonest beliefs is potentially high and reduction strategies focused on denigrating animals would seemingly be distasteful.

When targeting men, individuals holding more conservative attitudes discouraging empathy toward animals, and individuals more committed to eating meat, triggering MRCD is likely to backfire, as such individuals would likely respond with motivated cognitions directly reducing the cognitive dissonance state, resulting in even greater subsequent meat consumption. Trying to define meat-eating as an immoral activity may, therefore, cause those already favorable to meat-eating to consume even more meat. For political conservatives, it may be useful to frame messages to appeal to conservative values of purity (i.e., how contaminated and polluted factory farmed animals are with antibiotics, hormones, unnatural feed, and other toxins, and how the industry leads to a contaminated and polluted physical environment), an approach successful in Feinberg and Willer's (2013) study of attitudes toward the physical environment. In general, the MRCD framework would predict that frames are more likely to succeed with those highly committed to eating meat to the extent that they match other values held by such individuals and that they provoke as little MRCD as possible, lest the intervention potentially increase motivated justifications and subsequent meat-eating.

5.2.2 | Dissonance motivation

The specific source of arousal in MRCD is unclear, a point of contention for cognitive dissonance theory more generally (see Cooper, 2007). This has relevance for interventions because understanding what specific factors activate MRCD likely can clarify how individuals will resolve the MRCD.

As evident in our description of the indirect cognitive strategies, we believe that MRCD inherently involves threats to the self and is intertwined with moral identity. According to self-based modifications, the cognitive dissonance state occurs when an individual's behavior is inconsistent with their self-concept (self-consistency; Aronson, 1968), or when it threatens their sense of self as worthy, morally rectitude, or competent (self-affirmation; Steele, 1988). From these accounts, MRCD may arise from the knowledge that "I eat meat," along with a belief that "compassionate people don't hurt animals." In self-based accounts, the self-consistency view would connect dissonance reduction to targeting the inconsistency responsible for the threatened self-conception (e.g., moral outrage, emphasizing that one does nice things for non-consumed animals—a process relying on dichotomization). Meanwhile, self-affirmation accounts (and more broadly, the meaning maintenance model—see Proulx et al., 2012) would emphasize that individuals may consider any good actions that they do, even behavior unrelated to meat-eating itself, an example of moral licensing (Barkan et al., 2015). Whether self-consistency or self-affirmation is involved, prevention mechanisms such as avoidance, willful ignorance, and dissociation would also help protect the self from recognition that one is doing something unworthy and immoral when eating meat.

While we regard it as less influential, it is also possible that classical dissonance theory (Festinger, 1957) focusing on inconsistency ("I eat meat," incongruent with the recognition that "I don't like to hurt animals") is relevant in some examples of MRCD, in which case all of the reviewed prevention and reduction strategies would be hypothesized to alleviate the cognitive dissonance state because they all (a) serve to avoid thinking about eating meat or animal welfare (i.e., the prevention strategies), (b) qualify as consonant cognitions (i.e., the strategic cognitions to reduce MRCD), or (c) reduce discrepant cognitions (i.e., behavioral change).

A third potentially relevant version is The New Look model of dissonance (Cooper & Fazio, 1984), focusing on behaviorally driven aversive consequences individuals want to avoid (Cooper & Worchel, 1970; Goethals & Cooper, 1972) for which they feel personally responsible (Beauvois & Joule, 1981). From this perspective, MRCD could arise from knowledge that "I eat meat" along with a belief that "eating meat harms animals," provided one perceives oneself to have made the choice to eat meat freely and that one believes animals are harmed from one's food choice. If concerns with aversive consequences motivate MRCD, then any strategy rendering the consequences of behavior non-aversive would be preferred (e.g., denying animal mind, avoidance, willful ignorance, dissociation, perceived behavioral change), as would strategies enabling the denial of personal responsibility (e.g., meat as necessary, moral outrage).

In considering the source of arousal in MRCD, we have focused primarily on harm to animals throughout the present review; this reflects the emphasis of the field. Cognitive dissonance primed by eating animals, though, need not be restricted to animal welfare; it may also stem from concerns about meat's health and environmental effects. Future research should examine these alternative motivations for meat abstention and dissonance motivation associated with each.

5.3 | Developmental aspects of eating animals

Research on eating animals has largely focused on adult populations, yet there are compelling reasons to shift focus toward its development aspects. Theoretically, it is worthwhile to study how young children process moral dilemmas that activate dissonance in adults. Practically, studying the experience of young meat-eaters may offer insights into interventions before meat-eating and dissonance reduction become chronic and habitual. Animals play an important role in the socialization of children (Plous, 1993), and children often form close relationships with animals (Covert et al., 1985). That children adore animals yet still regularly eat meat before they appreciate that they are eating the carcass of an animal suggests that this realization may be an emotionally intense experience for them.

Most children, though, do not abandon meat consumption following such a realization (Amato & Partridge, 1989; Pallotta, 2008). MRCD experienced by the majority of children upon learning the animal origin of meat is likely, therefore, to be resolved through psychological techniques including dichotomization, dissociating the animal from meat, and dissociating the animal from harm and suffering (Rothgerber, 2020b), but these notions warrant further testing. There are of course some children who reduce dissonance behaviorally by becoming vegetarians (Hussar & Harris, 2010), but it is unclear what differentiates them from others. Harris (2012) has identified several possibilities awaiting further investigation: Such children may possess greater empathy toward animals than their peers, be more prone to believing that animals can suffer, or find it more difficult to suppress thoughts of animal suffering when they view meat.

5.4 | The need for a psychological approach

Is a psychological approach to studying eating animals even needed? One may speculate that meat consumption will decline not through attitudinal transformation, but through technological advances in plant-based substitutes and lab-grown, "in-vitro" meat. Setting aside that the study of eating animals offers theoretical promise for better understanding basic social psychological phenomena—including emotion regulation, motivated reasoning, cognitive dissonance, and moral decision-making—this critique neglects the importance of such psychological processes in shaping people's reactions to alternatives to "real meat" in society.

As meat alternatives become more prominent, accessible, and visible, MRCD prevention strategies such as avoidance and dissociation will likely become harder to maintain, and MRCD should heighten collectively. This may produce meat polarization: For some, meat consumption may decline; but for those more attached to meat, greater reliance on motivated cognitions to reduce the cognitive dissonance state may ultimately increase meat consumption. One may speculate that committed meat-eaters would be less likely to sample or purchase these meat alternatives because in doing so, they undermine their cognitive strategies and thus anticipate experiencing increased MRCD on future occasions when they do consume meat.

Through shifting norms and technological advancements, common ways for humans to consume meat are taking leaps in new, previously unfathomable directions. With a rigorous understanding of the social psychology of eating animals, we not only advance our theoretical understanding of cognition and behavior but also generate indispensable insights into a dynamically evolving food system.

ACKNOWLEDGMENTS

The authors would like to thank E. J. Masicampo, Brock Bastian, and an anonymous reviewer for their insightful comments on earlier versions of this manuscript.

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How to cite this article: Rothgerber H, Rosenfeld DL. Meat-related cognitive dissonance: The social psychology of eating animals. *Soc Personal Psychol Compass*. 2021;1–16. <https://doi.org/10.1111/spc3.12592>