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Understanding the Process of Moralization: How Eating Meat Becomes a Moral Issue

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A large literature demonstrates that moral convictions guide many of our thoughts, behaviors, and social interactions. Yet, we know little about how these moral convictions come to exist. In the present research we explore *moralization*—the process by which something that was morally neutral takes on moral properties—examining what factors facilitate and deter it. In 3 longitudinal studies participants were presented with morally evocative stimuli about why eating meat should be viewed as a moral issue. Study 1 tracked students over a semester as they took a university course that highlighted the suffering animals endure because of human meat consumption. In Studies 2 and 3 participants took part in a mini-course we developed which presented evocative videos aimed at inducing moralization. In all 3 studies, we assessed participants' beliefs, attitudes, emotions, and cognitions at multiple time points to track moral changes and potential factors responsible for such changes. A variety of factors, both cognitive and affective, predicted participants' moralization or lack thereof. Model testing further pointed to two primary conduits of moralization: the experience of *moral emotions* (e.g., disgust, guilt) felt when contemplating the issue, and *moral piggybacking* (connecting the issue at hand with one's existing fundamental moral principles). Moreover, we found individual differences, such as how much one holds their morality as central to their identity, also predicted the moralization process. We discuss the broad theoretical and applied implications of our results.

Keywords: behavior change, moral cognition, moral convictions, moral emotions, moralization

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What we hold to be moral or immoral dictates many of our thoughts, beliefs, and behaviors. When something resides in the moral domain, it takes on unique properties beyond those of typical attitudes (Skitka, Bauman, & Sargis, 2005; Tetlock, Kristel, Elson, Green, & Lerner, 2000). We experience our moral convictions as objective truths or facts. In the same way 2 plus 2 equals 4 and not 5, we experience moral convictions as inherently right or wrong, with no room for negotiation (Skitka, 2010). We tend to hold our moral convictions as universally applicable. Regardless of individual preferences, social conventions, or cultural differences, all individuals should share this same moral conviction, and those who do not must be morally suspect (Skitka et al., 2005; Turiel, 1983).

Moral convictions have a profound effect on individual and social behavior (e.g., Skitka et al., 2005; Skitka & Bauman, 2008). They bind like-minded people together, engender unwavering commitment to groups, and facilitate collective action and social order (Ellemers & van den Bos, 2012; Haidt, 2001, 2012). They compel us to place our group's interests above our own, and often lead to great personal sacrifices for the sake of others (Greene, 2014; Haidt, 2012). But because our moral convictions are so greatly internalized, they leave little room for negotiation or compromise, often resulting in impasses and polarization (Ditto & Koleva, 2011; Feinberg & Willer, 2013, 2015). History and politics have shown us that such divides frequently become the source of stigmatization, dehumanization, and even aggression against those who do not share our moral worldviews (Opotow, 1990; Skitka et al., 2005; Skitka & Morgan, 2009; Tetlock et al., 2000). As such, the moral convictions individuals and societies hold are fundamental to both what makes humanity thrive as well as what makes it suffer.

As fundamental as these consequences of holding moral convictions are to human life, it is surprising how little we know about the process by which these moral convictions come to exist, gain strength, and solidify. Overall, we know very little about *moralization*—the process in which something that was previously morally neutral gets imbued with moral properties (Rozin, 1999). It is through this process that individuals elevate social issues, policies, behaviors, even objects to a moral and sacred standing, and formulate their concomitant moral convictions. In the present research we aim to answer questions about moralization: How does moralization occur? What triggers it, facilitates it, and deters it from happening? Does it occur suddenly or gradually over time?

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To do so, we begin by reviewing literature that provides potential insights into the process of moralization. From this, we advance the Push–Pull Model of Moralization (PPMM) wherein moral emotions and moral cognitions function to push individuals to moralize while hedonic motivations and dissonance reductions strategies hinder moralization by pulling individuals to not moralize. Then, we test our proposed model by tracking the psychological changes (or lack thereof) that individuals experience over time as they confront the moral implications involved in killing animals so humans can eat their meat.

Moral Emotions

The moral psychology literature demonstrates that emotions and morality are inherently linked (Cohen, Wolf, Panter, & Insko, 2011; Damasio, 1994; Haidt, 2003; Mullen & Skitka, 2006). When presented with morally questionable behaviors, those for whom such behavior elicits a moral emotional response are substantially more likely to judge the behavior as immoral (e.g., Horberg, Oveis, Keltner, & Cohen, 2009). In fact, Haidt's (2001) Social Intuitionist Model argues that affect-laden moral intuitions are the basis of moral judgment, and research has found that when pushed to explain their moral judgments, individuals are often unable to provide a coherent answer, instead stating something along the lines of "I don't know why, it just *feels* wrong" (Haidt & Hersh, 2001; Haidt, 2012).

More generally, there is a large literature on the link between moral emotions and the experience of morality (Haidt, 2003). For instance, the more disgust an individual experiences in response to a morally questionable behavior, issue, or policy, the more likely that individual will view it in moral terms (Horberg et al., 2009; Schnall, Haidt, Clore, & Jordan, 2008; Wheatley & Haidt, 2005; Wisneski & Skitka, 2017). Experimentally induced feelings of disgust cause individuals to be more likely to condemn sexually unusual behavior, untidiness, vulgar language, and incestuous relations (Horberg et al., 2009; Schnall et al., 2008). Similarly, self-conscious emotions such as shame and guilt have been shown to play a key role in the maintenance of one's own morality (Cohen et al., 2011; Rozin, Lowery, Imada, & Haidt, 1999; Tangney, 1999). When individuals engage in thoughts or behaviors that trigger these emotions, they are more likely to make negative moral judgments about themselves, which compels them to make changes so they live up to their own moral standards. Furthermore, moral emotions like sympathy and compassion correspond with helping those in need (Batson, Duncan, Ackerman, Buckley, & Birch, 1981; Eisenberg, 1989). Witnessing others suffer triggers a desire to help alleviate that suffering and compels individuals that such pro-social behavior is the appropriate course of action (Goetz, Keltner, & Simon-Thomas, 2010; Stellar, Cohen, Oveis, & Keltner, 2015; Stellar, Feinberg, & Keltner, 2014).

Moral Cognitions and Identity

Researchers have long argued that beliefs about what is morally appropriate and inappropriate stem from reasoning and reflection about whether an act caused harm to other's welfare (i.e., harming others physically or psychologically, or denying them their individual rights; e.g., Kohlberg, 1969; Piaget, 1965; Vasquez, Keltner, Ebenbach, & Banaszynski, 2001). The more individuals believe an act causes (or will cause) such harm, the more they will find that act immoral. According to Turiel (1983) it is the recognition and understanding that an act will cause harm that places it in the moral domain (as opposed to the act simply being an affront to social convention). Expanding on this, research over the past two decades has demonstrated that this focus on harm and individual rights may make up only a piece of the larger moral domain (Rozin et al., 1999; Shweder, Much, Mahapatra, & Park, 1997). Various studies provide evidence for other moral foundations such as concerns with loyalty, authority, and purity (Graham, Haidt, & Nosek, 2009; Graham et al., 2011; Haidt & Graham, 2007) that also serve as fundamental principles and as bases of moral cognition.

The moral identity literature, likewise, lends insight. Moral identity is the combination of one's moral principles, concerns, and goals that when integrated together form a key basis of one's self-concept (Blasi, 1983; Colby & Damon, 1993). Moral identity serves as an essential and readily accessible part of people's notion of "self" (Aquino & Reed, 2002; Strohminger & Nichols, 2014; Stets & Carter, 2011; cf., Aquino, Freeman, Reed, Lim, & Felps, 2009), and motivates individuals to be morally agentic (Hardy & Carlo, 2005). The more strongly individuals identify as moral, the more they are likely to behave morally (Aquino & Reed, 2002; Aquino et al., 2009). Importantly, moral identity affects moral judgments and moral behavior through the *consistency principle*—the notion that individuals need to be true to themselves and behave in ways in line with one's own identity (Blasi, 1984; Erikson, 1964; Shao, Aquino, & Freeman, 2008). As such, when individuals engage in behaviors that contradict their moral identity or if they fail to engage in behaviors consistent with their moral self-concept, they will experience significant dissonance that motivates a realignment between behavior and identity (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Barkan, Ayal, & Ariely, 2015; Stets & Carter, 2011).

Insights About Moralization

Altogether, the moral psychology literatures point to a fundamental role for moral emotions, cognitions, and identity in the moralization process, and the small amount of research directly addressing moralization bears this out to some extent. Rozin, Markwith, and Stoess (1997) surveyed vegetarians who refuse to eat meat for moral reasons (i.e., moral vegetarians) or for health reasons (i.e., health vegetarians), finding that the moral vegetarians experienced more disgust in response to the idea of eating meat than did health vegetarians. Rozin and Singh (1999) surveyed Americans regarding their emotions and beliefs about cigarette smoking and found that feeling disgust toward smoking was a strong predictor of viewing the behavior as immoral, even stronger than believing that smoking causes harm. They also found some evidence that the perceived harmfulness of second-hand smoke predicted the perceived immorality of the act. Furthermore, Rozin (1999) proposes a cognitive mechanism he calls *moral piggybacking*, which occurs when an experience or acquisition of new information leads an individual to see a connection between a behavior previously viewed as unrelated to one's fundamental moral principles (e.g., eating meat) as now being in line or in contradiction with such principles (e.g., killing is wrong).

More recently, Wisneski and Skitka (2017) studied the role of highly emotional events, called *moral shocks*, in triggering moralization. They presented participants with evocative images to trigger disgust, and then measured the extent to which participants demonstrated an increase in moralization regarding the issue of abortion. They found clear evidence that disgusting images directly relating to the issue of abortion (but not disgusting images unrelated to the issue) increased participants' moralization of abortion, thus providing clear causal evidence that disgust triggers moralization (for similar results, see Horberg et al., 2009).

Finally, in the most direct examination of moralization, Brandt, Wisneski, and Skitka (2015) surveyed participants during the 2012 U.S. presidential campaign. Specifically, they measured participants' emotions and beliefs about the two major party candidates, Barack Obama and Mitt Romney, approximately 6 weeks and then again 2 weeks before the election. The researchers found that the enthusiasm individuals felt toward their preferred candidate at Time 1 significantly predicted an increase in moral convictions for that candidate from Time 1 to Time 2, and that feelings of hostility at Time 1 toward the nonpreferred candidate also predicted subsequent changes in moral convictions relating to the nonpreferred candidate. Together, these results suggest that emotions both strengthened moral support for one's preferred candidate and moral opposition to one's nonpreferred candidate over time.

Barriers to Moralization

Though moralization research to date has focused on what factors might foster moralization, it has yet to explore the barriers to moralization. However, we can glean insights from related research. A long literature demonstrates that conformity pressures deter individuals from behaving differently than others for fear of not fitting in, being the target of gossip, and being ostracized (Asch, 1956; Feinberg, Willer, & Schultz, 2014; Williams, 2007). Indeed, Social Cognitive Theory (Bandura, 2011) researchers have demonstrated that individuals quickly learn via others' behavior and media portrayals (e.g., TV shows, social media posts) what is normative behavior and the negative consequences individuals face if they do not adhere to what is expected. Pressures to conform should be especially strong within the moral domain, as moral dissidents are particularly disliked (Monin, Sawyer, & Marquez, 2008) and face punishment for being too moral (Herrmann, Thöni, & Gächter, 2008). Additionally, research indicates that hedonism and self-interest act as barriers to moral behavior, and therefore suggests that these factors might implicitly prevent individuals from moralizing issues that would require personal sacrifices (Ariely & Jones, 2012; Bazerman & Tenbrunsel, 2011; Mazar, Amir, & Ariely, 2008). Psychological hedonism (Bentham, 1789) holds that humans strive to maximize pleasure and minimize pain (both physical and psychological),[1] and therefore it should be particularly difficult to convince individuals that a behavior they engage in that provides them with great pleasure is actually an immoral behavior to be avoided (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bastian & Loughnan, 2017). Altogether, this research highlights various pressures and motivations that might compel individuals to undergo cognitive processes that allow them to not moralize even when faced with evidence, intuitions, or emotions that suggest moralization is the appropriate course of action.

Along these lines, people will often engage in dissonance reduction strategies to rationalize immoral actions that they engage in (Bandura et al., 1996; Barkan et al., 2015; Bastian & Loughnan, 2017). For instance, Bastian and Loughnan (2017) argue that to reduce the dissonance that may accompany the harming of other beings, individuals may engage in cognitions that minimize the victim's moral relevance, convincing oneself that the victim does not experience suffering or pain or at least does not have the capacity to understand what pain is (see also Bastian, Loughnan, Haslam, & Radke, 2012; Haslam, Bain, Douge, Lee, & Bastian, 2005). To reduce the dissonance related to feelings of responsibility, individuals will convince themselves that they had no agency in the matter and therefore no responsibility, or they will hand over their agency to nature or society to convince themselves that engaging in such harmful behavior is natural and/or normative (see Piazza et al., 2015).

Moreover, when individuals feel pushed to think, feel, or act in certain ways, it is not uncommon to rebel and think, feel, or act in the exact opposite way (Brehm, 1966; Brehm & Brehm, 2013, 2013; Miller, Burgoon, Grandpre, & Alvaro, 2006). For instance, warnings about the harms of smoking often lead smokers to be less inclined to quit and nonsmokers to be more inclined to start smoking (Erceg-Hurn & Steed, 2011; Hyland & Birrell, 1979; Robinson & Killen, 1997). This *reactance* may be particularly the case when it comes to stimuli and arguments aimed at compelling individuals to change for moral reasons. Such arguments are likely heavy-handed and highly transparent and may threaten one's autonomy because holding something as moral will often require a drastic change in behavior. As a result, individuals may turn to many of the cognitive dissonance reduction strategies described above as a means for motivating their reactance. In the end, not only might individuals not moralize an issue, but they may demonstrate an even greater acceptance of the issue as one that holds no moral bearing.

The Push–Pull Model of Moralization

Integrating and building on this existing literature on morality, we propose a general framework for how moralization might take place: the Push-Pull Model of Moralization (see Figure 1). The process starts with a morally evocative stimulus, or a moral shock (Wisneski & Skitka, 2017). This could be, for example, a video, news report, political speech, or personal conversation. This stimulus evokes moral emotions and cognitions which signal the issue's moral relevance and therefore its place in the moral domain. The more strongly one experiences these emotions and cognitions, the more squarely the issue will fit in the moral domain. These push mechanisms may each independently affect moralization, or they may affect moralization via the other, such that emotions lead to cognitions (Haidt, 2001) or vice versa (Kohlberg, 1964; Pizarro & Bloom, 2003; see Skitka et al., 2005). Alternatively, the two mechanisms may interact to affect moralization in that only when

[1] In line with philosophical notions of psychological hedonism, we consider pleasure and pain to include not just physical experiences but also those experienced more abstractly. Feelings of social (e.g., ostracism; Lieberman, 2013) or even financial (e.g., losing or wasting money; Thomas, Desai, & Seenivasan, 2010) pain could underpin hedonic motivations.

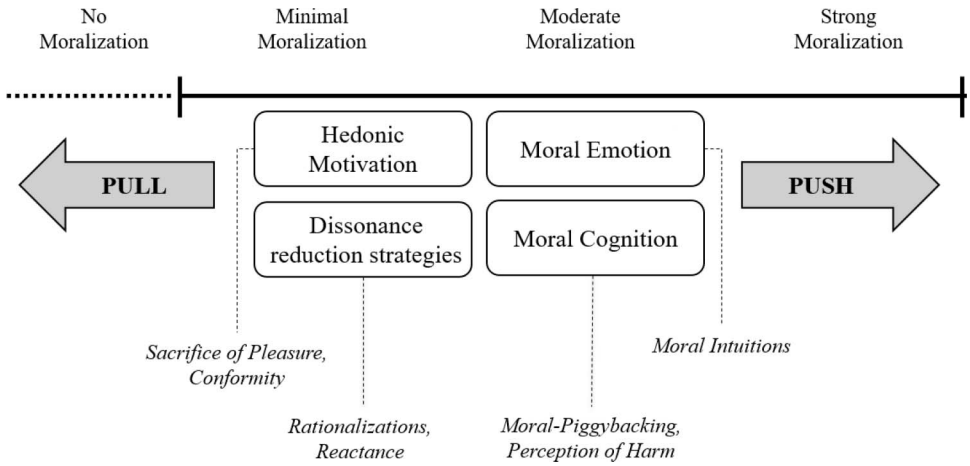

Figure 1. Push–pull model of moralization (PPMM).

individuals experience both moral emotions and cognitions together will moralization take place.

Various forces will also pull individuals away from moralization and back to the status-quo. For many reasons (e.g., hedonism, conformity pressures) individuals will be motivated to not change their attitudes and behavior. To avoid the unpleasant changes that might accompany moralization, many individuals will engage in reactance and/or employ moral dissonance reduction strategies to convince themselves as to why the issue at hand is not morally relevant. Importantly, although scholars often conceive of moralization as categorical (Tetlock et al., 2000), we view it as a continuum (Skitka et al., 2005).[2] The process laid out in the PPMM is what we believe happens each time a person encounters or remembers a morally evocative stimulus. After individuals have undergone this push–pull process at a given time point, they will reach an equilibrium of how much (if any) they moralize the issue at hand. However, new morally evocative stimuli or a reminder of the moral relevance of the issue should disrupt the equilibrium and force them to return to the push-pull process. Wherever their equilibrium had left them previously will serve as the starting point for this next round of the push–pull process. As such, continued exposure to morally evocative stimuli and/or rumination related to the issue should result in the individual moving up or down on the moralization continuum. That said, it is still an open question whether movement on this continuum occurs in a mostly linear or curvilinear fashion.

The Present Research

The model described above, we believe, serves as an overarching framework of moralization across domains—regardless of what issue is potentially moralized, the same *general* process should apply, though the specifics, such as which moral principles individuals morally piggyback onto, which emotions are most strongly elicited, and which cognitive dissonance reduction strategies are utilized most, will likely depend on the nature of the issue at hand and what stimuli or arguments are used to induce moralization. To test the model and its components, we conducted three longitudinal studies, each of which focused on the potential moralization of killing animals so humans can eat their meat. Although we found no existing data indicating what percent of Americans see eating meat as a moral issue, according to Vegetarian Times (2008), approximately 3% of Americans are vegetarian or vegan, and a portion of them are likely vegetarian for nonmoral reasons (Rozin et al., 1997), suggesting only a small number of individuals already moralize the issue of eating meat. Thus, we determined that this issue provided an excellent opportunity to examine the process of moralization of a topic from morally neutral to morally imbued—something no research has done as of yet. Furthermore, there is good reason to believe that eating animals is something many individuals could moralize, largely because people are sensitive to injustices enacted against animals and those perceived as weak or vulnerable. As such, we believe that highlighting the suffering of animals—especially at factory farms—will initiate the PPMM processes for most participants, and by gauging participants' emotions, attitudes, beliefs, and behavioral intentions over time, we will be able to track these processes.

Although all of our studies employ a longitudinal design, we varied whether the source of the morally evocative stimuli participants experienced was a naturalistic situation or one that we created ourselves for the purposes of this research. In Study 1 we follow students across a semester in an introductory psychology course taught by a professor who highlights animal suffering as a part of humanity's desire to eat meat. In Studies 2 and 3 we created our own mini-course where, during approximately a month's time, participants were presented with stimuli aimed at triggering moralization of eating meat. In each of these studies, participants

[2] Although moral conviction can be conceptualized of (philosophically) without valence—as something that has personal moral relevance (regardless of stance), in actuality, we believe there must be a valence undergirding each moral conviction. An individual cannot have moral conviction about something without either being in favor or opposed to that thing. Thus, it follows that the mechanisms underlying moralization (i.e., the process of forming moral convictions) will increase moral relevance of something either in moral favor or moral opposition. Additionally, conceptualizing moralization on a continuum also explains how moral reactance is possible such that it involves a decrease in moralization, a move away from the direction the stimuli presented had intended.

completed a series of questionnaires gauging their emotions and cognitions as well as their level of moralization.

Study 1

In Study 1, we tracked students as they took an introductory psychology course. The professor of the course incorporated lessons and insights about animal rights and welfare throughout his lectures, highlighting the potential suffering animals endure because humans raise them for their meat. Such a course, we figured, provided a unique opportunity to assess moralization and potential predictors of moralization as individuals were continually presented with new information on the topic. Further, because the course was not titled or labeled as a course on animal welfare or animal rights, students in the course likely did not choose to take the course because it emphasized these topics (in fact, it was required for aspiring Psychology majors). As a result, it would be unlikely that this data collection would suffer from a selection bias relating to animal welfare.

We assessed the extent to which the students in the course moralized the issue at the beginning of the semester, in the middle, and at the end. In addition, at each time point we also measured potential predictors that might explain participants' level of moralization, including the emotions and cognitions they experienced when thinking about animals being killed for their meat, as well as how tasty they found meat to be which may serve as a deterrent of moralization.

Method

Participants. First-year psychology students who were enrolled in an introduction to psychology course at the University of Toronto, Scarborough were invited to participate in the study on a voluntary basis. We chose this particular introduction to psychology course for exploring our research questions because the professor regularly discusses ideas surrounding animal rights and animal welfare within the context of the course. In addition, the course is mandatory for students majoring in Psychology and only taught by this professor, thereby minimizing selection-bias concerns. Approximately 650 students were enrolled in the course. In total, 611 students (186 male, 420 female, five did not indicate) completed at least one wave of data collection (see online supplementary materials for additional demographic-related information). Because this research was largely exploratory, we aimed to collect data from as many students as possible.

Procedure.

Course content. Throughout the semester, students in the course were exposed to in-person lecture content surrounding alleged animal cruelty in past psychological research, as well as content on animal rights. Some examples of content include the discussion of cruel animal research practices (e.g., vivisection, Harlow's monkeys, experiments about learned helplessness in dogs, experiments that uncovered animal models of stress) that were based on the assumption that animals do not experience fear or pain. Throughout the semester, the professor highlighted research suggesting that many animals, including those that humans kill for their meat, display sophisticated cognitive abilities such as self-awareness, episodic memory, and an understanding of social justice and cooperation. Approximately halfway through the semester students in this class were given an assignment in which they were instructed to write a short, critical opinion piece on whether or not humans should eat meat. Students were instructed to backup their view with evidence and logic and to reference course material in their arguments.

Data collection. Data collection occurred across three waves (see Table S1 for an overview of all predictor variables assessed at each time point in each study). During the first week of the semester students enrolled in the course were given a prescreening questionnaire ($n = 558$) to be eligible to participate in the university's psychology studies throughout the semester. Embedded within this questionnaire, we included items to assess students' level of *moralization*, *moral emotions*—both *meat emotions* and *animal emotions* (see below for more detail)—perceived animal *suffering*, and perceived *tastiness* of meat.[3]

Approximately 4–5 weeks after completion of the first wave of data collection, and after students had submitted their opinion piece on whether or not humans should eat meat, students were invited to participate in the second wave of data collection. As an incentive to participate, we informed the students that they would be entered into a drawing to win a $100 gift card. Five hundred three students completed this second survey. Items on this second survey included all the same items as those included in the first wave, except for the *classification* item. In addition, in this second wave, we included a measure designed to gauge *moral piggybacking*.

Finally, approximately 5 weeks later, following the conclusion of the course, we recruited students to complete a third wave ($n = 265$). Once again, we incentivized participation with the opportunity to win a $100 gift card. The questionnaire consisted of all the same items collected in the second wave.

Measures.

Moralization. We measured *moralization* using the following four items: "To what extent is your position on eating meat a reflection of your core moral beliefs and convictions?," "To what extent are your feelings about eating meat deeply connected to your beliefs about 'right' and 'wrong'?," "To what extent do you feel the issue of eating meat is a moral issue (An issue where your attitude is based on moral values)?," "When thinking about eating meat, to what extent do you 'just know' that it is wrong?," with the first two of these items modeled directly on the items used to capture moral convictions in Skitka et al. (2005), and the last two added to help ensure face validity. The reliability for the *moralization* composite at each time point was $\alpha_{\text{Time 1}} = .85$, $\alpha_{\text{Time 2}} = .80$, $\alpha_{\text{Time 3}} = .84$.

Moral emotions. Participants completed two blocks of emotion measures. The first asked participants how strongly they felt each of the following emotions when they think about eating meat: *guilt*, *shame, disgust, anger, outrage,* and *sadness*. Participants answered on a 5-point scale ranging from 1 (*not at all*) to 5 (*very much*). Our intention was to keep these emotion items separate to explore each emotion's unique impact on moralization, but an

[3] In all three studies, we also included some exploratory items asking participants about their attitudes regarding eating meat, vegetarianism, healthiness of eating meat, and environmental impact of eating meat. Details about these items, descriptive statistics, and correlations with *Moralization* are all presented in the online supplementary materials section.

exploratory factor analysis at each time point indicated that these items all formed a single emotions factor accounting for a large portion of the variance (Time 1 = 78.42%, Time 2 = 74.57%, Time 3 = 75.68%). So, we averaged these items together at each time point to form a *meat emotions* composite ($\alpha_{\text{Time 1}} = .94$, $\alpha_{\text{Time 2}} = .93$, $\alpha_{\text{Time 3}} = .93$). The second emotions block asked participants the extent to which they felt the following two emotions when they thought about the animals involved in humans eating meat: *sympathy, compassion*. As with the *meat emotions* block, an exploratory factor analysis indicated that these two emotions formed a single factor at each time point accounting for a very large portion of the variance (Time 1 = 90.09%, Time 2 = 95.21%, Time 3 = 94.95%). So, we averaged these two items together to form an *animal emotions* composite ($\alpha_{\text{Time 1}} = .89$, $\alpha_{\text{Time 2}} = .95$, $\alpha_{\text{Time 3}} = .95$).

Moral cognitions. We included a *suffering* item that assessed how much participants believed eating meat causes suffering to animals ("How much do you believe eating meat causes suffering to animals? By "meat" we mean any animal parts whether from a cow, pig, chicken, fish, or any other animal."). Participants responded on a 5-point scale ranging from 1 (*not at all*) to 5 (*very much*). We also included two items designed to gauge *moral piggybacking* (i.e., the extent to which students in the course associated the issue of killing animals for their meat with larger moral principles they already hold and live by).[4] The two items were "When Professor [name] talks about issues regarding animal welfare and meat consumption, to what extent does it lead you to think about your own personal morality and the values you hold?," "When Professor [name] talks about issues regarding animal welfare and meat consumption, to what extent does this lead you to think about moral values in general?."[5] Participants responded to each of these items on a scale ranging from 1 (*not at all*) to 5 (*very much*), $\alpha_{\text{Time 2}} = .86$, $\alpha_{\text{Time 3}} = .92$.

Hedonic motivations. Participants completed a *tastiness* item that asked "Overall, when thinking about most meats, how would you rate them on tastiness?," responding on a scale ranging from 1 (*not tasty at all*) to 5 (*very tasty*).

Results

What predicts moralization and moralization change? Table S2 presents correlations along with means and standard deviations for each variable. We conducted a series of multilevel model analyses using SPSS 24 to account for the repeated measures nested within each individual. Within each model, intercepts and slopes were allowed to vary by participant, and we specified an autoregressive structure for the level 1 residuals accounting for the correlations among participants' own responses across consecutive time points. Table 1 presents results exploring different ways each variable might predict moralization scores. The grand-mean centered results show the predictor's overarching relationship with moralization. However, since grand-mean centered results do not disentangle within-person and between-person effects of predictors, we also explored each of these while controlling for the other. Specifically, the Time 1–person centered analyses explored how people's changes at Time 2 and at Time 3 relative to their own score at baseline (Time 1) predicted moralization, while person aggregate analyses examined how between-participants differences (i.e., on average across the time points) predicted moralization.

Overall, results indicated that *meat emotions*, *animal emotions*, *moral piggybacking*, *suffering*, and *tastiness* significantly predicted moralization. Both the within-person and between-person effects for all of these predictors were significant. The significant within-person effects indicated that deviations from baseline on each of these variables corresponded with personal changes in moralization, with positive effects for *meat emotions*, *animal emotions*, *moral piggybacking*, *suffering* indicating that the more participants' scores on each of these predictor variables increased above their own personal baseline levels (i.e., Time 1 levels), the higher they scored on moralization, and the negative effects for *tastiness* indicating that the more participants' scores on the predictors decreased from baseline, the higher they scored on moralization. The significant between-person effects showed that differences between participants on each of the variables across time points corresponded with between-participants differences in moralization. Finally, exploratory analyses simultaneously entering all significant predictors found that only *meat emotions* and *moral piggybacking* remained significant predictors (see Table S3 for details), suggesting these were the primary predictors of moralization, and each predicted moralization independently of one another—an issue we return to in the General Discussion.

Change over time. To examine changes over time, we explored each predictor's effects on moralization at the subsequent time point. We estimated cross-lagged autoregressive structural equation models (see Selig & Little, 2012 for an overview) using the Lavaan package (Rosseel, 2012) in R, whereby each subsequent observation was predicted by the observation that temporally preceded it. These models also included cross-lagged effects to account for moralization's role in predicting each of the predictors at subsequent time points. The impact each predictor had on moralization scores at the subsequent time point is found in Table 1, and full cross-lagged model diagrams can be found in the online supplementary materials (Figures S1–S5). Overall, the results demonstrated that with the exception of *suffering*, which had a marginal effect, all of our predictors significantly predicted changes in participants' longer-term moralization. For instance, the significant lagged effect of meat emotions suggests that the emotions participants felt when thinking about eating meat at a given time point predicted their moralization approximately 6 weeks later.

Who moralized? To examine what demographic variables might predict the tendency to moralize versus not, we used a cluster analysis approach to detect whether participants, based on their pattern of responding across time points to the moralization measure, formed coherent groups (see online supplementary materials for details). Analyses examining the data of those who completed all three waves of data collection suggested the presence of three clusters based on moralization across time; a con-

[4] These items were not included in the first wave because of space restrictions in the Psychology Department's prescreening survey.

[5] Although the items used to measure moral piggybacking were necessarily similar to those used to measure moralization, correlations between the initial measurement of each construct across studies was only moderately strong: Study 1: $r = .37$; Study 2: $r = .40$; Study 3: $r = .43$, indicating that participants did not treat these items as the same construct.

Table 1
Results of Linear Mixed-Model Regressions and Cross-Lagged Analyses Examining the Impact of the Predictor Variables on Moralization (Study 1)

Predictor	Linear mixed-model regression statistics predicting moralization		Cross-lagged analyses	
	Grand-mean centered	Time 1–person centered (top) and aggregate (bottom)	Predicting Time 2 moralization	Predicting Time 3 moralization
Meat emotions	$b = .66$, $SE = .03$, $df = 144.38$, $p < .001$, 95% CI [.60, .71]	$b = .33$, $SE = .05$, $df = 115.31$, $p < .001$, 95% CI [.23, .43] $b = .70$, $SE = .03$, $df = 613.51$, $p < .001$, 95% CI [.64, .76]	$b = .30$, $SE = .10$, $p = .002$, 95% CI [.10, .50]	$b = .36$, $SE = .09$, $p < .001$, 95% CI [.18, .54]
Animal emotions	$b = .33$, $SE = .02$, $df = 491.03$, $p < .001$, 95% CI [.28, .37]	$b = .14$, $SE = .03$, $df = 206.54$, $p < .001$, 95% CI [.08, .20] $b = .40$, $SE = .03$, $df = 603.87$, $p < .001$, 95% CI [.35, .46]	$b = .17$, $SE = .06$, $p = .005$, 95% CI [.05, .29]	$b = .14$, $SE = .06$, $p = .016$, 95% CI [.02, .26]
Moral piggybacking	$b = .51$, $SE = .04$, $df = 320.27$, $p < .001$, 95% CI [.44, .59]	$b = .22$, $SE = .07$, $df = 49.29$, $p = .004$, 95% CI [.07, .37] $b = .55$, $SE = .04$, $df = 549.50$, $p < .001$, 95% CI [.48, .62]	—	$b = .21$, $SE = .07$, $p = .004$, 95% CI [.07, .35]
Suffering	$b = .27$, $SE = .03$, $df = 385.70$, $p < .001$, 95% CI [.22, .33]	$b = .13$, $SE = .03$, $df = 192.81$, $p < .001$, 95% CI [.06, .19] $b = .31$, $SE = .03$, $df = 595.90$, $p < .001$, 95% CI [.25, .37]	$b = .10$, $SE = .05$, $p = .072$, 95% CI [.00, .20]	$b = .08$, $SE = .06$, $p = .171$, 95% CI [−.04, .20]
Tastiness	$b = -.30$, $SE = .03$, $df = 248.73$, $p < .001$, 95% CI [−.35, −.24]	$b = -.12$, $SE = .04$, $df = 176.56$, $p = .006$, 95% CI [−.20, −.03] $b = -.41$, $SE = .03$, $df = 576.72$, $p < .001$, 95% CI [−.47, −.35]	$b = -.14$, $SE = .06$, $p = .020$, 95% CI [−.26, −.02]	$b = -.14$, $SE = .06$, $p = .021$, 95% CI [−.26, −.02]

Note. All estimates are unstandardized, and degrees of freedom are calculated using the Satterthwaite (1946) approximation.

sideration of more than three clusters did not result in a substantial decrease of the within-cluster sum of squares (see Figures S6 and S7 for the scree plot and the clustering process and agglomeration schedule presented as a dendrogram). The change over time for each cluster can be seen in Figure 2. Based on the pattern of means we deemed the first cluster, which showed an increase over time, *Moralizers* ($n = 48$), the second cluster, which showed no change but already scored high on the moralization measure, *Existing Moralizers* ($n = 40$), and the third cluster, which demonstrated minimal movement on moralization, *Nonchangers* ($n = 47$). Corroborating the cluster analysis results, a series of linear mixed model analyses confirmed that the slope of each cluster's trends was in the expected direction, *Moralizers*: $b = .57$, $SE = .06$, $df = 262.68$, $t = 8.84$, $p < .001$, 95% CI [.44, .70]; *Existing Moralizers*: $b = -.03$, $SE = .07$, $df = 262.68$, $t = -.369$, $p = .713$, 95% CI [−.16, .11]; *Nonchangers*: $b = -.04$, $SE = .07$, $df = 262.68$, $t = -.546$, $p = .585$, 95% CI [−.16, .09].

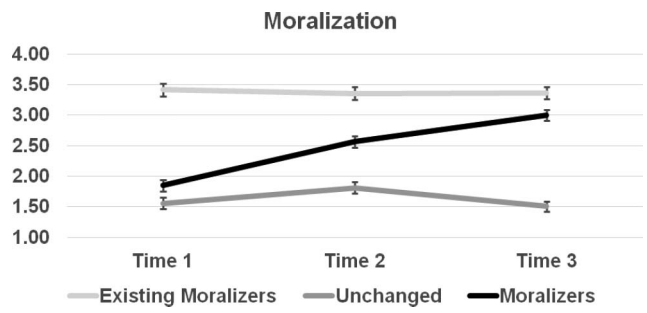

Figure 2. Moralization changes over time separated by cluster (Study 1). Error bars represent ±1 *SEM*.

We next examined if any demographic differences predicted being a moralizer by conducting logistic regression analyses entering gender, age, and ethnicity (white or not) as predictors of whether a participant was classified as a *moralizer* or not. These analyses yielded no significant effects for gender, $b = -.19$, $SE = .40$, $p = .631$, age, $b = .03$, $SE = .07$, $p = .638$, or ethnicity, $b = .66$, $SE = .61$, $p = .280$, suggesting that these demographic differences did not play a key role in determining whether someone would moralize the issue of eating meat or not.

The shape of moralization. To test whether moralization occurred in a linear or curvilinear fashion we selected only participants classified as *Moralizers* and then regressed moralization onto time. We used multilevel modeling to account for the nested nature of the longitudinal data, finding a significant fixed effect, $b = .57$, $SE = .06$, $df = 92.95$, $t = 9.49$, $p < .001$, 95% CI [.45, .69]. We then regressed moralization on both time and time-squared (representing the quadratic term), which yielded a significant effect of time, $b = .86$, $SE = .19$, $df = 55.04$, $t = 4.56$, $p < .001$, 95% CI [.49, 1.25], and a nonsignificant effect of time-squared, $b = -.15$, $SE = .09$, $df = 48.66$, $t = -.36$, $p = .108$, 95% CI [−.33, .03]. This result suggests that moralization took place primarily in a linear fashion, with a more or less constant increase from time point to time point (see Figure 2; see online supplementary materials for additional analyses).

Discussion

Study 1 involved tracking students in a psychology course where the instructor continually emphasized animal suffering and welfare as key topics during lectures. Results showed that the extent to which students experienced various emotions, such as guilt, shame, disgust, and outrage, when thinking about eating

meat strongly predicted moralization, and the extent to which they experienced feelings of compassion and sympathy toward the animals that humans eat predicted moralization. We also found that cognitions relating to how much the students believed eating meat causes animals to suffer and how much they connected the issue of eating animals with their preexisting moral principles positively predicted how much they moralized the issue as the semester progressed, whereas how tasty they found meat to be was a strong negative predictor. Finally, we found that moralization occurred linearly, suggesting that the moralization occurs in a gradual and largely constant fashion over time.

Study 2

Study 2 aimed to extend the methods and findings of Study 1 in various ways. Although Study 1 used an ecologically valid setting to explore the process of moralization, the setting was not controlled in terms of who participated and which stimuli were presented. Further, it is also possible that students in the course who moralized did not do so authentically, but rather because they believed the professor wanted them to do so (or, at least, say they had). Further, it may be that the larger content of the course, including information unrelated to animal welfare, may have influenced participants' tendency to moralize. Simply learning about psychology may have led some individuals to be more curious or engage in more perspective-taking, which could have resulted in them being more likely to moralize the issue of eating meat.

To address these issues, in Study 2 we recruited a diverse panel of participants via a survey panel company, and we chose stimuli for them to see. Participants took part in a seven-session study where the four odd-numbered sessions involved them filling out questionnaires assessing their levels of moralization and potential predictors of that moralization, and the even-numbered sessions involved participants watching videos selected because they highlight the pain and suffering animals undergo so humans can ultimately eat them. By doing so, we could create our own animal-welfare minicourse with participants who had no knowledge of the course's content prior to taking part.

In addition, in Study 2, we measured participants' behavioral intentions relating to eating meat. Past research has demonstrated that a consequence of individuals moralizing an issue is that they are moved to engage in behaviors in line with such moralization (Skitka, 2010). As such, we would expect that participants in our study who moralize the issue of eating meat would demonstrate intentions to limit their meat consumption, or even become vegetarians. Such a finding would both help validate our moralization findings, and further attest to influential behavioral consequences moralization can have.

Method

Participants. Two hundred thirty-nine (135 male, 104 female) participants from across the United States from an original pool of 434 invitees took part in all four waves of data collection. Participants were recruited by a survey research firm to take part in our research in exchange for a small payment (see online supplementary materials for additional demographic-related information). Individuals were invited if, on a prescreening measure, they had indicated that they ate meat (i.e., they were not vegan, vegetarian, or pescatarian). Nonmeat eaters ($n = 8$) were excluded as most of them likely already moralized the issue, and because 97% of the population eats meat regularly (Vegetarian Times, 2008), suggesting any changes these individuals might undergo likely would not be representative of the general population (see online supplementary materials for further discussion). Even though Study 1 yielded significant results with a sample of 135 participants who completed all three time points (see online supplementary materials), because Study 2's sample and procedures were very different from those in Study 1, we decided to collect a larger sample to account for the possibility that Study 2's results would be less consistent. Specifically, we aimed to collect an additional 100 participants as a potential buffer against the larger amount of variability and potential reactance we might encounter. To achieve this sample size, the survey panel company chose the original number of invitees ($n = 434$) based on their typical attrition rates.

Procedure. The survey panel company emailed eligible participants a link to an online survey platform where they completed each session of the study. Participants were only invited to the subsequent session of the study if they completed the previous one (for further discussion, including details about attrition rates, an examination of potential influences of attrition on our results, and analyses including participants who did not complete all sessions see online supplementary materials, Tables S3 and S4). The entire study involved seven sessions which in total were completed across approximately one month's time, with 4–5 days between sessions. The four odd-numbered sessions involved participants filling out the four waves of questionnaires, whereas the even-numbered sessions involved participants watching videos, selected as a means for evoking moralization in participants (see online supplementary materials for information about video coding and selection, and for links to each video).[6]

Data collection. The questionnaires employed in questionnaire wave 1 closely resembled those used in Study 1. Participants completed a five-item measure of *moralization* ($\alpha = .72$) that was identical to the one used in Study 1, with the addition of the following item: "Overall, how much do you believe eating meat is immoral?" answered on a scale from 1 (*not at all*) to 5 (*very much*). Additionally, participants completed the same measures of *meat emotions* ($\alpha = .93$), *animal emotions* ($\alpha = .92$), *suffering*, and *tastiness*. For wave 2, participants again completed the *moralization* ($\alpha = .85$), *meat emotions* ($\alpha = .96$), *animal emotions* ($\alpha = .95$), questionnaires, as well as a measure of *moral piggybacking* ($\alpha = .94$) that built on the measure used on Study 1 (see online supplementary materials for exact wording). The questionnaires used for wave 3 were identical to those used in wave 2 ($\alpha_{moralization} = .87$; $\alpha_{meat\_emotions} = .96$, $\alpha_{animal\_emotions} = .96$, $\alpha_{moral\_piggybacking} = .95$). Finally, for wave 4, participants completed the *moralization* ($\alpha = .91$), *meat emotions* ($\alpha = .96$),

[6] Even though the videos we showed across sessions were unique, the general theme (animals suffering) was the same and therefore could have led participants to have habituated to the videos. We believe this was unlikely, however, because habituation would likely manifest in a curvilinear (quadratic) effect, where participants would initially demonstrate an increase in moralization and push mechanisms but then their scores would flatten out or even go down as evidence of them habituating. Since we found linear effects across time, it suggests habituation did not occur.

animal emotions ($\alpha = .96$), *suffering*, and *tastiness* measures, and additionally, completed 3 separate items that gauged participants' willingness to engage in various behaviors relating to reduced meat consumption. Specifically, participants indicated how willing they were to "become vegetarian," "limit how much meat you eat," "limit how much factory farmed meat you eat" on a 5-point scale ranging from 1 (*not at all likely*) to 5 (*very likely*).

Results

What predicts moralization and moralization change? As in Study 1, we explored what variables compelled individuals to moralize and what variables deterred them from moralizing. Table S4 presents correlations along with means and standard deviations for each variable. We used the same mixed-model regression strategy as used in Study 1 to examine the extent to which each variable predicted moralization while accounting for the nested structure of the data. Table 2 presents the results of these analyses. The results of the linear mixed model regressions replicate the findings from Study 1. Specifically, we found that *meat emotions*, *animal emotions*, *moral piggybacking*, *suffering*, and *tastiness* all significantly predicted moralization, with *meat emotions*, *animal emotions*, *moral piggybacking*, and *suffering* positively predicting moralization, and *tastiness* negatively predicting moralization. Also, as before, both the within-person and between-person effects uniquely predicted moralization; the extent to which participants changed on each of these predictor variables strongly predicted changes in moralization, and the extent to which participants differed from other participants on each of the predictors significantly predicted moralization differences among participants. In addition, we conducted exploratory analyses entering all predictors of moralization simultaneously; however, because *moral piggybacking* was never measured at the same time as *suffering* and *tastiness*, we fit separate models for the *moral piggybacking* and the latter two predictors. A model entering *moral piggybacking*, *meat emotions*, and *animal emotions* found that all three predictors remained significant, although *animal emotions* was a weaker predictor ($p = .038$) compared with the other two ($ps < .001$). A separate model entering *suffering, tastiness, meat emotions,* and *animal emotions* found that only *meat emotions* and *animals emotions* remained significant (see Table S7 for details). Thus, as we found in Study 1, the two most robust predictors of moralization were *moral piggybacking* and *meat emotions*.

Change over time. As in Study 1, to further explore each predictor's impact on moralization changes at subsequent time points, we conducted cross-lagged analyses. Table 2 presents the results of each predictor's effect on moralization scores at the subsequent time point, and full cross-lagged model diagrams can be found in the online supplementary materials (Figures S8–S12). Overall, these cross-lagged results were highly consistent, showing that each variable predicted moralization at each subsequent time point. These results, therefore, provide strong evidence that the experience of the push and pull mechanisms at a given time point directly affected participants' moralization at the subsequent time point.

Who moralized? In line with Study 1's analysis strategy, we conducted an agglomerative hierarchical cluster analysis, and found the optimal number of clusters was 3 (see Figure S13 and Figure S14 for scree plot and dendrogram). Based on the pattern of means (see Figure 3), we determined that the first cluster represented Moralizers ($n = 57$) because participants in this cluster had

Table 2
Results of Linear Mixed-Model Regressions and Cross-Lagged Analyses Examining the Impact of the Predictor Variables on Moralization (Study 2)

	Linear mixed-model regression statistics predicting moralization		Cross-lagged analyses		
Predictor	Grand-mean centered	Time 1–person centered (top) and aggregate (bottom)	Predicting Time 2 moralization	Predicting time 3 moralization	Predicting Time 4 moralization
Meat emotions	$b = .71$, $SE = .05$, $df = 41.40$, $p < .001$, 95% CI [.62, .81]	$b = .55$, $SE = .05$, $df = 40.59$, $p < .001$, 95% CI [.44, .66] $b = .62$, $SE = .06$, $df = 278.83$, $p < .001$, 95% CI [.51, .73]	$b = .49$, $SE = .10$, $p < .001$, 95% CI [.29, .69]	$b = .31$, $SE = .08$, $p < .001$, 95% CI [.15, .44]	$b = .36$, $SE = .08$, $p < .001$, 95% CI [.20, .52]
Animal emotions	$b = .28$, $SE = .03$, $df = 219.09$, $p < .001$, 95% CI [.23, .34]	$b = .19$, $SE = .03$, $df = 154.14$, $p < .001$, 95% CI [.13, .25] $b = .35$, $SE = .04$, $df = 231.51$, $p < .001$, 95% CI [.28, .42]	$b = .27$, $SE = .04$, $p < .001$, 95% CI [.19, .35]	$b = .07$, $SE = .04$, $p = .043$, 95% CI [.00, .15]	$b = .17$, $SE = .04$, $p < .001$, 95% CI [.09, .25]
Moral piggybacking	$b = .55$, $SE = .04$, $df = 169.37$, $p < .001$, 95% CI [.47, .62]	$b = .30$, $SE = .04$, $df = 239.98$, $p < .001$, 95% CI [.21, .39] $b = .62$, $SE = .04$, $df = 237.45$, $p < .001$, 95% CI [.55, .70]	—	$b = .18$, $SE = .05$, $p = .001$, 95% CI [.08, .28]	—
Suffering	$b = .21$, $SE = .04$, $df = 181.99$, $p < .001$, 95% CI [.14, .29]	$b = .27$, $SE = .05$, $df = 92.29$, $p < .001$, 95% CI [.17, .37] $b = .16$, $SE = .04$, $df = 233.97$, $p < .001$, 95% CI [.08, .24]	—	—	$b = .16$, $SE = .05$, $p < .001$, 95% CI [.06, .26]
Tastiness	$b = -.32$, $SE = .06$, $df = 200.77$, $p < .001$, 95% CI [−.45, −.19]	$b = -.55$, $SE = .11$, $df = 61.68$, $p < .001$, 95% CI [−.77, −.34] $b = -.21$, $SE = .07$, $df = 240.27$, $p = .001$, 95% CI [−.34, −.08]	—	—	$b = -.28$, $SE = .10$, $p = .004$, 95% CI [−.48, −.08]

Note. Time 1–Person Centered involves the first time point collected for each variable. Thus, if a variable was not collected during Session 1, then its Session 2 value (when it was first collected) serves as its first time point.

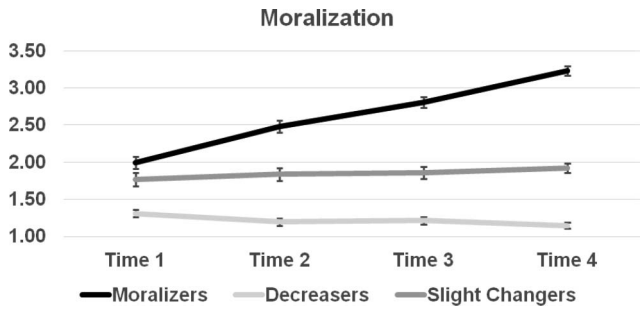

Figure 3. Moralization changes over time separated by cluster (Study 2). Error bars represent ±1 *SEM*.

a demonstrable increase in moralization scores across the 4 time points. The second cluster, which showed no obvious increase in moralization scores over time, we deemed *Non-Changers* (n = 46). The third cluster consisted of participants who demonstrated a decrease in moralization over time, and therefore were deemed *Decreasers* (n = 136), suggesting that they engaged in psychological reactance in response to our minicourse, which is not unexpected considering how overt our stimuli were and considering the unpleasant changes to one's life moralizing might require. Mixed model analyses indicated that each cluster group's pattern of means over time was in the expected direction, with *Moralizers* demonstrating a steep and significant upward trend, b = .41, SE = .03, df = 553.80, t = 12.74, p < .001, 95% CI [.34, .47], *Non-Changers* showing a nonsignificant slope, b = .05, SE = .04, df = 553.80, t = 1.39, p = .165, 95% CI [−.02, .12], and *Decreasers* showing a significant downward trend over time, b = −.05, SE = .02, df = 553.80, t = −2.44, p = .015, 95% CI [−.09, −.01].

We next explored whether any of the demographic variables collected might predict the likelihood of being in the *Moralizer* cluster. Logistic regression analyses found a marginally significant effect of *gender*, b = −.58, SE = .31, p = .059, OR = .56, such that females were more likely to be moralizers, but found no effect for *age*, b = .01, SE = .01, p = .721, *ethnicity*, b = 1.17, SE = 1.42, p = .410, *socioeconomic status*, b = .03, SE = .16, p = .852, *religiosity*, b = .11, SE = .08, p = .167, or *political ideology,* b = .03, SE = .10, p = .722.

The shape of moralization. We used the same strategy as Study 1 to determine if the moralization process occurred in a linear or curvilinear fashion. The analysis testing linear effects only found a significant fixed effect, b = .41 SE = .04, df = 135.41, t = 9.36, p < .001, 95% CI [.32, .50]. The second analysis examining both the linear and curvilinear effects yielded a significant effect of time, b = .45 SE = .12, df = 137.95, t = 3.71, p < .001, 95% CI [.21, .70], and a nonsignificant effect of time-squared, b = −.01 SE = .04, df = 144.97, t = −.36, p = .718, 95% CI [−.09, .06]. These results, therefore, indicate that moralization occurred in a linear fashion (see Figure 3 above; and online supplementary materials for additional analyses).

Behavioral intentions. We conducted a series of one-way ANOVAs entering cluster group as the independent variable and the three behavioral intentions items—*become vegetarian*, *limit meat eaten*, and *limit factory farmed meat*—as the dependent variables. Table 3 presents the results of these analyses. As shown in the table, *Moralizers* scored higher on the behavioral measures than those in the other two cluster groups. Thus, in line with past research examining the behavioral consequences of holding moral convictions on an issue (e.g., Skitka et al., 2005), the *Moralizers* indicated that they were more likely to limit the amount of meat they will eat, how much factory farmed meat they will eat, and be more likely to become a vegetarian.[7]

Discussion

The results of Study 2 replicated the key findings from Study 1. We found that moral emotions (both *meat emotions* and *animal emotions*), *moral piggybacking*, and *suffering* were all strong push mechanisms underlying moralization. We also again found that how tasty participants found meat to be was a powerful deterrent to moralization. Additionally, we found that moralization occurred in a linear fashion, and that whether or not individuals moralized the issue of eating meat had a clear impact on their behavioral intentions, with *Moralizers* showing significantly greater intentions to limit their meat consumption and become vegetarian.

Study 3

Study 3 used the same seven-session minicourse as that used in Study 2, but built on that study in several ways. At the start of Study 3, participants filled out a series of individual difference measures expected to predict moralization directly, and possibly moderate the effects of other predictors on moralization. We measured how important participants' moral identity was for them, reasoning that those who hold morality as central to who they are would be especially susceptible to moralizing the issue of eating meat. As shown in Study 2, the stimuli presented as part of our minicourse triggers emotions and cognitions related to morality in participants. When such emotions and cognitions arise in individuals who see morality as central to who they are, it should be particularly difficult for them to disregard these emotions and cognitions, and therefore they should be especially likely to moralize. In addition, we measured participants' endorsement of the harm-care moral foundation (Graham et al., 2011). Those scoring high on this moral foundation find issues relating to harm and suffering particular moral in nature, and past research has shown that arguments that directly appeal to harm and suffering notions are especially persuasive to these individuals (Feinberg & Willer, 2013, 2015; Voelkel & Feinberg, 2018). Considering that our minicourse stimuli directly tapped into this moral foundation, we expected that individuals scoring high on the harm-care moral foundation would be particularly likely to moralize.

In addition, we increased the number of items we used to capture participants' behavioral intentions. In Study 2, we mea-

[7] It is important to note that because behavioral intentions were measured only at the final time point, it is difficult to determine whether the *moralizers*' greater willingness to become vegetarian was due to their changes in moralization over time or the end result of these changes (i.e., higher scores on moralization at the final time point). To provide insights, we conducted regression analyses including both Time 4 moralization scores and the difference score of Time 1 and Time 4 moralization. Results for Study 2 data yielded only a significant result for Time 4 moralization, but results for Study 3 data found that both were significant, suggesting that it may be a combination of the two.

Table 3
Means, Standard Deviations, and Statistical Tests for All Behavioral Intentions Measures (Study 2)

Behavioral intention	Decreasers *M* (*SD*)	Slight changers *M* (*SD*)	Moralizers *M* (*SD*)	Omnibus *F* test
Become vegetarian	1.33 (.67)[a]	1.70 (.84)[b]	2.74 (1.16)[c]	$F(2, 236) = 56.20$, $p < .001$, $\eta^2 = .370$
Limit meat eaten	2.26 (1.27)[a]	3.13 (1.33)[b]	3.91 (1.37)[c]	$F(2, 236) = 33.55$, $p < .001$, $\eta^2 = .252$
Limit factory farm meat	3.02 (1.43)[a]	3.76 (1.30)[b†]	4.21 (1.25)[c†]	$F(2, 236) = 16.68$, $p < .001$, $\eta^2 = .135$

Note. Mean values with different letters are significantly different from one another at $p < .05$, except for values marked with a †, which are marginally significant at $p < .10$.

sured participants' intentions in terms of their own behavior relating to the consumption of meat (e.g., limiting their own meat eating). Research on moral convictions, however, points out that holding something to be moral not only compels individuals to change their own behavior but also that of others (Skitka et al., 2005)—what one believes is the moral course of action for the self is also the expected action for others. Thus, we should expect participants who moralize eating meat to be most willing to engage in activist behaviors that affect others' behavior relating to the consumption of meat, for instance, by attending a protest event or by contacting government representatives with the hopes of affecting public policy. Along these lines, we included additional measures that assessed participants' willingness to engage in behaviors aimed at affecting other people's behavior.

We also improved on Study 1 and Study 2 by inviting only those who showed no evidence of having moralized the issue of eating meat prior to taking part in Study 3. In Studies 1 and 2 we excluded the vegans, vegetarians, and pescatarians in the study. However, in both cases, we found individual differences at baseline for how much participants had already moralized the issue. Although we accounted for these differences statistically by looking at people relative to their own baseline, only recruiting participants who indicated that they were frequent meat-eaters and who also indicated that they have not moralized the issue at all, would help eliminate these differences more directly.[8]

In Study 3 we also asked more questions of participants and asked all questions at all time points. Assessing each predictor at all four time points gave us the ability to run a full model where we explored all predictors of moralization together, which allowed us to directly examine the unique variance each predictor might explain and, most importantly, test what role some of the predictors might play in mediating the relationship between other predictors and moralization. Additionally, most of the new items we included in this study were aimed at assessing potential deterrents of moralization. One of the aims of the present investigation is to uncover both what pushes people to moralize an issue and what pulls them back from doing so. Yet, thus far, the only deterrent of moralization we have found is tastiness (i.e., evidence of hedonic preferences deterring moralization from taking place). What else might deter individuals from moralizing? To help answer this question, in Study 3 we assessed a variety of potential other deterrents, including social conformity pressures, beliefs about how much personal choice people have, and beliefs about human nature, expecting that many of these would predict lower levels of moralization.

Method

Participants. Participants were recruited from the Amazon Mechanical Turk website and took part in exchange for a total of $9.50 (see online supplementary materials for demographic-related information). There were no eligibility requirements for the first study session (where baseline measures were collected). For that first wave, we recruited 1,434 participants in hopes of achieving a similar final sample size (after all seven sessions) as was collected in Study 2 (i.e., $N = 239$). We only invited participants who indicated that they were frequent meat-eaters (i.e., not indicating being vegan, vegetarian, pescatarian, or rare meat-eaters), and who on the moralization item "Overall, how much do you believe eating meat is immoral?" indicated a "1" or "not at all" ($n = 912$). Participants were only invited to each subsequent session if they completed the previous one. Only the 350 participants (185 male, 165 female) who completed all seven sessions were included in analyses presented below (for details about attrition rates, an examination of potential influences of attrition on our results, and analyses including participants who did not complete all sessions see online supplementary materials, Tables S6 and S7).

Procedure. The procedure for Study 3 was the same as the one used in Study 2 except for the following changes. First, moralization and every predictor of moralization assessed was measured in each of the questionnaire waves of Study 3. Second, during the first wave of data collection, we collected individual difference measures relating to morality that we expected would influence moralization. Specifically, participants completed the Moral Identity Scale (Aquino & Reed, 2002). This questionnaire presents participants with a list of 9 moral traits individuals might possess, including "kind," "generous," and "compassionate." It then asks participants to complete 10-items that assess how much these moral traits are central to their self-concept (*moral internalization*), and how much their everyday actions demonstrate that they possess these traits (*moral symbolization*). For each item, participants responded on a scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Participants also completed the six-item *harm–care* subscale from the Moral Foundations Questionnaire (Graham et al., 2009). This measure assesses how much participants base their morality in notions of harm and suffering as well

[8] It is possible that sampling only those who indicated no moralization initially could lead to misleading evidence of moralization due to measurement error or regression-to-the-mean effects. We believe this is unlikely, however, as such error variance would be unexpected to occur in a systematic, ascending pattern, across different variables, across participants, and across time points, like we found in this study.

as care and compassion. The reliabilities for our participants on the *moral internalization*, *moral symbolization*, and *harm-care* scales were .82, .90, and .78, respectively.

Third, in Study 3, along with assessing all the elements of the PPMM from Study 2 (see online supplementary materials for reliability indices), we included additional items and measures that were not included in Studies 1 and 2 due to time and financial constraints.

Moral cognitions. Because perceived *suffering* both played an important role in the moralization of participants in Studies 1 and 2, and because Bastian and Loughnan's (2017) analysis of the meat paradox points to perceived suffering (or lack thereof) as a common means of reducing moral dissonance, we expanded the single-item measure of suffering used in Studies 1 and 2 to be a six-item composite that captured in more detail beliefs about how much animals, particularly those raised to be food for humans, can and do suffer (see online supplementary materials for all items). Reliability measures for each time point for this *suffering* composite were high ($\alpha_{\text{Time 1}} = .85$, $\alpha_{\text{Time 2}} = .89$, $\alpha_{\text{Time 3}} = .91$, $\alpha_{\text{Time 4}} = .92$). We also introduced a new item which, we figured, may help further explain participants' levels of moralization—how much they viewed animals and humans to be *similar*. Specifically, participants indicated how much they agreed or disagreed with the statement "In many ways, animals are similar to humans" on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Hedonic motivations. We included a number of items relating to eating meat that might deter participants from moralizing the issue, with the assumption that a key reason why participants would not moralize the issue being that moralizing would inherently involve giving up meat consumption. We included a three-item *social pressures* measure to assess how much participants felt that moralizing the issue would hinder their social lives. Specifically, participants were asked how much they agreed or disagreed with the following items: "Important individuals in my life expect me to eat meat," "If I didn't eat meat I would appear abnormal," "Everyone else eats meat. If I didn't, I would not fit in." Participants responded to each item on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*), and reliabilities at each time point were $\alpha_{\text{Time 1}} = .83$, $\alpha_{\text{Time 2}} = .80$, $\alpha_{\text{Time 3}} = .83$, and $\alpha_{\text{Time 4}} = .81$.

Rationalizing cognitions. In addition, in line with Bastian and Loughnan's (2017) argument that individuals often reduce moral dissonance by convincing themselves that they do not hold any personal responsibility, we included measures that aimed to gauge how much *personal choice* and responsibility participants believed they had when it came to eating meat, how much they felt giving up eating meat would make their lives *impossible*, how *natural* they considered eating meat to be, and how *necessary* for survival they considered eating meat to be.

Behavioral intentions. We added additional behavioral intentions measures to the final wave of data collection. In all, participants completed a total of seven items, the same three items from Study 2 that measured participants' intentions to change how much meat they eat, and an additional four items that assessed how willing participants were to engage in behaviors aimed at affecting the meat-eating behaviors of other individuals. These additional four items were: "Engage in protest activities opposing the killing of animals for their meat," "Volunteer time to organizations or causes that oppose the killing of animals for their meat," "Donate money to organizations that oppose the killing of animals for their meat," and "Contact government representatives to voice opposition regarding companies that are involved in killing animals for their meat." Participants responded to all items on a scale ranging from 1 (*not at all likely*) to 5 (*very likely*).

Results

What predicts moralization? Table S8 present correlations along with means and standard deviations for each variable. As in Studies 1 and 2, we conducted a series of linear mixed model regression analyses looking at the effect of each predictor when grand-mean centered, Time 1-person centered, and when treated as a Person aggregate. Table 4 presents the results of these analyses. Overall, results indicated that *meat emotions*, *animal emotions*, *moral piggybacking*, *suffering*, and *animals-humans similar* significantly predicted increased moralization. Moreover, the within-person and between-person results for each of these variables were both uniquely significant predictors. These results replicate our findings from Studies 1 and 2, as well as introduce another key predictor of increased moralization—perceptions that animals and humans are similar to one another. Additionally, we found that *tastiness* and *natural* both negatively predicted moralization. As we found in Studies 1 and 2, there were both within-person and between-person effects of *tastiness* on moralization. Study 3 was the first time we explored the effects of *natural*, and results indicated that it negatively predicted moralization as well, but only in terms of within-person effects—that is, individual changes from baseline in how much participants perceived eating meat as being a natural part of life predicted their changes in moralization.

Interestingly, many of the variables we expected to negatively predict moralization were not significant predictors, or if they were significant, were positively related to moralization. These unexpected null and positive relationships may indicate that these variables are actually outcomes of moralization rather than deterrents of it. The more individuals moralize the issue, the more they may be motivated to rationalize a behavior (i.e., eating meat) that is in conflict with the moral belief they have developed (see Bastian & Loughnan, 2017). In other words, exposure to the videos in our study might compel some individuals to recognize the moral relevance of eating meat, but also motivate them to engage in dissonance-reduction processes that allow them to continue to eat it. The online supplementary materials contain more discussion and analyses related to this possibility.

Moralization modeling. Unlike Studies 1 and 2, where some variables were collected at certain time points while others were not, in Study 3, all variables were collected at all 4 time points. By doing so, it became possible to build a full model of moralization accounting for the overlap between the different predictors and ultimately determining whether any of the predictors might mediate the relationship between the other predictors and moralization. As an exploratory first step, we entered all the significant predictors from above together as simultaneous predictors of moralization. For the sake of parsimony we entered all predictors except for *natural* in their grand-mean centered form because both the within- and between-person effects for these variables were significant predictors of *moralization*. For *natural*, we entered it in its

Table 4
Results of Linear Mixed-Model Regressions and Cross-Lagged Analyses Examining the Impact of the Predictor Variables on Moralization (Study 3)

	Linear-mixed model regression statistics predicting moralization		Cross-lagged analyses		
Predictor	Grand-mean centered	Time 1–person centered (top) and aggregate (bottom)	Predicting Time 2 moralization	Predicting Time 3 moralization	Predicting Time 4 moralization
Meat emotions	$b = .49$, $SE = .05$, $df = 75.17$, $p < .001$ 95% CI [.39, .59]	$b = .42$, $SE = .05$, $df = 80.24$, $p < .001$, 95% CI [.31, .52] $b = .27$, $SE = .07$, $df = 433.50$, $p < .001$, 95% CI [.13, .41]	$b = .22$, $SE = .13$ $p = .091$ 95% CI [−.03, .48]	$b = .41$, $SE = .08$ $p < .001$ 95% CI [.25, .57]	$b = .19$, $SE = .06$ $p = .001$ 95% CI [.07, .31]
Animal emotions	$b = .12$, $SE = .02$, $df = 246.67$, $p < .001$ 95% CI [.08, .15]	$b = .08$, $SE = .02$, $df = 196.53$, $p < .001$, 95% CI [.05, .12] $b = .17$, $SE = .02$, $df = 341.29$, $p < .001$, 95% CI [.12, .22]	$b = .08$, $SE = .02$ $p = .001$ 95% CI [.04, .12]	$b = .13$, $SE = .02$ $p < .001$ 95% CI [.09, .17]	$b = .05$, $SE = .02$ $p = .045$ 95% CI [.01, .09]
Moral piggybacking	$b = .50$, $SE = .03$, $df = 186.50$, $p < .001$ 95% CI [.45, .55]	$b = .36$, $SE = .03$, $df = 128.95$, $p < .001$, 95% CI [.30, .43] $b = .52$, $SE = .03$, $df = 346.08$, $p < .001$, 95% CI [.46, .58]	$b = .07$, $SE = .05$ $p = .114$ 95% CI [−.03, .17]	$b = .20$, $SE = .05$ $p < .001$ 95% CI [.10, .30]	$b = .12$, $SE = .05$ $p = .014$ 95% CI [.02, .22]
Suffering composite	$b = .18$, $SE = .03$, $df = 262.11$, $p < .001$ 95% CI [.13, .23]	$b = .19$, $SE = .04$, $df = 218.64.$, $p < .001$, 95% CI [.12, .27] $b = .12$, $SE = .03$, $df = 345.85$, $p < .001$, 95% CI [.06, .17]	$b = .10$, $SE = .03$ $p = .001$ 95% CI [.04, .16]	$b = .11$, $SE = .03$ $p < .001$ 95% CI [.05, .17]	$b = .07$, $SE = .03$ $p = .023$ 95% CI [.01, .13]
Personal choice	$b = -.003$, $SE = .02$, $df = 123.99$, $p = .869$ 95% CI [−.04, .04]	$b = .01$, $SE = .02$, $df = 221.91$, $p = .701$, 95% CI [−.04, .06] $b = -.04$, $SE = .03$, $df = 332.84$, $p = .286$, 95% CI [−.10, .03]	$b = -.02$, $SE = .02$ $p = .265$ 95% CI [−.06, .02]	$b = -.03$, $SE = .02$ $p = .030$ 95% CI [−.07, .00]	$b = .00$, $SE = .02$ $p = .996$ 95% CI [−.04, .04]
Impossible	$b = -.0002$, $SE = .02$, $df = 187.10$, $p = .989$ 95% CI [−.03, .03]	$b = .01$, $SE = .02$, $df = 80.79$, $p = .726$, 95% CI [−.03, .05] $b = -.01$, $SE = .02$, $df = 330.00$, $p = .744$, 95% CI [−.06, .04]	$b = -.04$, $SE = .02$ $p = .042$ 95% CI [−.08, .00]	$b = -.03$, $SE = .02$ $p = .206$ 95% CI [−.07, .01]	$b = .00$, $SE = .02$ $p = .862$ 95% CI [−.04, .04]
Social pressures	$b = .10$, $SE = .03$, $df = 94.49$, $p = .003$ 95% CI [.03, .16]	$b = .05$, $SE = .04$, $df = 102.98$, $p = .271$, 95% CI [−.04, .13] $b = .16$, $SE = .04$ $df = 339.28$, $p < .001$, 95% CI [.08, .23]	$b = .07$, $SE = .04$ $p = .060$ 95% CI [−.01, .15]	$b = .04$, $SE = .04$ $p = .369$ 95% CI [−.04, .12]	$b = .03$, $SE = .04$ $p = .464$ 95% CI [−.05, .11]
Natural	$b = -.02$, $SE = .02$, $df = 167.75$, $p = .192$ 95% CI [−.05, .01]	$b = -.04$, $SE = .02$, $df = 122.20$, $p = .041$, 95% CI [−.08, .00] $b = .01$, $SE = .02$ $df = 332.21$, $p = .586$, 95% CI [−.03, .06]	$b = .01$, $SE = .02$ $p = .743$ 95% CI [−.03, .05]	$b = -.02$, $SE = .02$ $p = .429$ 95% CI [−.06, .02]	$b = -.03$, $SE = .02$ $p = .136$ 95% CI [−.07, .01]
Necessary	$b = .01$, $SE = .02$, $df = 291.04$, $p = .733$ 95% CI [−.02, .05]	$b = -.02$, $SE = .02$, $df = 191.81$, $p = .299$, 95% CI [−.07, .02] $b = .06$, $SE = .02$, $df = 326.24$, $p = .005$, 95% CI [.02, .10]	$b = .02$, $SE = .02$ $p = .374$ 95% CI [−.02, .06]	$b = -.03$, $SE = .02$ $p = .126$ 95% CI [−.07, .01]	$b = -.01$, $SE = .02$ $p = .636$ 95% CI [−.05, .03]
Tastiness	$b = -.07$, $SE = .03$, $df = 196.16$, $p = .035$ 95% CI [−.14, −.01]	$b = -.09$, $SE = .03$, $df = 1046.77$, $p = .006$, 95%CI [−.16, −.03] $b = -.10$, $SE = .05$ $df = 337.28$, $p = .040$, 95%CI [−.19, −.00]	$b = -.03$, $SE = .05$ $p = .585$ 95% CI [−.13, .07]	$b = -.06$, $SE = .04$ $p = .193$ 95% CI [−.14, .02]	$b = -.12$, $SE = .04$ $p = .003$ 95% CI [−.20, −.04]
Animals–humans similar	$b = .09$, $SE = .02$, $df = 248.30$, $p < .001$ 95% CI [.05, .13]	$b = .09$ $SE = .03$, $df = 201.50$, $p = .001$, 95% CI [.04, .13] $b = .07$, $SE = .03$ $df = 331.96$, $p = .006$, 95% CI [.02, .12]	$b = .03$, $SE = .02$ $p = .193$ 95% CI [−.01, .07]	$b = .08$, $SE = .03$ $p = .001$ 95% CI [.02, .14]	$b = .01$, $SE = .03$ $p = .830$ 95% CI [−.05, .07]

Table 5
Results of the Full Mixed-Model Regression With All Significant Predictors of Moralization Entered Simultaneously, Both Including and Excluding Meat Emotions and Moral Piggybacking (Study 3)

Predictor	Linear mixed-model regression results (all predictors entered)	Linear mixed-model regression results (all predictors entered, except meat emotions and moral piggybacking)
Moral piggybacking	$b = .44$, $SE = .03$, $p < .001$	—
Meat emotions	$b = .16$, $SE = .04$, $p < .001$	—
Animal emotions	$b = .01$, $SE = .01$, $p = .549$	$b = .07$, $SE = .02$, $p < .001$
Natural	$b = .00$, $SE = .01$, $p = .995$	$b = -.03$, $SE = .02$, $p = .097$
Suffering	$b = .03$, $SE = .02$, $p = .170$	$b = .10$, $SE = .03$, $p < .001$
Animals–humans similar	$b = .00$, $SE = .02$, $p = .758$	$b = .03$, $SE = .02$, $p = .126$
Tastiness	$b = -.01$, $SE = .02$, $p = .643$	$b = -.07$, $SE = .03$, $p = .025$

person-centered form because only its within-person effects were significant. The results of this analysis are presented in Table 5.

As shown in the table, all predictors of moralization become nonsignificant except for *meat emotions* and *moral piggybacking*. Additionally, we found that when *meat emotions* and *moral piggybacking* are not entered into this regression, all the other predictors (*natural, suffering general*, *animal emotions*, *animal-human similar*, and *tastiness*) are either significant or very close to significance, and in all cases, a comparison between the regression weights demonstrates the substantial drop in influence on moralization each predictor has when *meat emotions* and *moral piggybacking* are in the model. Moreover, we compared these two models by examining their −2 restricted log likelihoods—an estimator of model fit, where smaller values indicate better fit—and found that the model that included all the predictors yielded a −2 restricted log likelihood of 1530.73, whereas the model without these two predictors yielded a −2 restricted log likelihood of 1986.53, and a χ^2 test comparing these two models was significant, $\chi^2(2) = 455.80$, $p < .001$, indicating that the model including *meat emotions* and *moral piggybacking* was a substantially better model, highlighting the key role *meat emotions* and *moral piggybacking* play in the moralization process. Such a result also suggests that the other variables besides *meat emotions* and *moral piggybacking* might predict moralization via *meat emotions* and *moral piggybacking*. To test this possibility we ran a series of mediation analyses, separately looking at *suffering*, *animal emotions*, *animal–human similar*, *natural*, and *tastiness* when *meat emotions* and *moral piggybacking* are simultaneously entered as mediators. In conducting these mediations, since within- and between-person effects are confounded with one another, we ran the analyses entering the Time-1 centered variables while also entering person-aggregate variables for all predictors except *natural*, for which we only explored the within-person centered variable independently.[9] Table 6 presents the results of these analyses.

As depicted in the table, each of the predictor variables drops to nonsignificance when meat emotions and moral piggybacking were included in the analysis. Furthermore, for each predictor, the indirect effect was significant for at least one component (i.e., within-person or between-person) of meat emotions and/or moral piggybacking. More specifically, the significant Time-1–person centered results indicate that the amount participants' within-person changes predicted their moralization changes across time was explained by their changes in either meat emotions, moral piggybacking, or both, across time. The person-aggregate results indicate that the extent to which differences between participants on a given predictor variable predicted moralization was due to differences between participants on either meat emotions, moral piggybacking, or both. As such, there is clear evidence that the relationship between the various predictor variables and moralization was mediated by either the experience of meat emotions, moral piggybacking, or both. Taking perceived suffering as an example, these results suggest that the more individuals perceive animals as suffering because humans eat meat, the more likely they are to experience emotions like guilt and shame, as well as an increased tendency to associate this issue with one's existing notions of morality, and as a result, they are more likely to moralize the issue.

Change over time. As in Studies 1 and 2, we conducted cross-lagged structural equation modeling to explore the influence each predictor had on moralization at the subsequent time point. Table 4 presents the effect each predictor had on moralization scores at the subsequent time point, and full cross-lagged model diagrams can be found in the online supplementary materials (Figures S15–S25). In line with the previous results, we found strong evidence that many of our variables predicted changes in moralization at subsequent time points. In particular, *meat emotions*, *animal emotions*, and *suffering* predicted moralization at all subsequent time points, *moral piggybacking* predicted subsequent moralization at two time points, whereas *tastiness*, *animals–humans similar*, *personal choice*, and *impossible* all predicted subsequent moralization at a single time point.

Who moralized? We conducted the same agglomerative hierarchical cluster analysis as we did in the first two studies (see Figures S26 and S27 for scree plot and dendrogram), and found evidence for three distinct clusters (see Figure 4). These clusters very closely resembled those found in Study 2, with a *Moralizers* cluster ($n = 46$), a *Slight Changers* cluster ($n = 106$), and a *Decreasers* cluster ($n = 136$). Linear mixed model analyses indicated that the slope of each cluster's trends was significant in the expected direction, *Moralizers*: $b = .33$, $SE = .03$, $df = 802.26$, $t = 12.36$, $p < .001$, 95% CI [.28, .39]; *Slight Changers*: $b = .08$,

[9] Preliminary tests showed that the model was significant and similar whether or not we included random effects. Thus, for the sake of parsimony, we conducted the mediational analyses with fixed effects.

Table 6
Results of Bootstrap Analyses Examining the Role of Meat Emotions and Moral Piggybacking as Simultaneous Mediators Explaining Each Predictor's Effect on Moralization (Study 3)

Predictor	*b*s, *SE*s, *df*s, and *p* values	Meat emotions as mediator	Moral piggybacking as mediator
Suffering			
Time-1 centered	$b = .02$, $SE = .03$, $df = 101.33$, $p = .490$	95% CI [.03, .06]*	95% CI [.03, .07]*
Person-aggregate	$b = .00$, $SE = .02$, $df = 325.63$, $p = .833$	95% CI [−.01, .001]	95% CI [.01, .08]*
Animal emotions			
Time-1 centered	$b = .01$, $SE = .01$, $df = 195.89$, $p = .523$	95% CI [.01, .03]*	95% CI [.01, .03]*
Person-aggregate	$b = .03$, $SE = .02$, $df = 326.74$, $p = .216$	95% CI [−.02, .003]	95% CI [.02, .10]*
Animal–human similar			
Time-1 centered	$b = .01$, $SE = .02$, $df = 133.32$, $p = .496$	95% CI [.01, .02]*	95% CI [.01, .03]*
Person-aggregate	$b = -.03$, $SE = .02$, $df = 302.29$, $p = .095$	95% CI [−.005, .0001]	95% CI [.02, .09]*
Tastiness			
Time-1 centered	$b = -.05$, $SE = .03$, $df = 1115.71$, $p = .097$	95% CI [−.03, −.01]*	95% CI [−.003, .02]
Person-aggregate	$b = .01$, $SE = .04$, $df = 333.77$, $p = .812$	95% CI [−.04, .004]	95% CI [−.07, .04]
Natural			
Time-1 centered	$b = -.01$, $SE = .01$, $df = 1168.28$, $p = .398$	95% CI [−.02, −.004]*	95% CI [−.02, .01]

Note. The regression weights in the table represent the c′ paths in the mediation analysis. Confidence intervals with asterisks represent significant indirect effects.

$SE = .02$, $df = 802.26$, $t = 4.52$, $p < .001$, 95% CI [.05, .11]; *Decreasers*: $b = -.05$, $SE = .01$, $df = 802.26$, $t = -3.83$, $p < .001$, 95% CI [−.08, −.02].

We next explored whether any demographic variables might predict the likelihood of being in the *Moralizer* cluster. Logistic regression analyses yielded a significant effect of *gender*, $b = -.75$, $SE = .33$, $p = .022$, $OR = .48$, *ethnicity*, $b = .80$, $SE = .32$, $p = .013$, $OR = 2.23$, and *religiosity*, $b = .18$, $SE = .07$, $p = .012$, and a marginally significant effect of *age,* indicating that females, white participants, more religious participants, and older participants were all more likely to moralize. However, we found no effect for *socioeconomic status*, $b = .07$, $SE = .21$, $p = .738$ or *political ideology,* $b = .09$, $SE = .09$, $p = .327$.

The shape of moralization. As before, we tested whether the moralization process occurred in a linear or curvilinear fashion. The linear regression analysis yielded a significant effect, $b = .33$ $SE = .04$, $df = 104.76$, $t = 8.06$, $p < .001$, 95% CI [.25, .42]. The curvilinear regression analysis yielded a significant effect of time, $b = .59$ $SE = .23$, $df = 121.07$, $t = 2.62$, $p = .010$, 95% CI [.14, 1.04], and a nonsignificant effect of time-squared, $b = -.05$ $SE = .04$, $df = 130.11$, $t = -1.16$, $p = .249$, 95% CI [−.14, .04]. Thus, as we found in Studies 1 and 2, moralization unfolded over time in a linear fashion (see Figure 4, and online supplementary materials for additional analyses).

Behavioral intentions. Means, standard deviations, and results from one-way ANOVAs entering cluster group as the independent variable and each of the behavioral intentions items as the dependent variable are presented in Table 7. As shown in the table, moralizers indicated a greater willingness to engage in behaviors aimed at minimizing their own and others' consumption of meat, further attesting to the important behavioral consequences holding something as moral can have (e.g., Skitka et al., 2005).

Individual differences. Finally, we examined the role individual differences in moral identification—*moral internalization* and *moral symbolization*—and in endorsement of the *harm–care moral foundation* might play in determining whether someone was a *Moralizer* or not. Table 8 presents the results of logistic regression analyses for each individual difference measures. We found that the higher individuals scored on the two moral identity measures and the more they endorsed the harm-care moral foundation, the more likely they were to be *Moralizers*. As such, these individual difference findings attest to how preexisting differences participants have in terms of how much they hold morality as central to their self-concept, how much they wish for their actions to signal their morality, and how much they find notions of harm and care to be within the moral domain, influence the likelihood that they would moralize the issue of eating animals once presented with stimuli highlighting this behavior's potential immorality. Of particular note, the odds ratio for *moral internalization* was 2.88, indicating that for every point increase on the *moral internalization* measure participants were almost 3 times as likely to be *Moralizers*.[10]

Discussion

In Study 3 we recruited only participants who were frequent meat-eaters, who believed eating meat was not at all a moral issue. In all, the results of Study 3 were highly consistent with what we found in both Studies 1 and 2, and the inclusion of additional predictors also yielded new insights about what else (e.g., viewing animals and humans as similar, believing that eating animals is part of human nature) might push people toward and pull them away from moralization. In addition, we also examined all the significant predictors of moralization together in a full moralization model, and found clear evidence that *meat emotions* and *moral piggybacking* were the strongest predictors of moralization, with all other predictors becoming nonsignificant when these two were part of the model. Subsequent testing demonstrated that *meat emotions* and *moral piggybacking* were the underlying mechanism(s) for each of the other predictors. As such, these results indicate that although many variables predicted moralization, they

[10] Beyond having a direct effect on moralization, these individual difference measures might also moderate the effect of the other push and pull mechanisms. See online supplementary materials, Table S9, for a results summary of moderation analyses.

Table 7
Means, Standard Deviations, and Statistical Tests for All Behavioral Intentions Measures (Study 3)

Behavioral intention	Decreasers *M* (*SD*)	Slight changers *M* (*SD*)	Moralizers *M* (*SD*)	Omnibus *F* test
Become vegetarian	1.47 (.70)[a]	1.85 (.92)[b]	2.28 (1.15)[c]	$F(2, 347) = 19.73$, $p < .001$, $\eta_p^2 = .102$
Limit meat eaten	2.42 (1.36)[a]	3.19 (1.28)[b]	3.72 (1.34)[c]	$F(2, 347) = 23.23$, $p < .001$, $\eta_p^2 = .118$
Limit factory farm meat	3.22 (1.41)[a]	3.74 (1.21)[b]	4.24 (1.04)[c]	$F(2, 347) = 13.67$, $p < .001$, $\eta_p^2 = .07$
Protest	1.11 (.41)[a]	1.54 (1.08)[b]	2.04 (1.63)[c]	$F(2, 347) = 23.72$, $p < .001$, $\eta_p^2 = .120$
Volunteer TIME	1.17 (.62)[a]	1.67 (1.21)[b]	2.24 (1.59)[c]	$F(2, 347) = 25.08$, $p < .001$, $\eta_p^2 = .126$
Donate money	1.47 (1.13)[a]	2.08 (1.51)[b]	3.20 (2.33)[c]	$F(2, 347) = 27.65$, $p < .001$, $\eta_p^2 = .137$
Contact government rep.	1.27 (.85)[a]	2.21 (1.57)[b]	2.80 (2.00)[c]	$F(2, 347) = 35.74$, $p < .001$, $\eta_p^2 = .171$

Note. Mean values with different letters are significantly different from one another at $p < .05$.

did so indirectly, via the influence of *meat emotions* and *moral piggybacking*. Finally, we also found clear evidence that individual differences, such as how much individuals hold their moral identity central to who they are and how much they endorse the harm-care moral foundation, directly predicted who would or would not be a *Moralizer*.

General Discussion

Individuals' moral convictions profoundly affect their thoughts, beliefs, and behavior. Yet little research to date has examined the process by which individuals come to moralize an issue. The aim of the present research was to explore the factors that might push people to categorize something as moral, as well as the factors that might serve as barriers to moralization. In our inquiry, we chose to focus on the issue of eating meat as a case study of something people could potentially moralize. We selected this issue primarily because most individuals do not already consider it as having moral relevance, and instead are morally neutral on the issue. Thus, we were largely able to examine the occurrence of moralization from a morally neutral starting point and assess what factors predicted changes away from that starting point.

Across three studies, we found substantial variability in how participants responded, providing us with an ideal opportunity to tease apart who did or did not moralize and what factors explained this variability. The results of our studies pointed to a variety of factors that corresponded well with our proposed PPMM, such as perceived animal suffering, feelings of compassion, and viewing animals and humans as similar—all of which pushed individuals to moralize the issue of eating meat. We also found other factors, such as hedonic motivations (e.g., perceived tastiness of meat) and cognitions regarding the naturalness of eating meat pulled individuals away from moralization. Further, an in depth exploration of all factors in Study 3 demonstrated that the two central conduits by which individuals came to moralize the issue were (a) the experience of moral emotions (e.g., disgust, guilt, outrage) regarding the issue, and (b) engaging in moral piggybacking, where participants connected the issue of eating meat with existing moral principles they held (i.e., these factors mediated the relationship between all other variables and moralization).[11]

Our results build on past research in important ways and provide many novel theoretical insights into how something previously held as morally neutral can become moralized. First, most research has explored moralization by either relying on participants' reflections of how and why they had previously come to moralize an issue (Rozin et al., 1997; Rozin & Singh, 1999) or by experimentally examining moralization at a single time point (Mooijman et al., 2017; Wisneski & Skitka, 2017). Although these studies provided important insights about moralization, they could not capture the moral changes participants underwent, nor could they capture the concomitant changes in emotions and cognitions that predicted moralization. In contrast, our use of longitudinal studies allowed us to directly assess such changes as they happened over time.

Second, past moralization research and theory has focused solely on what leads individuals to moralize. Although we built on this research by exploring the factors that *push* people to engage in moralization, we also explored important barriers that diminish or prevent moralization. Our results pointed primarily to a hedonic motivation (Ariely & Jones, 2012; Bazerman & Tenbrunsel, 2011; Mazar et al., 2008), specifically the perceived tastiness of meat, as a fundamental obstacle to moralization. Although "tastiness" is clearly specific to the issue of eating meat, this result suggests that hedonic motivations more generally are likely to deter moralization. Additionally, we also found evidence that cognitive dissonance reduction strategies (Bastian & Loughnan, 2017) served as a separate barrier to moralization, with some evidence that those who engage in cognitions such as "eating meat is a natural part of being human" were less likely to moralize the issue of eating meat.

Table 8
Results of Binary Logistic Regressions Examining Individual Difference Measures' Effect on Being Classified as a Moralizer or Not (Study 3)

Classification	Binary logistic regressions	Odds ratio
Moral internalization	$b = 1.06$, $SE = .39$, $p = .007$	2.88
Moral symbolization	$b = .56$, $SE = .19$, $p = .004$	1.76
Harm–care moral foundation	$b = .51$, $SE = .22$, $p = .020$	1.66

[11] Participants in our studies were likely able to deduce the research questions we were exploring, which could have led to demand effects. However, we believe that it is unlikely that our results were attributable to demand effects because the vast majority of participants in Studies 2 and 3 demonstrated either no change or a decrease in moralization over time. Additionally, if demand effects were at play for the moralizers, we would expect moralization and the predictors of moralization to remain constant across time. For instance, if a participant thought that the "correct" answer was a 5 of 5 on a moralization question, then presumably that participant would select 5 each time it was asked. Instead, we found that the moralizers gradually increased in their moralization scores over time.

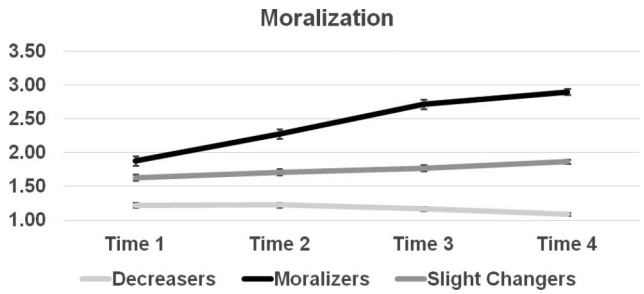

Figure 4. Moralization changes over time separated by cluster (Study 3). Error bars represent ±1 *SEM*.

Once again, though this cognition is specific to meat eating, it suggests that the introduction of cognitions that can help reduce cognitive dissonance might play a role in preventing the occurrence of moralization more generally (Bandura et al., 1996).

Lastly, in our research we also examined the impact of individual differences in predicting moralization over time—something that to date has only been proposed theoretically and had yet to be tested empirically. Our results indicate that individuals who were higher in both internalized and symbolized moral identity as well as those who strongly endorsed the harm-care moral foundation were most likely to moralize the issue of eating meat. Such findings highlight the important role that preexisting moral tendencies can play in the likelihood to moralize.

Our results have far-reaching implications for both researchers and practitioners. For instance, by uncovering the underlying mechanisms of moralization, we now have a potential roadmap for how best to elicit moralization in individuals both in laboratory experiments and in the real world. Our results suggest that if one wants to evoke moralization, it is useful to employ stimuli that engender strong emotional responses such as guilt, shame, and disgust. Likewise, our results indicate that it is important for the stimuli to make it apparent how the target issue readily connects with people's existing moral principles so they engage in moral piggybacking.

Related to this, across all three studies we found evidence for both an affective and a cognitive route to moralization. In fact, in each study, when both *meat emotions* and *moral piggybacking* were entered as simultaneous predictors, they both remained significant, indicating each had a unique and independent influence on the moralization process over time. Interestingly, such a finding suggests that moralization can be evoked by capitalizing on either of these push mechanisms, and that targets for moralization do not need to experience both for them to moralize. Even so, this does not necessarily rule out the possibility that these two push mechanisms do not influence one another when impacting moralization either by interacting with one another, or by partially mediating one another's relationship with moralization. We conducted analyses exploring these possibilities and present a results summary in Table 9. As shown in the table, in all three studies, we found no evidence that these two push mechanisms interacted with one another, but we did find consistent evidence that *moral piggybacking* partially mediated the relationship between *meat emotions* and *moralization* over time, and that *meat emotions* partially mediated the relationship between *moral piggybacking* and *moralization*.[12] In other words, these two push mechanisms may form a feedback loop where each helps trigger and reinforce the other.

Overall, insights gained from our research should be particularly useful for those seeking to motivate behavioral changes that help address problems requiring large-scale collective action. As demonstrated in the current research and previously, those holding moral convictions about something typically feel compelled to engage in behaviors that protect the sacredness of that moral thing (Skitka, 2010). They do this not only by altering their own behavior, but by committing themselves to changing others' behavior as well. In the present research, those who moralized the issue of eating meat were the most likely to report intentions to become vegetarian and the most willing to engage in behaviors that would minimize other people's meat consumption (e.g., join in protest activities). Similarly, past research has shown that moral convictions predict a variety of behaviors aimed at affecting change in others (e.g., voting, activism, boycotts; Skitka, 2010; Skitka & Bauman, 2008). Thus, it would be strategic for those seeking to mobilize others in the fight to solve social problems, like climate change, poverty, and inequality, to use insights from the present research to devise techniques that spark moralization in others.

However, it is important to note that although our interventions were successful in leading some of our participants to moralize eating meat, a portion of the participants showed evidence of psychological reactance (i.e., they moralized eating meat *less* in response to taking part in our study). In fact, in Studies 2 and 3 we found more people demonstrated reactance than became moralizers. This fits with past findings on reactance (Brehm, 1966; Brehm & Brehm, 2013), especially considering (a) our stimuli in these two studies were highly transparent in their aim to alter participants' beliefs, and (b) how much individual freedom participants would have to relinquish if they moralized the issue—two factors past research has found to directly predict reactance effects (Brehm, 1966; Brehm & Brehm, 2013). As such, this points to an interesting dilemma advocates for a moral cause face—direct and intense moral appeals can work on some people, but backfire on others (Feinberg & Willer, 2011; Feinberg, Willer, & Kovacheff, 2017). Relatedly, our results illustrate the importance of understanding individual differences when developing interventions to foster moralization. For instance, we found that individuals who strongly endorsed the harm-care moral foundation were the most likely to moralize and therefore least likely to show reactance effects.

Although many participants showed increased moralization over time, it is unclear whether taking part in any of our studies had longer term effects on the moralization of killing animals for their meat. What happened to the participants' level of moralization once they were no longer presented with stimuli highlighting the harm and suffering animals face provided in our studies? Did those who moralized return to their original stance, maintain their level of moralization, or possibly experience heightened moralization? If some of the moralizers from our study stopped moralizing, while others continued to moralize, what might explain such differences?

[12] Preliminary tests showed that all tests were significant and highly similar whether or not we included random effects. Thus, for the sake of parsimony, we conducted the mediational analyses with fixed effects.

Table 9
Summary of the Potential Mediating and Moderating Relationship Between Meat Emotions and Moral Piggybacking Across Studies

Study	Meat emotions → Moralization with moral piggybacking (without moral piggybacking)	Moral piggybacking → Moralization with meat emotions (without meat emotions)	Meat emotions × Moral piggybacking interaction predicting moralization
Study 1	$b = .50$, $SE = .04$, $p < .001$ ($b = .66$, $SE = .03$, $p < .001$) *Indirect Effect* 95% CI [.11, .17]	$b = .25$, $SE = .04$, $p < .001$ ($b = .51$, $SE = .04$, $p < .001$) *Indirect Effect* 95% CI [.16, .21]	$b = .03$, $SE = .04$, $p = .429$
Study 2	$b = .45$, $SE = .07$, $p < .001$ ($b = .71$, $SE = .05$, $p < .001$) *Indirect Effect* 95% CI [.27, .37]	$b = .37$, $SE = .04$, $p < .001$ ($b = .55$, $SE = .04$, $p < .001$) *Indirect Effect* 95% CI [.15, .19]	$b = -.08$, $SE = .04$, $p = .069$
Study 3	$b = .19$, $SE = .04$, $p < .001$ ($b = .49$, $SE = .05$, $p < .001$) *Indirect Effect* 95% CI [.24, .31]	$b = .45$, $SE = .03$, $p < .001$ ($b = .50$, $SE = .03$, $p < .001$) *Indirect Effect* 95% CI [.03, .05]	$b = .01$, $SE = .04$, $p = .725$

Note. All predictors are grand-mean centered.

These questions are not only of great theoretical importance, but are fundamentally important from an applied perspective.

Potentially, a moralization threshold exists, from which it is extremely difficult for individuals to turn back. Once the threshold is crossed, the morality of the issue becomes so deeply ingrained or conditioned that little can undo the process. In the same way most people instinctively shudder at the idea of committing a heinous crime (e.g., stealing from a child or killing a puppy; Graham et al., 2009), those having crossed the threshold for moralizing the issue of eating meat, shudder at the idea of killing animals for their meat (Rozin et al., 1997). If such a threshold exists, it would be interesting for future research to explore it in more depth. Not only would it be noteworthy to understand when and how this threshold is passed, but it would also be extremely useful to examine whether the mechanisms underlying the moralization process (i.e., moral emotions, moral piggybacking) become obsolete for the individual. It is possible that once the threshold of moralization has been surpassed feeling strong moral emotions or viewing the issue in light of existing moral principles disappears. The issue or behavior is inherently wrong and there is no need to experience any deep feelings or cognitions to enforce these notions. As past moral psychology literature highlights, when something rises to the level of a moral conviction, the morality of it becomes "factual" and self-evident (Skitka et al., 2005), and thus, in the same way people recognize that New York City is in the United States without feeling any deep emotions or cognitions, moralizers could recognize an issue/behavior is fundamentally right or wrong without feeling any deep emotions or cognitions.

Furthermore, although the present research focused on moralization at the individual level, it may also provide insights into how societal-level moralization might take place. There are numerous examples of macrolevel shifts in what is and is not viewed as moral. For instance, littering was once viewed outside the domain of morality, but has since shifted to be an immoral behavior no upstanding citizen would engage in (Rozin, 1999). How might such widespread moral change take place? Although the present research points to the efficacy of a direct route of moralization where appeals and arguments are used to instigate moral change, it is likely that other, more indirect routes to moralization also play a complementary role. In particular, we would expect that a small number of "early moralizers" plant the seeds of moralization in those closest to them not only via argumentation but also through modeling behavior (Bandura, 2011). For instance, those who moralize the issue of eating meat may spark curiosity and influence their family or friends about the issue simply by refusing to share in a meat dish at a communal dinner. Their behavior will certainly raise eyebrows and may even offend, but it should be difficult for loved ones to easily ignore or write off this behavior coming from someone with whom they strongly socially identify with. For some of these family and friends, the seeds of moralization will grow, and they will go on to plant the seeds of moralization in others through direct argumentation and indirectly through their behavior as well. These processes likely continue until a tipping point is reached where moralization is so widespread that it becomes socially deviant to not view the issue as a moral one, at which point, those who have not moralized will shift not out of principle, but to fit in (Bandura, 2011). Of course, to more accurately understand the processes underlying societal-level moralization would require additional research, particularly research that traces the different ways moralization spreads from individual to individual.

Lastly, although the present research provides answers to what underlies moralization, we believe our results should also be useful for understanding how something goes from being moralized to not related to morality at all. We deem this reverse process: *unmoralization*.[13] Like moralization, understanding this process in depth is of great societal value, especially considering how moral convictions can lead people to reject scientific progress and evoke intractable conflicts between individuals holding diverging moral beliefs (e.g., clashes between political extremists; Kovacheff, Schwartz, Inbar, & Feinberg, 2018). By understanding what processes lead to moralization, one might be able to devise strategies to reverse moralization by minimizing or removing the underlying causes. In support of this possibility, research on the use of emotion regulation strategies, such as cognitive reappraisal as a means of decreasing the experience of moral emotions, has been shown to lead individuals to be less judgmental of those engaged in behaviors they disapprove of and more open to resolution and

[13] Rozin (1999) labeled this process "demoralization." However, because we fear many will misunderstand this term as related to the adjective "demoralized" (i.e., feeling of lost confidence or being disheartened), we have chosen "unmoralization" instead.

negotiation with them (Feinberg, Antonenko, Willer, Horberg, & John, 2014; Feinberg, Willer, Antonenko, & John, 2012; Ford, Feinberg, Lam, Mauss, & John, 2018; Halperin & Gross, 2011; Halperin, Porat, Tamir, & Gross, 2013).

Limitations

Of course, as much as the present research provides insight into the process of moralization, there are important limitations to bear in mind. Below we discuss some of these limitations in hopes that future moralization research will help address them.

Generalizability. Moralization is thought to be a very general process that could occur for any issue, at least in theory (Rozin, 1999). Here, we have focused on moralization in opposition to eating meat in particular because it is an issue few have already moralized but was something we believed many could moralize, largely because people are sensitive to injustices enacted against animals. One alternative approach would have been to also apply the PPMM toward moralization *in favor* of eating meat. Doing so would hold constant the focal issue, allowing for a test of the model's efficacy in explaining moralization not only against, but also in favor, of something. In line with the model, we would expect that evoking moral emotions, such as guilt toward *not* eating meat, would push individuals to moralize in favor. For instance, one could present guilt-inducing arguments highlighting how the refusal to eat meat will cause great pain and suffering to family members wishing to share a meat-heavy meal together. Likewise, we would expect moral piggybacking to play a role in moralization in favor of eating meat. Stimuli connecting the refusal to eat meat with an existing moral principle, such as never disrespect or cause a parent to suffer, should push individuals to moralize in favor.

Another approach for establishing generalizability would have been to examine different potentially moralizable issues beyond eating meat. This would have had the advantage of allowing us to test whether the moralization process is similar across different issues, but would have sacrificed the in-depth understanding we gained by our focus on a single issue. We believe that the general process of moralization as outlined by the PPMM should apply to any issue, but the particulars will vary. For instance, one might explore moralization in favor of self-driving, autonomous cars. Researchers could use stimuli that evoke sadness and outrage regarding the number of people who have died in car accidents each year, but who would still be alive if everyone drove autonomous cars. Researchers could also emphasize how much suffering and harm would cease with the introduction of autonomous vehicles, and make clear arguments for how all of this connects with moral principles relating to the sanctity of life and preventing harm. Additionally, pull mechanisms, such as the pleasure derived from driving, or the abnormality of handing over one's safety and autonomy to robots might prevent or minimize moralization. In all, a potential avenue for further research is the investigation of the moralization process—both in favor and opposition—across a wider range of issues.

In addition, the videos we used to induce moralization focused on harm (specifically, the suffering of farm animals). In light of the central role of harm perceptions in morality (Schein & Gray, 2018), and its natural fit with the question of meat-eating, focusing on harm seemed to us to be the natural first step. However, we do not believe that moralization need only follow from harm. Indeed, tailoring interventions to individual moral differences may be key for most successfully fostering moralization (and potentially minimize reactance). For example, images or videos showing pristine natural environments befouled by industrial sludge might well induce people—especially those who morally value purity—to moralize pollution of the environment (see Feinberg & Willer, 2013, 2015).

Moral versus nonmoral attitude change. We have argued that the present research examines the process of moralization in particular. However, even though we operationalized moralization based on changes in participants' responses to items commonly used to capture levels of moral conviction (e.g., "To what extent is your position on eating meat a reflection of your core moral beliefs and convictions?"; Skitka et al., 2005), it is still difficult to distinguish the processes we explore from more general (nonmoral) persuasion processes. Indeed, a critic might argue that the most parsimonious explanation of our findings is that we simply exposed people to persuasive arguments that caused some measure of attitude change, and that there is nothing different between what we have shown and persuasion.

We believe this critique is unfounded, however, for both theoretical and empirical reasons. As described earlier, moral convictions are qualitatively different than nonmoral attitudes. Unlike nonmoral attitudes, moral convictions are closely linked with moral emotions (Haidt, 2001), and whereas nonmoral attitudes are viewed as a matter of personal preference, moral convictions are experienced as self-evident truths tantamount to factual information. Anyone disagreeing with these truths must either be misguided or immoral. As a result, unlike nonmoral attitudes, moral convictions motivate people to engage in behaviors aimed at shaping others' beliefs so these beliefs align with the moral conviction (e.g., Skitka et al., 2005). Given these qualitative differences between moral convictions and nonmoral attitudes, the processes individuals experience leading them to either develop a moral conviction (moralization) or a nonmoral attitude (persuasion) must likewise be qualitatively different.

To bolster this point empirically, looking at the present research, not only did we use face-valid measures of moralization, but also in Study 3 we found clear evidence that *moralizers* planned to engage in activist-like behaviors aimed at affecting the beliefs and behaviors of other people in society, including attending protests and lobbying political representatives, which are commonly morally motivated (Mullen & Skitka, 2006; van Zomeren, Postmes, & Spears, 2012). Further, for exploratory purposes, we included in each of our studies two attitude strength measures. Specifically, we asked "When you think about what you personally eat, what is your attitude toward eating meat?" and "When you think about what people in general eat, what is your attitude toward eating meat?" If moralization and persuasion are the same, then we would expect that controlling for attitude change would remove the significant relationships between our predictors and moralization (see Skitka et al., 2005 for similar logic and analyses). Because these two items were highly correlated (rs $> .59$), we combined them into a *meat attitudes* composite for each time point for each study. We then conducted a series of mixed model regression analyses entering moralization as the dependent variable, the meat attitudes composite as a covariate, and each of the significant predictor variables from Studies 1–3 as separate independent vari-

ables (see online supplementary materials Table S13 for results of each analysis). We found that the predictors remained significant when controlling for *meat attitudes*, indicating that the changes these predictors were influencing were above and beyond attitudinal changes—that is, they were changes in morality. As a final test, we also conducted a series of regression analyses examining if moralization scores at Time 4 (for Studies 2 and 3) held as significant predictors of each behavioral measure (e.g., become vegetarian) even when controlling for Time 4 *meat attitudes*. We found moralization continued to uniquely predict behavior intentions even when controlling for *meat attitudes* (see online supplementary materials Table S14).

Even with the above evidence, however, we certainly acknowledge that many of the mechanisms underlying moralization are similar to those causing nonmoral attitude change. So, what differentiates the psychological processes underlying nonmoral attitude change and moralization? We believe the answer depends on how much a given stimulus (consciously or unconsciously) activates one's underlying moral intuitions (Haidt, 2001). The more a stimulus activates moral intuitions, the more likely the individual will experience moral emotions and cognitions, rather than nonmoral emotions and cognitions, and therefore undergo the moralization process rather than simple persuasion. For example, when choosing to buy a computer (either a Mac or a PC) consumers are presented with all types of information that might influence their decision. Typically, this information (e.g., processing speed, appearance, and price) does not trigger moral intuitions. The information may still evoke (nonmoral) emotions and cognitions—a sluggish processor might evoke frustration, or a beautiful industrial design might resonate with existing preferences. Even so, because such emotions and cognitions are not moral in nature, the consumer will likely be persuaded but not moralize. In contrast, consumers might learn of unfair labor practices of one of the computer manufacturers, and for those who intuitively hold fairness as part of their core morality, this will evoke moral emotions and cognitions, and ultimately push them to moralize, rather than simply be persuaded.[14]

It is also important to note that although moralization and nonmoral attitude change are different processes, they will almost always co-occur. There may be situations where moralization without nonmoral attitude change can occur, and these situations would prove useful for disentangling moralization and nonmoral attitude change. In these situations, an individual might already hold a very strong attitude about something, but not connect it to morality in any way. For example, some individuals may be strongly opposed to eating meat for nonmoral reasons (e.g., health reasons, dislike of the taste or texture of meat). These individuals could be presented with stimuli similar to those used in the present investigation and any moralization that occurs would happen presumably without attitude change taking place, since they already held strong attitudes in opposition to eating meat. Of note, because a key pull mechanism—meat's tastiness—would be irrelevant for these participants, we would expect them to be extremely susceptible to moralization. However, it is also possible that these individuals are unique in what aspects of the PPMM will push or pull them to moralize the issue. For instance, since tastiness is an irrelevant pull mechanism for them, we might expect certain social pressures (e.g., not wanting to be viewed as a moral rebel) to be a stronger deterrent for them (compared with nonvegetarians). In all, we believe conducting research exploring moralization by those who already hold strong attitudes would be a useful avenue for future research.[15]

Other pull mechanisms. We found only a small number of the proposed pull mechanisms negatively predicted moralization. Considering most participants in our studies did not moralize even in the face of stimuli aimed at triggering moral emotions and cognitions, it raises the question of what else might be pulling them back from moralizing. We would hypothesize that any other forces deterring moralization would fit within our pull categories of hedonic motivations and rationalizing cognitions, but what might they be? One hedonic motivation we did not explore was the potential emotional suffering individuals could endure if they morally opposed eating meat. Individuals could convince themselves that preventing their own suffering outweighs the suffering of the animals in the videos, thereby motivating them to not moralize. Additionally, although we assessed the extent to which participants enjoyed the taste of meat, it is possible that other meat-related pleasures could pull individuals back from moralizing. They might be deterred because they love how satiated meat makes them feel, the unique texture meat has, or possibly, the primal pleasure experienced when cooking meat (e.g., barbequing; see Piazza et al., 2015).

In terms of rationalizing cognitions, it is possible that individuals turned to ignorance as a means for not moralizing. Convincing themselves they simply have no idea how to live in a world where eating meat is immoral could nullify any forces pushing them to moralize. Additionally, individuals might rationalize away the moral importance of the issue via moral licensing (Merritt, Effron, & Monin, 2010), convincing themselves that they already have impressive moral credentials and therefore need not worry about the issue of eating meat as a moral one (Bastian & Loughnan, 2017). Of course, it is also possible that an additional category of pull mechanisms exists beyond those the PPMM proposes. In all, we believe more research exploring pull side of moralization is needed.

Conclusion

The moral convictions we hold are fundamental to who we are, what we stand for, and how our society functions. Even though much research has explored the consequences of holding moral convictions, very little is known about the processes by which these convictions come to exist and gain strength. We believe the present research helps fill this large gap in the literature, and hopefully inspires future exploration of the moralization process. The more knowledge about moralization researchers can uncover, the easier it will be for practitioners to harness this powerful force and motivate greater commitment to social causes and collective action.

[14] Note that this does not assume a particular account of how moral intuitions are structured (e.g., moral monism vs. pluralism; see Gray, Young, & Waytz, 2012), only that some stimuli trigger moral intuitions, whereas others do not.

[15] There is also the possibility that individuals might experience moral ambivalence, where they moralize an issue both in favor and against at the same time. We discuss this possibility further in the online supplementary materials.

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