
The Role of State and Trait Emotional Empathy Toward Animals in the Associations of Dissociation and Meat Consumption

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Abstract: Many people enjoy eating meat but dislike the harming of animals that it entails. Dissociating meat from its animal origins has been identified as a powerful way to avoid cognitive dissonance resulting from this ‘meat paradox’. Extending previous research, this study examined the effect of dissociation on meat consumption and elucidate the role of state and trait emotional empathy toward animals in the associations of dissociation and meat consumption. Using a between-subjects design, participants were randomly allocated to dissociation-blocking condition or dissociation condition and completed measures of trait emotional empathy, state emotional empathy and positivity toward meat consuming. Results showed that dissociation-blocking was associated with reduced positivity to meat consuming. State emotional empathy mediated the association between dissociation and meat consumption and trait emotional empathy moderated the direct effect of dissociation on meat consumption, exactly, among participants who scored lower in trait emotional empathy, the effect of dissociation on meat consumption was significant, while among those who scored high in trait emotional empathy, the effect of dissociation on meat consumption was insignificant. To conclude, the present study demonstrated the effect of dissociation on meat consumption and further revealed the mediation effect of state emotional empathy and the moderation effect of trait emotional empathy in the associations between dissociation and meat consumption, which provided a unique insight into the relationship between dissociation and meat consumption.

Keywords: Dissociation, Emotional Empathy, Meat Consumption

1. Introduction

Meat consumption has been an inherent part of people's diet since prehistoric times [19]. Since the 20th century, meat production has changed from extensive, small-scale and subsistence systems to intensive, large-scale and market oriented systems. At present, around 65,000,000,000 land animals are slaughtered every year in the livestock industry [26]. Yet, many meat eaters will inevitably experience cognitive dissonance caused by the conflict between behavior (eating meat) and attitude (do not want to harm animals) when consuming meat, that is, they like eating meat but don't like the harm and death caused by the meat industry [2]. In the current study the inevitably psychological conflict

between people's daily preference for meat and their moral response to animal suffering was defined as “the meat-paradox” [19]. To deal with the dissonance, meat eaters used to adopt several strategies, including dissociating meat from its animal origin [18].

Emotional empathy is defined by most social psychologists as a vicarious emotional response to another's emotions or states that can motivate or mediate altruistic and helping behavior [10]. Emotional empathy has been regarded as applicable equivalently to non-human objects [22]. Evidence suggests that empathy can predict support for animal welfare and vegetarianism [17]. For example, Taylor and Signal investigated potential links between human-human empathy and attitudes to animals using the

Interpersonal Reactivity Index (IRI) and Animal Attitude Scale (AAS) and found a moderate but significant correlation between empathy and the AAS [25]. Graça and colleagues found that empathy attends to animals can explain the existence of gender differences in attitudes toward animal exploitation [13]. Additionally, Rothgerber and Mican examined the relationship between childhood pet ownership, attachment to pets, and subsequent meat avoidance, and revealed the mediating role of empathy toward animals between childhood pet attachment and meat consumption [24].

In fact, emotional empathy as a natural human capacity has been divided into state and trait emotional empathy, which may play different role in our life [8]. Despite this, few prior studies have examined the role of state emotional empathy and trait emotional empathy respectively in models exploring the linkages between dissociation and meat consumption. For example, Kunst and Hohle found that animal presentation can block state dissociation and arouse state empathy, which in turn affects meat consumption [18]. However, it did not consider the effect of trait empathy. In fact, previous study has indicated that the possible relationship between trait empathy, especially trait empathy toward animals and meat consumption [24]. Besides, Kunst and Hohle explored the effect of animal presentation on meat consumption limited to a single type of animal materials, which cannot exclude the possible bias of personal or group preference [18].

Therefore, in the present paper, we aimed to fill this gap and explored the role of state and trait emotional empathy toward animals respectively in the association between dissociation and meat consumption and besides compared to Kunst and Hohle [18], this study explored the effect by using different kinds of animals.

1.1. Dissociation and Meat Consumption

Dissociating meat from its animal origin has a profound impact on meat consumption [2]. In recent years, the dissociation hypothesis has been tested empirically. For example, using a variety of scenarios with real-world stimuli and simulated consumer-choice situations, Kunst and Hohle found that processes of dissociation were culturally entrenched [18]. The way we produce, prepare, and talk about meat and animals makes it easy to ignore the meat-animal link and sustain people's willingness to eat meat. In addition, Earle and colleagues repeated the study of Kunst and Hohle and confirmed that signals linking meat with animals can predict a drop in willingness to consume meat [10].

Based on previous studies, this study was designed to test the effect of dissociation on meat consumption firstly. We theorized that images of living animals may serve as the dissociation-blocking condition due to presentation of animals will interfere with the process of dissociating meat dishes from its animal origins, which appear incompatible with thoughts about the harming of animals for meat. It's predicted that individuals in dissociation-blocking condition would report reduced positivity toward meat consuming.

1.2. State Emotional Empathy as a Mediator

According to the empathy-altruism hypothesis, arousal of state emotional empathy can directly predict individuals' altruistic motivation and altruistic behavior [5]. Recent studies have found that the arousal of state emotional empathy mediated the effect of clues linking meat and animals on meat consumption [18, 23, 30]. For example, Zickfeld and colleagues explored the association between cuteness and meat consumption and found that empathy mediated the effect of cuteness on willingness to eat meat [30]. Similarly, Piazza and colleagues found that arousal of empathy responses could explain the effect of baby animals on meat consumption [23]. In addition, Kunst and Hohle found that presenting a living animal on the advertisements would lead to participants' arousal of state emotional empathy and reduced willingness to consume meat [18].

If so, it is reasonable to predict presentation of animals will interfere with the process of dissociating meat dishes from its animal origins and further result in reduced positivity toward meat consuming. That's, theorizing state emotional empathy as the arousal of emotional empathy response to specific situations or objects by self-reporting measurement, this present study hypothesized state emotional empathy mediated the association between dissociation and meat consumption.

1.3. Trait Emotional Empathy

Previous studies have found that trait emotional empathy could explain the differences between vegetarians and meat eaters, males and females' attitudes toward meat eating, animal welfare, and animal protection [13, 15]. Recent studies have found to a certain extent that individuals with different traits of emotional empathy tended to adopt different strategies to solve "meat-paradox" [2]. For example, Rothgerber and Mican found that individuals who scored high in trait empathy used to adopt some indirect strategies to rationalize meat-eating behavior, such as dissociation and avoidance, rather than direct strategies, liking the denial of animals' pain, moral status or intelligence [24]. However, recently, some scholar proposed "moral laziness", and they hypothesized empathy motivates altruistic behavior only on the premise of no or low cost and when people realize that it takes great efforts or cost to make moral judgments or moral behavior, people used to avoid making moral judgments or moral behavior [16].

Based on this, it's worthwhile to explore the specific role of trait emotional empathy. Theorizing trait emotional empathy as people's tendencies to empathize with animals [22], the current study hypothesized trait emotional empathy moderated the direct effect of dissociation on meat consumption and further we predicted presentation of animals will interfere with the process of dissociating meat dishes from its animal origins, which appear obviously among those higher in trait emotional empathy.

Additionally, previous studies have found that the arousal level of emotional empathy response may be determined by

some regulatory mechanisms such as trait empathic concern which acts to either diminish or enhance the basic empathic response in a given condition [14]. For example, Graaff and colleagues explored the relationship between self-reported trait emotional empathy and state emotional empathy and found that self-reported trait emotional empathy was positively correlated with state emotional empathy no matter in sad or happy situations [10].

If so, it is predicted dissociation-blocking would result in higher arousal of state emotional empathy toward animals among those higher in trait emotional empathy and which will further result in reduced positivity to eat meat, that's, we hypothesized trait empathy may conditionally influence the strength of the indirect relationship between dissociation and meat consumption.

1.4. Conceptual Framework

To sum up, in this article, we aimed to test the role of state and trait emotional empathy toward animals respectively in the associations of dissociation and meat consumption based on four main hypotheses, as is shown in Figure 1.

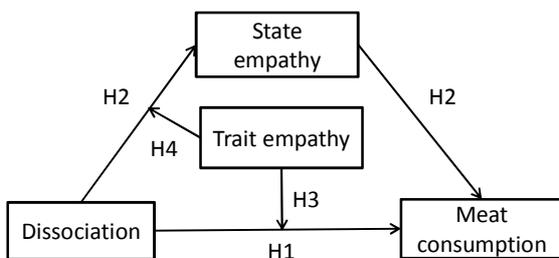


Figure 1. Hypothesized model.

2. Methods

2.1. Participants

In total, 177 participants were recruited, 134 females, and 43 males aged from 18 to 24 through the internet. Participants were randomly assigned to dissociation-blocking condition ($n = 88$, were presented meat dishes with living animals) or dissociation condition ($n = 89$, were presented meat dishes without living animals). Of all participants, 35.6% reported consuming meat less than twice a week, 38.4% reported to consume meat three to four times a week, 16.4% reported to consume meat five to six times per week, and 9.6% reported eat meat every day. All participants reported to be omnivores and adopted no special diet plan. All the participations were completely anonymous and voluntary. Ethical approval was given by Biomedical Research Ethics Committee of Henan University under protocol HUSOM2020-288. We calculated our power based on a two independent samples t-test ($\alpha = 0.05$, $f = 0.5$) and the power value was 0.91, exceeding the basic level of 0.80 and was expected to provided sufficient power [9].

2.2. Design and Procedure

Participants were recruited through the internet, after enrolled for the experiment, participants will be sent a linkage

to the experiment and then participants will be instructed to sit comfortably and keep their screen fixed on the proper distance and finish a series of experiment measurements. Participants first completed the Animal Empathy Scale assessing their general emotional empathetic tendencies toward animals. Next, they finished an inference task and were told that they would be asked questions about some advertisements. Using a between-subjects design, participants were randomly assigned to dissociation-blocking condition or dissociation condition, based on previous study [18], we experimentally manipulated the dissociation condition by displaying a meat dish with or without a living animal. Specifically, in the dissociation condition that was treated as control group, the picture displayed a meat dish without a living animal while in the dissociation-blocking condition, it displayed a living animal alongside the meat dish. For each condition, participants completed the same state dissociation measure and state emotional empathy measure. Afterward, participants indicated their positivity toward meat consuming. Finally, participants completed demographic information and questions asking about their diet plan and weekly consumption of meat and were briefly thanked for their time.

2.3. Materials and Measure

2.3.1. Stimuli

The stimuli were adopted from Zickfeld *et al.* [30]. However, based on our focus on dissociation, we developed a corresponding version without animal pictures by Adobe Photoshop for the dissociation-blocking group (see Figure 2).



Figure 2. Examples of advertisements presentation in dissociation-blocking condition (left) and dissociation condition (right).

2.3.2. State Dissociation

To check the effect of experimental manipulation, participants completed a state dissociation scale including three items taken from Kunst and Hohle (e.g., “The first thing I thought about when I saw the meat displayed above was a living being”; $\alpha = 0.87$) [18]. These items were measured on 7-point scales and reverse-scored so that higher values meant more dissociation.

2.3.3. State Emotional Empathy

To measure the empathic response to animals displayed in the advertisement, participants completed a state empathy scale including three items also adopted from Kunst and Hohle (e.g., “Seeing the advertisement makes me feel pity for the animal that was slaughtered”; $\alpha = 0.94$) [18]. Ratings were performed using 7-point scales ranging from 1 (totally disagree) to 7 (totally agree).

2.3.4. Trait Emotional Empathy

To measure general tendencies to empathize with animals, we employed the Animal Empathy Scale ($\alpha = 0.88$) [43]. The Animal Empathy Scale included 22 items, of which, 11 represented non-empathic sentiments and 11 represented empathic sentiments. Majorities of these items emphasized negative events and emotions (e.g., “Seeing animals in pain upsets me”). Ratings were performed using 9-point scales ranging from 1 (totally disagree) to 9 (totally agree) and a scoring system was used which allocated higher scores for a higher tendency to empathize with animals.

2.3.5. Positivity Toward Meat Consumption

To measure meat consumption, we used the following statement as in the study by Kunst and Hohle: “Hypothetically speaking, how negative or positive do you feel about eating the meat on the picture?” Responses were rated on a 7-point scale ranging from 1 (extremely negative) to 7 (extremely positive) [18].

2.4. Statistical Analyses

SPSS v24.0 was used to conduct all statistical analyses [7]. First, two independent samples t-test with state dissociation as the dependent variable and group as the independent variable were used to check for experimental manipulation. Then, using the same approach, we tested the effect of dissociation on positivity toward meat consumption. With dissociation-blocking condition was coded 1 and dissociation condition was coded 0, we utilized the PROCESS procedure developed by Hayes to test the mediation effect of state

emotional empathy and the moderation effect of trait emotional empathy on both direct and indirect effects of dissociation on willingness to consume meat through state emotional empathy by examining the following models: (1) using model 4 to test a simple mediation model with dissociation passing its effect to meat consumption indirectly through state emotional empathy; (2) using model 8 to test a moderating mediation model with trait emotional empathy as a moderator and state emotional empathy as a mediator of the direct and indirect effect of dissociation on meat consumption [13].

3. Results

3.1. Manipulation Check

There was a significant difference between the dissociation-blocking condition and the dissociation condition. Specifically, participants in dissociation-blocking condition showed more state dissociation than that in dissociation condition, $t(175) = -2.45$, $p = 0.015$, Cohen's $d = 0.37$. See Table 1.

3.2. Positivity Toward Meat Consumption

There was a significant difference between the dissociation-blocking condition and the dissociation condition. Participants in the dissociation-blocking condition showed less positivity to meat eating than that in the dissociation condition, $t(175) = -2.76$, $p = 0.006$, Cohen's $d = 0.41$. See Table 1.

Table 1. Comparisons across conditions are computed using the two independent samples t-test.

Variable	Dissociation-blocking condition	Dissociation condition	<i>t</i>	<i>p</i>	<i>d</i>
State dissociation	9.80 ±4.19	11.45 ±4.78	-2.45	0.015	0.37
Meat consumption	9.85 ±4.38	11.6 ±4.03	-2.76	0.006	0.41

3.3. State Emotional Empathy as a Mediator

Table 2 presented results for the simple mediation model estimating the direct and indirect effect (through state emotional empathy) of dissociation on positivity toward meat consumption.

The results indicated that the total effect of dissociation on positivity toward meat consumption was significant (Effect = -0.1999, $SE = 0.0725$, 95% CI = [-0.3431, -0.0567]).

Bootstrap results for direct and indirect effects indicated that the indirect effects of dissociation on meat consumption through state emotional empathy was significant (Effect = -0.1028, $SE = 0.0370$, 95% CI = [-0.17805, -0.03210]). After controlling for state emotional empathy, the effect of

dissociation on meat consumption is insignificant (Effect = -0.0971, $SE = 0.0658$, 95% CI = [-0.2269, 0.0328]). Thus, according to Zhao, Lynch and Chen [29], state emotional empathy mediated the association between dissociation and meat consumption.

Additionally, based on previous study (Kunst & Hohle, 2016), we tested whether state dissociation mediated the effect of the experimental manipulation on empathy and further on willingness to eat meat using Model 6. Bootstrapping indicated that both the indirect effects on empathy ($Beta = -0.7134$, $SE = 0.0515$, 95% CI [-0.8150, -0.6118]) and on positivity to meat eating were significant ($Beta = -0.3413$, $SE = 0.0918$, 95% CI [0.1602, 0.5225]).

Table 2. Bootstrap results for direct and indirect effects.

	Effect	SE	<i>t</i>	<i>p</i>	Boot LL 95% CI	Boot UL 95% CI
Total effect	-0.1999	0.0725	-2.76	0.0065	-0.3431	-0.0567
The direct effect of X on Y	-0.0971	0.0658	-1.48	0.1418	-0.2269	0.0328
The indirect effect of X on Y	-0.1028	0.0370			-0.1780	-0.0321

3.4. Trait Emotional Empathy as a Moderator

Table 3 presented regression results for a moderated mediation model. The results indicated that the interaction between experiment conditions and trait emotional empathy was significant for positivity toward meat consumption ($Beta = 0.14$, $SE = 0.06$, $t = 2.13$, $p < 0.05$). While the interaction between experiment conditions and trait emotional empathy was significant for state emotional empathy ($Beta = -0.04$, $SE = 0.07$, $t = -0.49$, $p = 0.625$), that indicated the moderating effect of trait emotional empathy

on the indirect effect of dissociation on willingness to consume meat through state emotional empathy was not significant.

Table 4 indicated the conditional direct and indirect effects for the moderated mediation model. Exactly, only among those who scored lower on trait emotional empathy, the conditional direct and indirect effects of dissociation-blocking on positivity to eat meat are significant (Direct effect: Effect = -0.2066 , $SE = 0.0923$, $p < 0.05$; Indirect effect: Effect = -0.1371 , $SE = -0.0455$, 95% CI = $[-0.2362, -0.0565]$).

Table 3. Regression results for a moderated mediation model.

Antecedent	Consequent							
	State empathy				Positivity toward meat consumption			
	Beta	SE	t	p	Beta	SE	t	p
Constant	0.00	0.07	-0.07	0.948	-0.03	0.06	-0.45	0.964
Condition	0.25	0.07	3.36	0.001	-0.07	0.07	-1.05	0.2952
State empathy					-0.47	0.07	-7.30	<0.001
Trait empathy	0.15	0.07	2.04	0.042	0.13	0.07	2.01	<0.05
Condition x Trait empathy	-0.04	0.07	-0.49	0.625	0.14	0.06	2.13	<0.05
	$R^2=0.07$				$R^2=0.29$			
	$F(3, 173)=4.571$, $p<0.01$				$F(4, 172)=17.43$, $p<0.001$			

Table 4. Conditional direct and indirect effects for the moderated mediation model.

Trait empathy	Direct effect			Indirect effect		
	Effect	SE	p	Effect	SE	95%CI
M-1SD	-0.2066	0.0923	<0.05	-0.1371	-0.0455	$[-0.2362, -0.0565]$
M	-0.0691	0.0662	0.2986	-0.1196	-0.0385	$[-0.2006, -0.0491]$
M+1SD	-0.0685	0.0927	0.4608	-0.1020	0.0611	$[-0.2254, 0.0135]$

4. Discussion

In the study, it's found that dissociation-blocking was associated with less willingness to eat meat. Additionally, extending previous work, the results of our mediation and moderated mediation models revealed that state emotional empathy played an important mediation role in the demonstrated relationships between dissociation and meat consumption, while trait emotional empathy moderated the direct effect of dissociation on meat consumption.

4.1. Dissociation and Positivity Toward Meat Consumption

It is found that dissociation-blocking was associated with less positivity to consume meat, which was consistent with the previous study [18], and confirmed the dissociation hypothesis that dissociating meat from its animal origin was a powerful psychological strategy to solve cognitive dissonance caused by meat paradox [2]. Additionally, different from the study of Kunst and Hohle, more varied stimuli were adopted in this study, including advertisements showing beef and pork, and animal stimuli showing calves and piglets in addition to lambs, and we found the effect existed when using different kinds of animals.

4.2. State Emotional Empathy as a Mediator

Results from our simple mediation model indicated the

mediation effect of state emotional empathy between dissociation and positivity to meat consumption, which verified our hypothesis. According to empathy-altruism theory, arousal of state empathy responses to another can lead to a powerful impulse to help and then can predict altruistic behaviors [1]. For example, experimentally arousing emotional empathy responses to others, Batson and colleagues found that empathy was associated with more willingness to help [1]. Additionally, in recent years, some researchers have been exploring the role of empathy in the relationship between humans and animals and found that empathy toward animals was positive with animal-friendly behavior [17]. In the current study, participants were presented with clues about the connection between meat and its animal origin, which blocked the process of dissociation and aroused more empathy responses to the animals, and further resulted in less positivity to consume meat. The result revealed the role of state emotional empathy in the association of dissociation and positivity to meat consumption and provided empirical evidence for the applicability of empathy-altruism theory in the relationship between humans and animals [1].

4.3. Trait Emotional Empathy as a Moderator

The study revealed that trait emotional empathy moderated the direct effect of dissociation on meat consumption, which extended previous work. Specifically, among participants who scored lower in trait emotional empathy, the effect of

dissociation on meat consumption was significant, while among those who scored high in trait emotional empathy, the effect of dissociation on meat consumption was insignificant.

One potential explanation for differences in willingness to eat meat between dissociation-blocking condition and dissociation condition in the present study is “moral laziness”, proposed by Jenni [16]. According to moral laziness, empathy motivates altruistic behavior only on the premise of no or low cost and when people realize that it takes great efforts or cost to make moral judgments or moral behavior, people used to avoid making moral judgments or moral behavior, that is, moral laziness. While empathy, conflicting with moral laziness, usually directed at moral judgment and moral behavior. Therefore, individuals will inevitably experience “empathy pain” caused by the conflict between empathy and moral laziness. In this case, individuals usually avoid empathy to escape potential empathy pain, that’s “empathy laziness” [16]. Therefore, when presented advertisements with living animals, compared with participants scored low in trait emotional empathy, those scored high in trait empathy would take more risk of experiencing empathy pain and further adopt strategies of moral laziness and empathy laziness, eventually leading to empathy failure and moral failing.

Notably, present findings are at odds with Rothgerber and Mican that indicated empathy toward animals was significantly positively correlated with the endorsement of indirect strategies, such as dissociation and avoidance, rather than direct strategies, such as denial [23]. According to Rothgerber and Mican, a significant effect of dissociation on willingness to consume meat should be observed among those scored high in trait emotional empathy. Therefore, future research can further explore the underlying mechanisms of this observed moderation effect.

Additionally, in the study, there is no evidence reveal that trait emotional empathy moderated the indirect effect of dissociation on positivity to meat consumption through state emotional empathy. For the null results, we think that though previous studies that have shown that trait emotional empathy could predict state emotional empathy in specific situations [10, 27] but it is necessary to consider complex components of empathy, for example Davis explored the effects of dispositional empathy on emotional reactions and helping from a multidimensional view and found a dispositional measure of emotional empathy was clearly related but a dispositional measure of cognitive empathy was clearly unrelated [8]. Another possible explanation for this result is the differences in stimuli. For example, previous studies have shown that, compared to pictures adopted in our study, videos are more ecologically valid to arouse empathy response [20]. Additionally, compared to emotionally neutral portraits adopted in the current study, stimuli focusing on the painful or happy condition of the objects may have a stronger effect on arousing emotional empathy [12].

4.4. Contributions and Limitations

Overall, the findings from the current study are in line with a large literature that has consistently tested the effect of

dissociation on positivity toward meat consumption and crucially our findings explored the role of state and trait emotional empathy toward animals respectively in the association between dissociation and positivity toward meat consuming, which extend research on how people conduct meat consumption and how the emotional empathy plays an important role in the associations of dissociation and meat consumption, which a provided a unique interpretation perspective of dissociation affecting meat consumption. Future research is still needed to explore personality factors in the association during meat consumption.

One limitation of the present study is that the experiments conducted on the internet in the current study cannot guarantee strict control though these experiments have been proved to be ecological valid [3]. And so future research is still needed to establish the ecological validity. The other limitation is that we only measured emotional positivity toward behavioral rather than real behaviors, and to what extent self-reported willingness to eat meat can be transformed into real behavior remains is still unclear. Therefore, future studies should test the effect on real food choice situations. Additionally, given empathy includes different components, such as cognitive empathy and empathy concern [21], future studies could investigate the role of cognitive empathy in the associations of dissociation and meat consumption.

5. Conclusions

The present study found the effect of dissociation on meat consumption and further revealed the mediation effect of state emotional empathy and the moderation effect of trait emotional empathy in the associations between dissociation and meat consumption. The findings of the current study provided a unique insight into the mechanisms linking dissociation with meat consumption and enriched the interpretation perspective of dissociation affecting meat consumption.

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