

Moral Disengagement in the Context of Dietary Preferences

Yannick Klink

s4680227

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group 44b

Supervisor: Ben Gützkow

Second Evaluator: Adrien Chanteloup

In collaboration with: Ellen Benedikovicova, Sophie Friedrich, Thea Leister, Lisa Ooiman, and

Damian Wolfgang.

June 22, 2024

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned

Abstract

In the wake of global environmental and health challenges, the role of decision-making processes and related mechanisms in ethical consumption have become of increasing interest. This study therefore examines the relationship between dietary preferences and the perceived persuasiveness of arguments against meat consumption, expanding on existing literature by exploring cognitive engagement and trait-mindfulness as potential moderators in the process. A sample of 73 participants, eventually making up groups of meat eaters, flexitarians, pescetarians, and those following vegetarian or vegan diets, was recruited for this study. The study revealed that vegetarians and vegans were more strongly persuaded by arguments highlighting the negative impacts of meat consumption on the environment, health, and animal welfare when compared to meat eaters and flexitarians, indicative of moral disengagement. Contrary to expectations, neither cognitive engagement nor trait-mindfulness moderated these relationships. These findings highlight the significant impact of confirmation bias and selective exposure in shaping ethical consumption behaviors, specifically in the context of the meat paradox. This study also introduces a theoretical implication by questioning the relationship between moral disengagement and other mechanisms related to confirmation bias, underscoring the need for further research into these cognitive and moral processes. Future studies should aim to replicate these findings with larger and more representative samples as well as to explore additional moderating variables such as cultural and social identity factors, thus deepening our understanding of the mechanisms driving dietary choices and moral disengagement.

Keywords: meat consumption, moral disengagement, cognitive engagement, mindfulness, moderation model

Moral Disengagement in the Context of Dietary Preferences

Decision-making is arguably one of the most important mechanisms of every person's life, ranging from apparently simple decisions such as when to wake up in the morning or which way to take to work, all the way to intricate, complex decisions like which career path to pursue in the first place or which relationships to nurture when being free in the evening. With a cognitive mechanism apparently so important and omnipresent in shaping everyone's life and the ones of the people around them, it comes as no surprise that the question of how decisions are being made in general is a major focus in psychological research. While on an intuitive level it seems clear that a driving force in decision making is the underlying information available to the person making those decisions, what about the variety of different conclusions people are able to reach even if these conclusions are based on, presumably, the same information? On the one hand, our reasoning faculties allow us to make sense of the world around us (coming up with the scientific method might be the perfect example for this), but on the other hand, exactly those same reasoning faculties lead many to fall for seemingly irrational beliefs, as can be seen in conspiracy theories leading people up to this date to conclude that the world is a flat disk (Olshansky et al., 2020).

Not only do our minds lead us to a wide array of conclusions, but they also allow us to unite seemingly contradictory views simultaneously. An illustrative example for this is certain dietary choices people make despite being aware of the consequences, as it is the case with the meat paradox. Despite an accumulating amount of reputable studies and media coverage claiming that meat consumption is a driving factor for climate change (Carlsson-kanyama & González, 2009), animal suffering (Foer, 2010) and health issues (Appleby et al., 2002), as well as the overall saliency of this debate, there is still a majority of people who decide to eat meat

regardless. One common consequence of holding contradictory views like this however is the manifestation of *cognitive dissonance*. A concept introduced by Festinger (1957), cognitive dissonance describes the discomfort arising when holding two or more contradictory beliefs, values or attitudes simultaneously, or when their behavior is inconsistent with their beliefs. Consequently, when eating meat, thus actively contributing to the aforementioned issues coming out of meat consumption, this inconsistency should create a feeling of mental discomfort (assuming that those people are actually aware of any of the consequences meat consumption is inherently bringing along). This in turn should motivate individuals to reduce or resolve the dissonance in order to restore cognitive harmony - with one of the most obvious solutions to achieve exactly this being to simply quit eating meat. So why is it that the majority of people are still consuming meat nonetheless?

Gützkow and colleagues (submitted) argue that one of the fundamental motivations in humans is their need to uphold a positive and coherent self-image at all times, a claim that has also been made by many other researchers before (see e.g., Epstein, 1973; White, 1959; Baumeister, 2012). When being subject to cognitive dissonance however, this self-image is being threatened. Yet, instead of simply targeting the root of the problem, in the context of the meat paradox achieved by quitting meat consumption, people prefer to make use of *self-serving biases* to deal with the cognitive dissonance. These biases, cognitive processes which lead individuals to attribute their positive actions to internal factors while attributing their negative actions, shortcomings, or misdeeds to external, situational factors, help to avoid internal conflict and to maintain existing beliefs (see e.g., Campbell & Sedikides, 1999; Shepherd et al., 2008). This preference to make use of self-serving biases may be present due to a variety of reasons. For some, to stop eating meat would basically equate to admitting that their behavior was harmful or

unethical in the first place, hence threatening their positive self-concept. For others, societal norms and cultural contexts can influence the tendency to rationalize rather than to change behavior. In many societies, meat consumption is deeply ingrained and socially accepted, so that changing such a habitual behavior can lead to social friction or alienation (Cialdini & Goldstein, 2004). Hence, people might prefer to rationalize their continued meat consumption to align with social expectations and avoid conflict. Thereby, while one way to resolve the discomfort coming from cognitive dissonance is through behavior change, a more common response is the application of moral disengagement processes (Bandura, 1999).

Moral disengagement summarizes all cognitive mechanisms, mainly cognitive biases and heuristics, through which “individuals are freed from the self-sanctions and the accompanying guilt that would ensue when behavior violates internal standards, and they are therefore more likely to make unethical decisions.” (Detert et al., 2008, p. 375). Thereby, in the context of the meat paradox, moral disengagement would allow people who like consuming meat products to continue doing so, despite being aware of the fact that they are actively contributing to global issues such as climate change, as well as facing moral, ethical and health-related implications on a personal and societal level by doing so. When being confronted with the idea that their actions might result in those negative effects, moral disengagement allows the person in some way or form to deny or downplay this information attacking their self-image. Consequently, this research on the one hand tries to investigate the actual involvement of self-serving biases and moral disengagement in the meat paradox. On the other hand, this research also seeks to explore potential moderators which appear promising in influencing the aforementioned mechanisms of moral disengagement.

Cognitive Engagement

One concept we expect to significantly influence how strongly participants tend to morally disengage is the amount of *cognitive engagement* those participants present when faced with a topic of interest. Based on the study by Gützkow and colleagues (submitted), we define cognitive engagement as “a general tendency toward seeking out, processing, and analyzing information relevant to a single or multiple goals that the individual pursues at any given time (cf. Kruglanski et al., 2002; Lewin, 1939). ... Essentially, it describes the ‘strength’ of cognition leading up to judgment and decision-making. It governs how ‘far’ we can throw the ball within our cognitive space.” (Gützkow et al., submitted). Following this reasoning, we also adopt their assumption that “as a function of high cognitive engagement ..., individuals are likely to take on the respective viewpoint prevalent in their information bubble – leading to polarization over time.” (Gützkow et al., submitted). Applying this rationale to the meat paradox, it is plausible to expect similar polarization between meat eaters and vegetarians or vegans. High cognitive engagement may lead individuals to become more entrenched in their dietary choices and justifications, thereby amplifying moral disengagement.

Mindfulness

Mindfulness may also influence how likely people are to morally disengage in the face of threatening information. Mindfulness is a complex concept that defies a single, concise definition due to its varied applications in different contexts. In the psychological domain however, it is often defined as “moment-to-moment, non-judgmental awareness, cultivated by paying attention in a specific way, that is, in the present moment, and as non-reactively, as non-judgmentally, and as openheartedly as possible” (Kabat-Zinn, 2015, p. 1481). Gaining significant traction both within and outside psychological research, mindfulness offers a compelling lens through which

to address self-serving biases and moral disengagement.

There are several studies providing evidence that mindfulness can have an attenuating effect on cognitive biases like age and race bias (see e.g., Lueke & Gibson, 2014) as well as the sunk-cost bias (Hafenbrack et al., 2014). Especially *trait-mindfulness* - the inherent tendency to be mindful - has been shown to have such an effect on cognitive biases (Qiu et al., 2022). At present however, there is no literature available which examines the effects of (trait-)mindfulness on moral disengagement or self-serving biases as a whole.

The Present Study

The present study thus seeks to bridge this gap as well as to expand on already existing literature by examining how dietary preferences interact with moral disengagement and by exploring the potential moderating effects of cognitive engagement and trait-mindfulness. To gain a comprehensive understanding of these dynamics, participants are instructed to read an article highlighting the aforementioned consequences of ecological, moral, ethical and health-related nature coming out of meat consumption. Afterwards, they are asked to rate the persuasiveness of the arguments, which serves as our main indicators of moral disengagement. We chose this approach based on a multitude of studies showcasing that discrediting arguments allows people to disengage from those arguments, protecting their beliefs in a self-serving way (see e.g., Corner et al., 2012; Lord et al., 1997; Munro & Ditto, 1997; Pennycook & Rand, 2018; Taber & Lodge, 2006).

Therefore, assuming that participants' self-serving biases will be activated, we expect participants to reach self-serving conclusions about the persuasiveness of the arguments presented in the text based on their dietary preferences. We reason, as outlined before, that people tend to interpret information in a way that aligns with their existing beliefs and behaviors.

Following that idea, strong meat eaters may feel threatened by the article's message implicating meat consumption in various negative consequences. To alleviate this threat to their self-image, they may be inclined to discredit the arguments presented in the text. By labeling the arguments in the article as lacking, they can dismiss those arguments and thus maintain their dietary habits without experiencing cognitive dissonance. In contrast, vegetarians and vegans, who have already made a conscious choice to abstain from meat consumption, may interpret the same arguments in a different way. They may be more inclined to attribute a strong case to the arguments in the text and validate them as convincing. By perceiving those arguments in that way, vegetarians and vegans can reaffirm their own ethical stance and reinforce their commitment to a meat-free lifestyle.

Secondly, we also hypothesize that cognitive engagement moderates the effects in our first hypothesis. This would mean that meat eaters scoring high on cognitive engagement are especially unlikely to find the arguments persuasive, while vegetarians and vegans scoring high on cognitive engagement are especially likely to indicate that they find the arguments persuasive (Figure 1).

Finally, due to the attenuating effect we expect of mindfulness on self-serving biases, we assume meat-eaters scoring high on trait-mindfulness to be more likely to indicate that they find the arguments persuasive, while meat-eaters scoring low on trait-mindfulness are less likely to indicate that they find the arguments persuasive. However, counterintuitively this would also mean that vegetarians and vegans scoring high on trait-mindfulness would be less likely to indicate that they find the arguments persuasive compared to vegetarians and vegans scoring low on trait-mindfulness (Figure 2).

Our main hypotheses consequently are as follows:

Hypothesis 1: Participants who are strongly committed to meat consumption will exhibit greater resistance to the author's arguments regarding the adverse consequences of meat consumption, perceiving them as less persuasive compared to vegetarians and vegans.

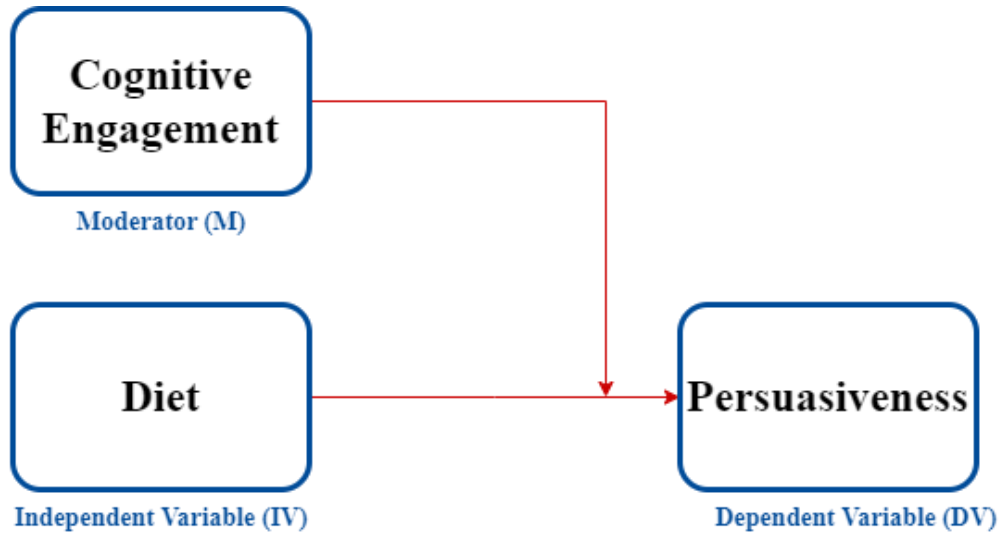
Hypothesis 2: Cognitive engagement positively moderates the effects given in Hypothesis 1, with high cognitive engagement predicting decreased persuasiveness among meat eaters, while high cognitive engagement among vegetarians and vegans is associated with increased persuasiveness.

Hypothesis 3: Trait-mindfulness negatively moderates the effects given in Hypothesis 1, with high trait-mindfulness predicting decreased likelihood among vegetarians and vegans to find arguments persuasive, while low trait-mindfulness is associated with increased persuasiveness, particularly among meat eaters.

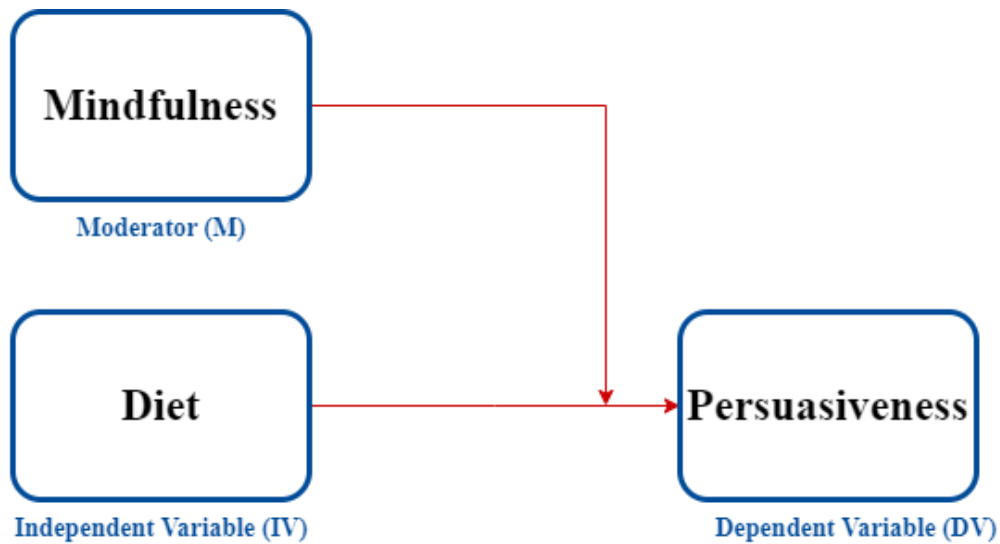
In sum, this study aims to achieve multiple objectives. Firstly, it contributes to the broader literature on moral decision-making, offering insights into the mechanisms underlying ethical behavior as well as informing interventions aimed at promoting moral integrity, especially in regards to ethical consumption. Secondly, this study enables a deeper understanding of the concept of moral disengagement in specific, thereby also contributing to the literature in that regard. Lastly, it seeks to advance understanding beyond traditional decision-making models by investigating the interplay between cognitive engagement, motivational biases, and mindfulness.

Figure 1

Moderation Model for Hypothesis 2, Including the Variables Diet (IV), Cognitive Engagement (M) and Persuasiveness (DV)

**Figure 2**

Moderation Model for Hypothesis 3, Including the Variables Diet (IV), Mindfulness (M) and Persuasiveness (DV)



Methods

Participants

Prior to data analysis, the dataset was examined for missing values. Cases with missing data on key variables were excluded from the analysis ($n = 15$). The final sample thus consisted of 73 participants (27 male, 42 female, 2 non-binary, and 2 other) who completed the study online. Participants were recruited via Sona Systems (Sona Systems, n.d.) and convenient sampling, resulting in the large majority of the participants being undergraduate first-year students from the University of Groningen. Of the 73 participants, 21 were omnivores, 31 were flexitarians, 5 were pescetarians, and 16 followed a meat-free diet (i.e., vegans and vegetarians). The minimum age for participation was 18 years. Participation was voluntary, and all participants signed informed consent forms and were rewarded with 0.4 credits if recruited via Sona Systems. The study was approved by the ethical committee of the Department of Psychology at the University of Groningen (study code: PSY-2324-S-0259).

Materials and Procedure

The study is a cross-sectional survey study that focuses on between-subject measurements. For data collection, participants completed the study online via the Qualtrics XM platform, and for data analysis, we employed SPSS statistical software. The questionnaire began with a short explanation of the study, followed by an inquiry to attain participants' informed consent. The participants were then asked to specify their dietary preferences and habits.

Measures of Dietary Choice

Participants were asked to indicate their dietary habits, which served as the independent variable Diet. The first one asked “How would you describe your current diet?”. Participants could choose between “My meals (almost) always include meat”, “I balance meat and vegetarian

options”, “Fish is my only source of meat” and “Plant-based (mostly vegetarian or vegan)” Those participants that chose either the first or the second option were getting redirected to the second and third items. The second item asked how many days a week participants are consuming meat products, on a 7-point Likert scale ranging from 1 day to 7 days a week. Lastly, the third item used a 5-point Likert scale to assess the question “Do you make efforts to reduce your meat consumption?”, with answer options ranging from ‘absolutely no efforts’ to ‘significant efforts.’

Measures of Cognitive Engagement

Cognitive Engagement was measured through a 6-item adaptation of already existing cognitive reflection tests (Gützkow et al., submitted). All items were designed with the intention that an intuitive but wrong answer gets triggered in the participants which actively needs to be overwritten. An example item goes as follows:

You are faced with two trays each filled with white and red jelly beans. You can draw one jelly bean without looking from one of the trays. Tray A contains a total of 10 jelly beans of which 2 are red. Tray B contains a total of 100 jelly beans of which 19 are red. From which tray should you draw to maximize your chance of drawing a red jelly bean?

A: Tray A (correct answer)

B: Tray B

Participants could score between 0 (no items answered correctly) and 6 (all items answered correctly).

Measures of Moral Disengagement

Due to methodological difficulties in measuring moral disengagement directly, we inferred Moral Disengagement by measuring Persuasiveness, the perceived persuasiveness of the arguments given in the text, for reasons discussed above.

The text presented to participants comprised three main sections, each detailing certain adverse consequences of meat consumption: environmental impact, animal suffering, and health concerns. The first section highlighting the impact of meat consumption on the environment outlined the extensive ecological footprint of livestock farming and overfishing, emphasizing greenhouse gas emissions, resource inefficiency, and the impact on global food security. The second paragraph, introducing the consequences of meat consumption on animal suffering, described the inhumane conditions and practices associated with industrial livestock farming, while also detailing the physical and psychological distress inflicted on animals. The final section introduced health concerns linked to high meat consumption, ranging from various chronic diseases to public health issues, while also contrasting these with the benefits of a meatless diet. To facilitate moral disengagement in participants, we intentionally presented the arguments in the text in a way that invited subjective interpretation and evaluation of those arguments.

Persuasiveness was then measured for each of those themes addressed in the text: environmental concerns (“Plant-based diets are better for the environment”), moral concerns (“Plant-based diets prevent animal suffering”) and health concerns (“Plant-based diets are better for your health”), respectively, each ranging from “Not convincing at all” to “Very convincing”. The Cronbach’s alpha for this measure was $\alpha = .60$.

Measures of Mindfulness

Mindfulness was measured using a single-item taken from Meier and colleagues (2022), exploring trait-mindfulness by asking “To what extent do you agree with this statement: “I am a mindful person.” (Note: a mindful person pays attention to the present, is less concerned about the past or future, and accepts things as they are)”. This single-item scale was chosen as previous research showed that it “correlated positively with three of the most frequently used multi-item measures of trait mindfulness at values that were in the medium to large range ($r_s = .24$ to $.51$)” (Meier et al., 2022, p. 816) while proving to be time efficient compared to those other commonly used multi-item measures.

In the final section of the questionnaire, demographic information was collected (gender with the answer options ‘male,’ ‘female’, ‘non-binary’, and ‘other’ as well as political orientation with answer options ranging from ‘extremely left-wing’ to ‘extremely right-wing’) and a debriefing on the purpose of the study was given in text format.

Results

Preliminary Analysis

First, assumptions for the moderator regression analyses were tested. Assumptions of linearity and homoscedasticity were checked and considered to be met. Normality of residuals were tested by applying the Shapiro-Wilk test on the standardized residuals from each moderation regression. The assumption of normality of residuals was violated for half of the regressions as the p -values were below $.05$ in these cases. Multicollinearity was tested by investigating the variance inflation factors (VIF), which were far below 10 in all cases, indicating no multicollinearity. Finally, also the independence of errors was tested using Durbin-Watson

tests. As the values in each test were close to 2 and never below 1 or above 3, the assumption of independence of errors was considered to be met.

Frequencies and Descriptive Statistics

With a final sample of $N = 73$, participants were categorized into four groups based on their dietary preferences: meat-consumers ($n = 21$, $M = 4.21$, $SD = .92$), flexitarians ($n = 31$, $M = 4.69$, $SD = .74$), vegetarians or vegans ($n = 16$, $M = 5.60$, $SD = .37$) and pescetarians ($n = 5$, $M = 5.3$, $SD = .53$). The values in parentheses represent the means and standard deviations of the dependent variable Persuasiveness for the respective groups. Notably, participants scored significantly above average in terms of Cognitive Engagement and Persuasiveness (refer to Table 1 for a full overview of Descriptive Statistics). Pearson's correlations between the distinctive subscales can be found in Table 2, showcasing, among others, significant moderate correlations between Persuasiveness and Cognitive Engagement ($r = .299$).

Table 1

Descriptive Statistics

	Mean	Std. Deviation	N
Persuasiveness	4.80	.88	73
Cognitive Engagement	5.01	.98	73
Mindfulness	4.49	1.55	73

Table 2*Correlations*

		Persuasiveness	Cognitive Engagement	Mindfulness
Persuasiveness	Pearson Correlation	1	.299*	.173
	Sig. (2-tailed)		.010	.144
	N	73	73	73
Cognitive Engagement	Pearson Correlation	.299*	1	.161
	Sig. (2-tailed)	.010		.173
	N	73	73	73
Mindfulness	Pearson Correlation	.173	.161	1
	Sig. (2-tailed)	.144	.173	
	N	73	73	73

Note. **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Hypothesis Testing

The aim of this study was to test whether and in what way one's dietary preferences relate to the tendency of that person to morally disengage, in this case through discrediting arguments presented in a text focusing on the adverse consequences of meat consumption. To

investigate the moderation models we came up with, we conducted a multiple regression entering Persuasiveness as the dependent variable. Diet, Mindfulness and Cognitive Engagement were entered as the independent variables, as well as the interaction terms between Diet and Mindfulness and Diet and Cognitive Engagement. Mindfulness and Cognitive Engagement were centered to the mean prior to analysis to avoid multicollinearity.

Table 3

Coefficients^a

Model	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics
				VIF
(Constant)		15.629	<.001	
Diet	.531	4.656	<.001	1.364
CognitiveEngagement	.154	.606	.547	6.817
Mindfulness	-.121	-.470	.640	6.920
Diet*CognitiveEngagement	-.072	-.264	.793	7.892
Diet*Mindfulness	.326	1.265	.210	6.956

^a*Dependent Variable: Persuasiveness*

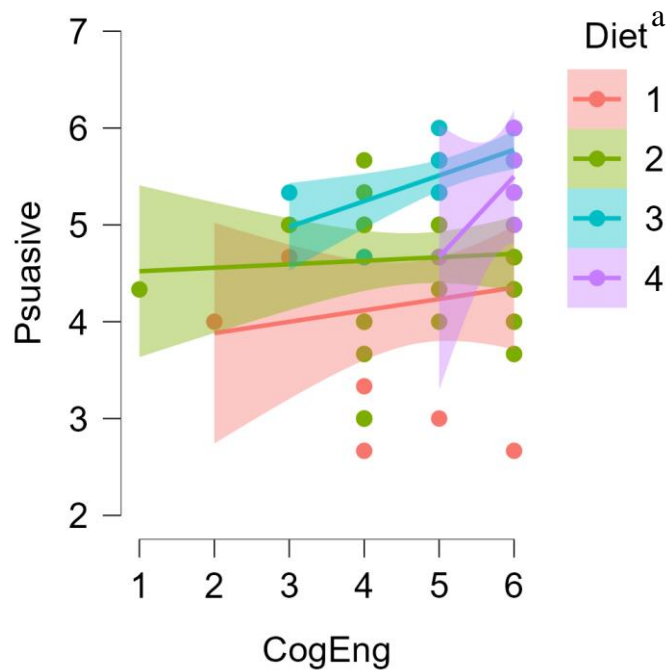
Regarding Hypothesis 1, anticipating that dietary preferences predict the perceived persuasiveness of the arguments, results indicate a significant relationship, $\beta = .53$, $t(69) = 4.6$, $p < .001$. An additional ANOVA (analysis of variance) for the sake of a post-hoc Tukey HSD test revealed that vegetarians and vegans ($M = 5.33$, $SD = .53$) perceived the arguments as significantly more persuasive than meat eaters ($M = 4.21$, $SD = .92$) and flexitarians ($M = 4.69$, $SD = .74$), both $p < .001$. Furthermore, pescetarians ($M = 5.60$, $SD = .37$) found the arguments significantly more persuasive than meat eaters, $p = .013$. These findings therefore provide support for Hypothesis 1.

Pertaining to Hypothesis 2, positing that the cognitive engagement participants exhibit when processing the arguments in the text positively moderates the relationship outlined in Hypothesis 1, the interaction term between dietary preference and cognitive engagement turned out non-significant, $\beta = -.07$, $t(69) = -.26$, $p = .793$. A plot visualizing the interaction between Diet and Cognitive Engagement on Persuasiveness can be found in Figure 3. Overall, these results stand in contrast with what we predicted in our second hypothesis.

Also Hypothesis 3, investigating the moderating effect of trait-mindfulness, was examined. Also here was the interaction between dietary preference and trait-mindfulness not able to significantly predict the perceived persuasiveness of the arguments, $\beta = .33$, $t(69) = 1.27$, $p = .210$. A plot visualizing the interaction between Diet and Cognitive Engagement on Persuasiveness can be found in Figure 4. Overall, this goes against our third hypothesis that mindfulness acts as an attenuative moderator in the relationship outlined in Hypothesis 1.

Figure 3

Interaction Between Diet and Cognitive Engagement on Persuasiveness

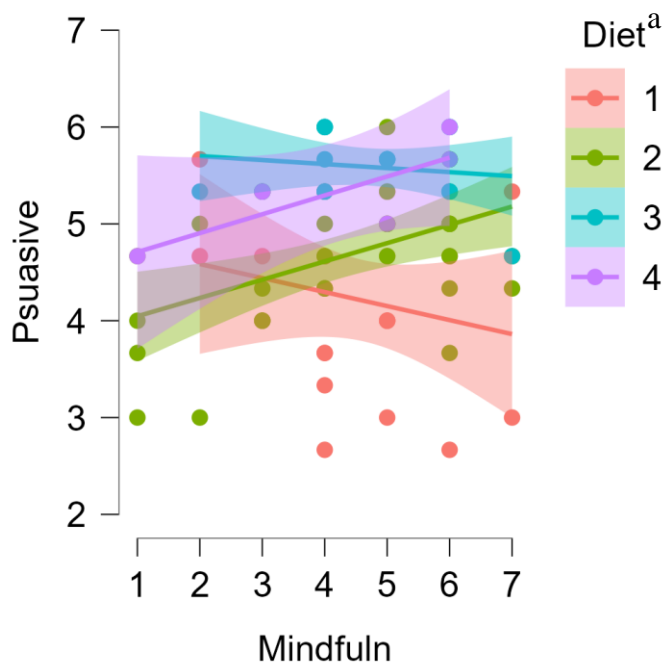


Note. This figure illustrates the effect of dietary preferences (Diet) on persuasiveness of arguments (Psuasive), with Cognitive Engagement (CogEng) as the moderator. Cognitive Engagement is mean-centered. Error bars represent 95% confidence intervals for each group.

^aDietary preferences are categorized into four groups: Group 1 (meat-consumers), Group 2 (flexitarians), Group 3 (vegetarians or vegans), and Group 4 (pescetarians).

Figure 4

Interaction Between Diet and Trait-Mindfulness on Persuasiveness



Note. This figure illustrates the effect of Diet on Persuasiveness (Psuasive), with Trait-Mindfulness (Mindfuln) as the moderator. Trait-Mindfulness is mean-centered. Error bars represent 95% confidence intervals for each group.

^aDietary preferences are categorized into four groups: Group 1 (meat-consumers), Group 2 (flexitarians), Group 3 (vegetarians or vegans), and Group 4 (pescetarians).

Discussion

This study investigated whether and in what ways dietary preferences predict the occurrence of moral disengagement mechanisms in the context of the meat paradox. Based on the idea that individuals are highly motivated to maintain a positive and coherent self-image and that any threat to this self-image results in cognitive dissonance, we stipulated that, in the context of the meat paradox, dietary preferences predict both the tendency and strength of moral

disengagement in participants. More specifically, we expected that individuals who feel especially threatened by arguments highlighting adverse consequences of meat consumption, so primarily meat eaters, would engage in stronger moral disengagement compared to those who do not feel threatened or maybe even supported by those same arguments. In addition to that, we also investigated the role of cognitive engagement as an enhancing moderator as well as trait-mindfulness as a buffering moderator in the relationship between dietary preferences and the perceived persuasiveness of the arguments.

The analysis above provides a preliminary answer to these questions. While we found support that dietary preferences seem to be significantly related to how participants perceive the persuasiveness of arguments dealing with the consequences of meat consumption, with meat eaters being especially persuaded and thus supporting our Hypothesis 1, we found no compelling evidence for the other hypotheses. That means that, in contrast to what was hypothesized, neither cognitive engagement nor mindfulness seem to have any moderating effects on the relationship between dietary preferences and the perceived persuasiveness of the arguments (Hypotheses 2 and 3).

Theoretical Implications

The discrepancy between meat eaters and vegetarians/vegans in regards to our first hypothesis invites a multitude of theoretical interpretations. One explanation, consistent with the arguments presented in this paper, is the assumption that there is a need to maintain a positive and coherent self-image. Once that self-image is threatened by certain information, cognitive dissonance arises, and with it the tendency to apply self-serving biases or, more specifically, moral disengagement mechanisms, to maintain that positive self-image. As noted by Bandura (1999), moral disengagement allows individuals to justify behaviors that contradict their moral

standards, thus maintaining their self-esteem. In our study, these moral disengagement mechanisms take on the form of confirmation biases, through which the participant is able to discredit certain arguments of the author once those arguments go against their personal beliefs (Nickerson, 1998). This potential explanation would therefore also be in line with the rest of the literature presented throughout this paper so far.

However, while that might be the case in this study, the data also supports the idea of the complementary side of the confirmation bias, namely the tendency to favor information that supports already existing beliefs. All groups scored above average in finding the arguments in the text persuasive, including meat-consumers ($n = 21$, $M = 4.21$, $SD = .92$) and flexitarians ($n = 31$, $M = 4.69$, $SD = .74$). This suggests that, rather than meat eaters discrediting the arguments more intensely, vegetarians and vegans might just be more inclined to favor the arguments presented. Also addressed by Nickerson (1998), this phenomenon is known as selective exposure, where individuals prefer information that aligns with their pre-existing beliefs.

Our results therefore inspire a compelling argument regarding the relationship between moral disengagement and selective exposure. Specifically, we question whether the phenomenon of discrediting arguments more strongly is essentially the same as favoring those same arguments less, and vice versa. Are we, in essence, examining two sides of the same coin, namely confirmation bias, with discrediting arguments (in our case synonymous with moral disengagement) on one side and favoring arguments (in our case synonymous with selective exposure) on the other, merely using different terminologies to describe the same underlying mechanism? Or are these phenomena distinct processes that, while complementary, operate independently of each other? Clarifying this distinction is crucial for helping us better understand the dynamics at play and hence accurately interpret our findings. Are we observing genuine

moral disengagement among participants, or are our results driven primarily by heightened selective exposure among vegetarians and vegans? Resolving this question is not only fundamental to addressing our research question but also to advance our understanding of these psychological processes.

When staying with the idea that our results indeed indicate that vegetarians and vegans favor arguments aligning with their beliefs more instead of meat eaters morally disengaging more, it could be worthwhile to interpret our findings through the lens of social identity theory. Put forward by Tajfel and Turner (1979), they argue that people derive a strong sense of identity through their membership in social groups. In the context of the meat paradox, this may reveal itself in that vegetarians and vegans often form communities with strong shared values and norms, which reinforce their ethical beliefs and make them more receptive to arguments against meat consumption. In contrast, with most parts of the world still exhibiting meat-based cultures, meat eaters and flexitarians might still be part of the status quo where meat consumption is normalized, thus reducing the need for a distinct group identity as this behavior is still broadly accepted and unchallenged (Rosenfeld & Burrow, 2017).

The lack of significant moderating effects in terms of cognitive engagement and mindfulness may be difficult to interpret due to the limitations of this study, especially in regards to the sample size. While it may be possible that both cognitive engagement and mindfulness indeed have no effect on the relationship between dietary preferences and the perceived persuasiveness of arguments, it seems reasonable to suggest that further research including sample sizes with sufficient power is needed to arrive at a meaningful conclusion about these moderators.

Strengths and Limitations

One big caveat of our study is the sample size. The inclusion of only 73 participants in the final analysis results in a lack of statistical power, especially for detecting subtle effects, as is often required in moderation analyses. Consequently, it is difficult to determine whether cognitive engagement and trait mindfulness genuinely have no relationship with dietary preferences in this study, or if the findings are merely a consequence of insufficient statistical power. Especially in regards to mindfulness, it could prove worthwhile to use more elaborate scales as the authors of the SIMS acknowledge that their scale might not be as sufficient as other, more commonly used scales to determine participants' trait-mindfulness accurately (Meier et al., 2023). Furthermore, since this study measured participants' responses using questionnaires, the usual downsides of self-report scales must be taken into consideration, such as socially desirable responses, response biases as well as subjective interpretations of the questions asked. Especially the phrasing of the dietary preferences response options might have introduced ambiguity into our data. By asking participants if their diet is "Plant-based (mostly vegetarian or vegan)," we intended to identify both vegetarians and vegans, although "plant-based" typically refers to vegan diets only. The term "mostly" adds further vagueness, all of which could have affected the accuracy of our dietary classification and thus the reliability of our analysis. In addition to that, a convenience sample was used, potentially giving rise to common limitations such as self-selection bias, lack of representativeness and therefore often limited external validity. As our sample also mainly included first year psychology students, this demographic homogeneity of the sample leaves unanswered questions about how different age groups, particularly older generations with potentially different norms regarding meat consumption, might have responded. Finally, the assumption for the normality of residuals for regression analyses were not met. This

violation can affect the validity of the regression results, leading to potential inaccuracies in the interpretation of the data and the statistical conclusions drawn from the analyses.

There are however also certain strengths of this study, especially against the backdrop of the low sample size. Despite the limitations, we found a highly significant relationship between dietary preferences and the perceived persuasiveness of arguments. This indicates that the design of our article presented to the participants was highly effective and achieved exactly what it was intended to. Consequently, our study contributes to the existing literature, both by applying the concepts of cognitive engagement, mindfulness and moral disengagement to the context of the meat paradox as well as by providing evidence for the presence of moral disengagement mechanisms in the formation and maintenance of dietary preferences.

Future Directions

Due to some promising results as well as the theoretical foundations underlying this study, the priority of future research should be to replicate the findings of this study with the intention to minimize the present limitations, especially in regards to the sample size and the ambiguity in the dietary preferences response options. In addition to that, another focus should be on exploring further variables potentially moderating the relationship between dietary preferences and the perceived persuasiveness of arguments, as well as testing alternative explanations in that relationship. Especially the argumentation in favor of the social identity theory as outlined above could serve as an interesting starting point by inspiring exploration of the influence of group memberships and according group norms on said relationship. Finally, to gain a deeper understanding of the relationship between moral disengagement, confirmation biases and selective exposure mechanisms, further research should be directed towards that avenue.

Conclusion

This research introduces a nuanced perspective on the mechanisms of moral disengagement, suggesting that dietary preferences influence the reception of moral and ethical arguments through distinct cognitive pathways. Specifically, individuals adhering to meat-free diets were more persuaded by arguments against meat consumption, potentially reflecting a self-serving bias that reinforces their existing beliefs. In contrast, meat eaters and flexitarians displayed resistance to these arguments, likely as a means of protecting their dietary habits and self-image, which we took as support for our first hypothesis and the existence of moral disengagement mechanisms in the context of the meat paradox. Despite the initial hypothesis, cognitive engagement and mindfulness did not moderate the relationship between dietary preferences and the perceived persuasiveness of the arguments. While this finding indicates that the influence of these psychological constructs on dietary decisions might be more intricate than previously thought, the results of this study as a whole have to be interpreted in the context of the existing limitations, especially the limited sample size. Overall, this study inspires future research by enhancing the theoretical framework of moral disengagement in the context of dietary choices, both by introducing novel moderators in the context of moral disengagement as well as by provoking a conceptual discussion about the underlying mechanisms of confirmation biases and their relations to the specific concept of moral disengagement. Future researchers should therefore focus on identifying the specific facets of confirmation biases and their implications for dietary behavior. Furthermore, given the crucial role of ethical consumption in a wide range of global problems, including environmental challenges, animal suffering and adverse health consequences, interventions aimed at fostering these attributes could be pivotal in promoting ethical and sustainable dietary practices.

References

- Appleby, P. N., Davey, G. K., & Key, T. J. (2002). Hypertension and blood pressure among meat eaters, fish eaters, vegetarians and vegans in EPIC–Oxford. *Public Health Nutrition*, 5(5), 645–654. <https://doi.org/10.1079/PHN2002332>
- Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review*, 3(3), 193–209. https://doi-org.proxy-ub.rug.nl/10.1207/s15327957pspr0303_3
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- Campbell, W. K., & Sedikides, C. (1999). Self-Threat magnifies the Self-Serving bias: a Meta-Analytic integration. *Review of General Psychology*, 3(1), 23–43. <https://doi.org/10.1037/1089-2680.3.1.23>
- Carlsson-kanyama, A., & González, A. (2009). Potential contributions of food consumption patterns to climate change. *The American journal of clinical nutrition*, 89(5), 1704S–1709S. <https://doi.org/10.3945/ajcn.2009.26736AA>
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: compliance and conformity. *Annual Review of Psychology*, 55(1), 591–621. <https://doi.org/10.1146/annurev.psych.55.090902.142015>
- Corner, A., Whitmarsh, L., & Xenias, D. (2012). Uncertainty, scepticism and attitudes towards climate change: biased assimilation and attitude polarisation. *Climatic Change*, 114(3–4), 463–478. <https://doi.org/10.1007/s10584-012-0424-6>

- Detert, J. R., Treviño, L. K., & Sweitzer, V. L. (2008). Moral disengagement in ethical decision making: A study of antecedents and outcomes. *Journal of Applied Psychology, 93*(2), 374–391. <https://doi.org/10.1037/0021-9010.93.2.374>
- Epstein, S. (1973). The self-concept revisited: Or a theory of a theory. *American Psychologist, 28*(5), 404–416. <https://doi-org.proxy-ub.rug.nl/10.1037/h0034679>
- Evans, J. S. B. T., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. *Perspectives on Psychological Science, 8*(3), 223–241. <https://doi.org/10.1177/1745691612460685>
- Foer, J. S. (2010). *Eating animals*. Penguin UK.
- Gützkow, B., Wisse, B., Kreienkamp, J., Agostini, M., El Khawli, E., & Leander, N. P. (2024). *Risky thinking: Explaining how COVID-19 public safety guidelines became polarized through a two-component model of motivated reasoning* [Manuscript submitted for publication]. Department of Psychology, University of Groningen.
- Hafenbrack, A. C., Kinias, Z., & Barsade, S. G. (2014). Debiasing the mind through meditation: Mindfulness and the sunk-cost bias. *Psychological Science, 25*(2), 369–376. <https://doi.org/10.1177/0956797613503853>
- Kabat-Zinn, J. (2015). Mindfulness. *Mindfulness, 6*(6), 1481–1483. <https://doi-org.proxy-ub.rug.nl/10.1007/s12671-015-0456-x>
- Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, N. W. Y., & Sleeth-Keppler, D. (2002). A theory of goal systems. In *Advances in experimental social psychology* (pp. 331–378). [https://doi.org/10.1016/s0065-2601\(02\)80008-9](https://doi.org/10.1016/s0065-2601(02)80008-9)

- Lerner, J. S., Li, Y., Valdesolo, P., & Kassam, K. S. (2015). Emotion and decision making. *Annual Review of Psychology*, *66*(1), 799–823. <https://doi.org/10.1146/annurev-psych-010213-115043>
- Lewin, K. (1939). Field Theory and Experiment in Social Psychology: Concepts and Methods. *American Journal of Sociology*, *44*(6), 868–896.
<https://doi.org/10.1086/218177>
- Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology*, *37*(11), 2098–2109. <https://doi.org/10.1037/0022-3514.37.11.2098>
- Meier, B. P., Konrath, S., Fetterman, A. K., Dillard, A. J., James, C., Weinstein, E., & Bushman, B. J. (2023). Development and validation of the Single-Item Mindfulness Scale (SIMS). *Journal of Personality Assessment*, *105*(6), 807–819.
<https://doi.org/10.1080/00223891.2022.2152348>
- Merritt, A. C., Effron, D. A., & Monin, B. (2010). Moral self-licensing: When being good frees us to be bad. *Social and Personality Psychology Compass*, *4*(5), 344–357.
<https://doi.org/10.1111/j.1751-9004.2010.00263.x>
- Munro, G. D., & Ditto, P. H. (1997). Biased Assimilation, Attitude Polarization, and Affect in Reactions to Stereotype-Relevant Scientific Information. *Personality and Social Psychology Bulletin*, *23*(6), 636–653. <https://doi.org/10.1177/0146167297236007>
- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, *2*(2), 175–220. <https://doi.org/10.1037/1089-2680.2.2.175>

- Olshansky, A., Peaslee, R. M., & Landrum, A. R. (2020). Flat-Smacked! Converting to Flat Eartherism. *Journal of Media and Religion*, *19*(2), 46–59. <https://doi-org.proxy-ub.rug.nl/10.1080/15348423.2020.1774257>
- Orquin, J., & Loose, S. (2013). Attention and choice: A review on eye movements in decision making. *Acta Psychologica*, *144*(1), 190–206. <https://doi.org/10.1016/j.actpsy.2013.06.003>
- Pennycook, G., Bear, A., Collins, E., & Rand, D. G. (2017). Assessing the effect of “Disputed” warnings and source salience on perceptions of fake news accuracy. *Social Science Research Network*. <https://doi.org/10.2139/ssrn.3035384>
- Redish, A. D., & Mizumori, S. J. (2015). Memory and decision making. *Neurobiology of Learning and Memory*, *117*, 1–3. <https://doi.org/10.1016/j.nlm.2014.08.014>
- Rosenfeld, D. L., & Burrow, A. L. (2017). The unified model of vegetarian identity: A conceptual framework for understanding plant-based food choices. *Appetite*, *112*, 78–95. <https://doi.org/10.1016/j.appet.2017.01.017>
- Shepperd, J., Malone, W., & Sweeny, K. (2008). Exploring causes of the self-serving bias. *Social and Personality Psychology Compass*, *2*(2), 895–908. <https://doi-org.proxy-ub.rug.nl/10.1111/j.1751-9004.2008.00078.x>
- Stanovich, K. E. (2010). The Tri-Process model and serial associative cognition. In *Oxford University Press eBooks* (pp. 61–80). <https://doi.org/10.1093/acprof:oso/9780195341140.003.0004>
- Taber, C. S., & Lodge, M. (2006). Motivated skepticism in the evaluation of political beliefs. *American Journal of Political Science*, *50*(3), 755–769. <https://doi.org/10.1111/j.1540-5907.2006.00214.x>

Tajfel, H., & Turner, J. C. (1979). An integrative theory of inter-group conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of inter-group relations* (pp. 33–47).

Monterey, CA: Brooks/Cole.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases.

Science, 185(4157), 1124–1131. <https://doi.org/10.1126/science.185.4157.1124>

Qiu, T. T., Nielsen, E., Guimaraes, E., & Minda, J. P. (2022). *Trait, but not State Mindfulness*

Improves Resistance to Cognitive Biases. PsyArXiv. <https://doi.org/10.31234/osf.io/na3pt>