# Framing the Plate: Explaining Rationalizations of Meat Consumption through Moral and Normative Goal Frames

*Amanda Sue Hoffman*

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**Abstract**

Transitioning to a plant-based diet offers a promising solution to address the environmental implications of meat consumption, despite the challenges involved. In this experimental study, we aimed to examine whether a moral goal frame could be distinguished from a normative goal frame in terms of rationalizing meat consumption. In an online study, 270 participants were randomly assigned to either a moral or goal frame condition. We evaluated their justifications for meat consumption using the Meat-Eating Motives Inventory (Hopwood et al. 2021). Although our manipulation of goal framing did not clearly differentiate between normative and moral goal frames, our study yielded meaningful results regarding individuals' responses to assess their normative or moral frames. Results show that normative and moral frames mediated the relationship between diet and levels of "normal" rationalizations, with omnivores having stronger normative and lesser moral frames compared to veg*ns. Further research on effective strategies to activate goal frames with diet and measures of dietary identity is recommended. This will enhance our understanding of meat consumption and aid in developing strategies to promote reduced meat consumption and the adoption of plant-based diets.

*Keywords: Goal-framing theory, Moral goal frames, Normative goal frames, Diet, Rationalization, Justification, Meat consumption, 4Ns*

**Framing the Plate: Explaining Rationalizations of Meat Consumption through Moral and Normative Goal Frames**

There is a growing acknowledgment of the pressing need to address the environmental consequences associated with meat consumption, considering the historical prevalence of animal agriculture and its influence on meat-centered diets across cultures. The increasing demand for meat, driven by population growth and economic expansion, has presented significant challenges, such as elevated greenhouse gas emissions, biodiversity loss, and inefficient land usage (FAO, 2013; UNEP, 2021; Richie et al., 2017). Shifting towards a plant-based diet offers a promising solution to mitigate these concerns as it can contribute to improved environmental conditions, enhanced food security, better animal welfare, and increased biodiversity (IPCC, 2022). However, the complexities of meat consumption make transitioning challenging.

People consume meat for various reasons, including its taste, nutritional benefits, and cultural significance (Bastian & Loughnan, 2017). Nevertheless, ethical and moral concerns arise for many individuals regarding the treatment of animals in food production. This contradiction, which reflects the cognitive dissonance experienced from these opposing viewpoints, is commonly known as the "meat paradox" (Bastian & Loughnan, 2017). Despite this internal conflict, behavior change regarding meat consumption remains relatively uncommon (Rothgerber, 2023), with many individuals resorting to rationalizations to alleviate the dissonance and maintain their meat-eating behavior (Rothgerber, 2020). Rationalizations serve as a crucial mechanism to adjust attitudes, eliminate contradictions, and preserve a positive self-concept (Piazza et al., 2015; Quilty-Dunn, 2020). By safeguarding our self-concept and reducing cognitive dissonance, these rationalizations effectively reinforce our motivation to continue consuming meat (Quilty-Dunn, 2020). Studying the psychological factors that drive meat

consumption can provide insights into the underlying mechanisms and help develop effective strategies for promoting behavior change.

One such strategy is goal-framing theory, which suggests that the way goals are presented or framed can influence decision-making and behavior (Lindenberg & Steg, 2007). An additional frame, the moral frame, has been proposed (Onwezen, 2022), which emphasizes ethical considerations and internal motivations in dietary choices. Building on the work of Onwezen (2022), this study aims to shed light on promoting sustainable dietary behaviors by examining how the moral frame impacts rationalizations of meat consumption. Uncovering effective strategies to minimize rationalizations and foster significant behavior changes can address the challenges posed by the complexities of meat consumption and contribute to promoting sustainable dietary choices.

**Rationalizations of Meat Consumption**

Rationalization is a cognitive process used by people to justify or explain their actions or decisions (Cushman, 2020). Through rationalization, individuals can reduce the discomfort of conflicting beliefs and emotions that come with their choices or actions (Rothgerber, 2020; Jarcho et al., 2011). The consumption of meat amongst omnivores has been analyzed by researchers, particularly in regard to how they rationalize their decision to do so. (Piazza et al., 2015).

Various studies suggest that individuals' rationale for consuming meat can be influenced by motivated reasoning (Graça et al., 2015). This refers to the tendency to selectively seek information that supports one's beliefs about the acceptability or necessity of animal products while ignoring evidence that contradicts those beliefs (Gaspar et al., 2016; May & Kumar, 2022). This biased reasoning process is influenced by personal values, societal norms, and the desire to

maintain consistency with past behaviors (Kunda,1990; May & Kumar, 2022). Those who prefer consuming meat often engage in motivated reasoning, selectively emphasizing the benefits of meat consumption while disregarding the ethical concerns associated with animal agriculture (Piazza et al., 2015; May & Kumar, 2022). This behavior reflects a broader tendency among individuals to justify their actions and beliefs in order to uphold their chosen behaviors even when these behaviors contradict perspectives and may elicit feelings of guilt (Piazza et al., 2015).

Meat is normal, necessary, nice, and natural – These so-called 4Ns have gained attention in the discourse surrounding meat consumption (Piazza et al., 2015; Chiles & Fitzgerald, 2017; Hopwood et al., 2021; Latimer et al., 2021). The 4Ns can be observed through various arguments to legitimize meat consumption and reduce dissonance (Rothgerber, 2020).

According to Piazza et al. (2015), one line of reasoning is rooted in the belief that eating meat is normal. Emphasizing the prevalence of meat consumption within the population is seen as a valid reason for including it in one's diet. The necessary rationalization centers around the perception that consuming meat is essential for survival or optimal health, asserting that it provides essential nutrients. The nice rationale highlights the pleasure derived from eating meat, emphasizing its satisfaction and often describing it as "delicious." Lastly, people have come to believe that eating meat is natural and is inherent to our biological makeup. These four lines of reasoning contribute to individuals' justifications for continued engagement in meat consumption (Piazza et al., 2015; Hopwood et al., 2021).

Several studies have found evidence that individuals who regularly consume meat are more likely to support justifications for their meat consumption compared to those who follow a plant-based diet, like vegetarians or vegans (Piazza et al., 2015; Chiles & Fitzgerald, 2017;

Hopwood et al., 2021; Latimer et al., 2021). Moreover, those who support the 4Ns are less inclined to consider the ethical factors of meat when making choices (Piazza et al., 2015). This inclination is especially prominent among those who strongly associate their food choices with their self-concept, influencing their perceptions of meat consumption (Rosenfeld & Burrow, 2017). Furthermore, the framework of the 4Ns can serve as a justification for consuming meat among individuals who strongly identify with their food choices (Rosenfeld & Burrow, 2018). Hence, when it comes to dietary choices, especially regarding meat consumption, individuals frequently encounter a dilemma between their moral considerations and their justifications to continue consuming meat.

Studying rationalizations allows psychologists to understand individuals' mechanisms to justify their choices, thus identifying potential opportunities for intervention or behavior change. In situations that induce cognitive dissonance, individuals adapt their beliefs to match their actions, as demonstrated in a study by Jarcho et al. in 2011. While some individuals rely on rationalization to reduce dissonance, others opt for behavior change, such as modifying their diet to reduce or eliminate meat consumption (Rothgerber, 2020). Consequently, exploring strategies that promote behavior change through decision-making is advantageous.

**Goal-framing Theory**

Goal-framing theory posits that three distinct types of goals can significantly influence decision-making: normative goals, which prioritize adherence to social norms and perceived expectations; hedonic goals, which center around the pursuit of pleasure and comfort; and gain goals, which emphasize the protection or enhancement of personal resources (Lindenberg & Steg, 2007). These goals are flexible and can adapt to contextual cues, allowing individuals to exercise judgment in attending to and processing important information (Lindenberg, 2008). The

salience of goals shapes decision-making by aiding in thought organization and focused attention (Lindenberg, 2008).

When it comes to environmental behavior, individuals prioritize diverse goals (Lindenberg & Steg, 2007). Studies have explored the relevance of goal-framing theory in understanding and influencing individuals' attitudes and behaviors toward environmental issues by investigating how individuals' goal orientations and message framing can shape their engagement in pro-environmental actions (see, for example, Abrahamse et al.2005; Lindenberg & Steg, 2007; Steg & Vlek, 2009). By understanding the underlying goals that drive individuals' decision-making and behavior, and tailoring messages accordingly, goal-framing theory suggests there is potential for promoting environmentally friendly behaviors, like reducing meat consumption.

**Moral and Normative Goal Frames**

A normative goal frame triggers a range of subgoals related to appropriateness, making individuals attuned to their personal beliefs, societal expectations, and observations of others' behavior (Lindenberg & Steg, 2007). Heightened attention to normative motivations can positively impact consumer intentions, such as purchasing sustainable home appliances (Hameed & Khan, 2020). However, research conducted by Barbopoulos et al. (2016) supports the notion that the normative frame is multidimensional and can be further divided into two sub-goals: the moral norm and the social norm. Recognizing this distinction is important as the activation of each sub-goal is associated with unique preferences and behaviors (Barbopoulos et al., 2016).

Furthermore, Onwezen (2022) posits a conceptual distinction between moral and normative goal frames, with the former pertaining to internalized motivations and the latter connected to externally imposed social norms. The study introduced a new measurement for

food-specific framing, incorporating a moral goal frame alongside the normative, hedonic, and gain frames. Findings indicated that the moral frame consistently correlated with sustainable behaviors, suggesting that creating an environment that stimulates consumers' moral frames could effectively promote sustainable food transitions (Onwezen, 2022). However, it is worth noting that the study's inclusion of varied scenarios may have unintentionally triggered alternative goal frames, potentially impacting the results. Additionally, both the normative and moral goal frames successfully promoted sustainable intentions for a vegetarian dish (Onwezen, 2022). Thus, it remains unclear if a distinction between these two frames exists. By gaining a deeper understanding of the moral goal frame, we can investigate how a person's internalized motivations affect their choices and actions regarding meat consumption.

**Dietary Choices and Moral and Normative Goals**

According to Rosenfeld and Burrow (2017), avoiding animal products in one's diet represents a means of achieving goals beyond dietary preferences. For vegetarians, the motivations driving their food-related behaviors play a role in shaping their vegetarian identity and the goals they aspire to accomplish through their food choices (Stiles, 1998). Individuals who prioritize moral goals tend to experience stronger moral emotions, such as disgust, towards meat products (Buttlar & Walther, 2022). Moreover, beliefs concerning morals of meat consumption influence willingness to reduce meat intake (Roozen & Raedts, 2022). In a study looking at the beliefs concerning the effects of meat consumption, participants with higher scores on ethical beliefs scored lower on the 4Ns and demonstrated a greater willingness to reduce their meat consumption (Roozen & Raedts, 2022). These findings highlight how moral motivations on attitudes, emotions, and behaviors impact meat consumption.

Several factors, including a person's dietary choices and societal influences, may affect the presence and activation of moral and normative goal frames. Research by Hopwood & Bleidorn (2019) suggests that meat consumers perceive meat consumption as more "normal" compared to vegetarians, indicating the influence of social norms. Additionally, a systematic review by Holler et al. (2022) found that vegetarians prioritize moral values, while omnivores consider factors like affordability, convenience, taste, and social interactions when making food choices. These findings suggest that individual dietary preferences and societal norms may influence the distinction between moral and normative goal frames. Therefore, it becomes essential to examine the connections and intersections among these goals, along with the possible overlaps and similarities between them.

**The Present Research**

The purpose of this study is threefold. Firstly, it aims to examine whether goal-framing theory should include a moral goal frame, as proposed by Onwezen (2022), within the context of diet. By extending the investigation to different diets (omnivores & veg*ns), this research endeavors to fill the gap left by existing studies, which have thus far overlooked the examination of moral and normative goal frames across dietary preferences. Secondly, the study aims to replicate and extend previous research by investigating if individuals following omnivorous and veg*n diets exhibit different levels of "normal" rationalization in their meat consumption. Lastly, the study aims to understand how normative and moral goal frames and diets influence the various aspects of meat rationalization, providing insights into the relationship between these variables and shedding light on the factors that shape individuals' justifications regarding meat consumption. See Figure 1 for an overview of the conceptual model.

**Figure 1**

*Proposed Mediation Model*
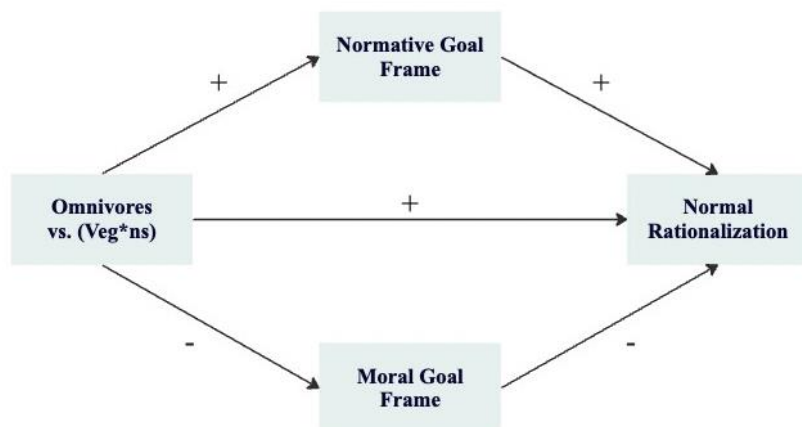


We will test the following hypotheses:

In the context of meat consumption, the activation of normative and moral goals will evoke distinct normative and moral goal frames (H1). Omnivores (compared to veg*ns) will have higher levels of "normal" rationalizations (H2). Diet is positively related to normative goals, such that omnivores are more likely to endorse normative goals compared to veg*ns (H3). Furthermore, individuals in a normative goalframe will exhibit higher levels of "normal" rationalizations (H4). Normative goal framing will serve as a mediator in the relationship between diet and normal rationalizations (H5). Diet is negatively related to moral goals, such that omnivores are less likely to endorse moral goals compared to veg*ns (H6). Individuals in a moral goalframe will exhibit lower levels of "normal" rationalizations (H7). Moral goal framing will mediate the relationship between diet and normal rationalizations (H8).

Although beyond the scope of this thesis, we will explore differences in goal frames as a mediator between diet as indicated by the Dietary Identity Questionnaire (DIQ) (Rosenfeld &

Burrow, 2018) and an individual's dietary self-label. Additionally, we will explore potential relationships between diets and moral and normative goal frames with the other rationalizations of meat consumption (necessary, nice, natural) in order to deepen our understanding of the interplay between these variables.

## Methods

### Participants

Based on an *a-priori* power analysis conducted using G*Power, we determined that a sample size of 280 participants would be sufficient to detect an anticipated small effect size, with an α level of 0.05 and a desired power (1-β) of 0.80.

Participants were recruited through three sources between May 4, 2023, and May 21, 2023. They were required to be at least 18 years old and to have sufficient English proficiency. The total sample size was $N = 293$, with 83 participants recruited from the Prolific platform, 180 participants from the University's SONA pool, and an additional 16 participants through a convenience sample using the snowball method. Out of the initial sample, 23 participants were removed as they either did not give active consent, dropped out before completing both manipulation checks, or failed both attention checks.

The final sample included $N = 270$ participants. Among the participants, 70.6% identified as female, 27.1% identified as male, and 2.3% as other. The distribution of diets among the participants was as follows: $n = 171$ (63.3%) identified as omnivores, and $n = 99$ (36.7%) as either vegetarian or vegan (veg*ns). Appendix A contains the full breadth of demographic information per the full sample and per subgroup.

**Materials and Measures**

*Manipulation of goal-framing*

We aimed to create a scenario that could apply to multiple scenarios. Thus, we expanded

on Onwezen's (2022) example of "You are feeling hungry... " to achieve this. Two scenarios

were created to serve as the manipulation groups of the study, aimed at activating either

normative or moral goal frames and making one of these frames more salient. Participants were

shown eight statements and asked to select true or false for each statement. Full details on the

choice of manipulation can be found in Appendix B.

To test whether we successfully manipulated a normative frame and a moral frame, we

asked the following two questions: "It is important to me to make food choices that align with

social norms and expectations." for the normative frame, and "It is important to me to make food

choices that align with my personal morals." for the moral frame. These items were rated on a 7-

point Likert scale (1 = *strongly disagree* to 7 = *strongly agree).*

*Rationalizations of Meat Consumption*

The Meat-Eating Motives Inventory (MEMI) (Hopwood et al., 2021) was utilized to

assess rationalizations of meat consumption. This inventory measures the 4Ns using a set of 19

items. Participants rated their agreement with statements such as "I want to fit in," "It is

necessary for good health," "It is delicious," and "It is human nature to eat meat" on a 7-point

Likert scale (1 = *least important* to 7 = *most important*). To calculate scores for each of the 4Ns,

a mean score was computed for the respective variables. The means and standard deviations of

each variable are provided in Table 1. The full MEMI questionnaire can be found in Appendix C.

**Table 1**

*Means and standard deviations for the 4Ns.*

|           | *Mean* | *SD* |
|-----------|--------|------|
| Normal    | 1.97   | 1.06 |
| Necessary | 3.92   | 1.56 |
| Nice      | 3.81   | 1.67 |
| Natural   | 2.53   | 1.52 |

*Diet & Dietary Self-Label*

Diet was assessed using an adapted version of the DIQ (Rosenfeld & Burrow, 2018), which included a question regarding participants' exclusion of specific food groups. Participants were asked to indicate which food groups they excluded from their diet, including red meat, poultry, fish, dairy, and eggs. Participants who did not exclude any of these food groups as well as those who excluded only one or two meat products (i.e., just fish or just poultry), were categorized as omnivores. Participants who excluded all of these food groups, as well as those who excluded red meat, poultry, and fish, were categorized as veg*ns. An additional measure of diet was assessed, which asked participants to self-label their diet. See Appendix D for full details on both measures.

**Procedure**

The study (PSY-2223-S-0397) received ethical approval from the Faculty of Behavioral and Social Sciences at the University of Groningen on April 26, 2024. The survey was conducted online using Qualtrics.

At the beginning of the survey, participants were presented with a consent form that provided information about the study's purpose, emphasized their voluntary participation, their right to withdraw from the study at any time, the assurance that no personal data would be collected, and provided contact information for any inquiries related to the study or data

protection. After obtaining consent, participants were randomly assigned to the manipulation scenarios.

After the manipulation, participants completed two measures to assess their diet: diet (adapted DIQ) and dietary label, the order of these questions was randomized. The DIQ question served as the primary measure of participants' diet. Following this, participants were presented with the MEMI to measure the 4Ns of meat consumption, and distractor questions that contained the two manipulation check questions. The MEMI and distractor questionnaire was presented in randomized order to reduce order effects.

Finally, demographic information was collected, and participants were directed back to the appropriate panel, if applicable. First-year psychology students (SONA) at the University of Groningen were remunerated with course credit. Prolific participants received $8.10/hour for their participation. Participants from convenience sampling did not receive payment for their participation.

<div align="center">

**Results**

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**Descriptive Statistics**

Table 2 displays the Pearson correlations for the outcome measurements. Significant correlations were observed among the 4Ns.

**Table 2**
*Correlations for the dependent variables of the main analysis and the exploratory analysis.*

|  | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Normal | -- |  |  |  |
| Necessary | .332** | -- |  |  |
| Nice | .348** | .636** | -- |  |
| Natural | .452* | .634** | . 563** | -- |

*Note.* ** Correlation is significant at the $p > 0.01$ level.

**Main Analysis**

*Manipulation Check*

In order to evaluate the effectiveness of the normative and moral goal framing manipulations, a two-way multivariate analysis of variance (MANOVA) was carried out. The independent variables were the condition and diet, and the dependent variables were the two manipulation check questions. As the assumption of equal variances was violated (Box's M $p$ <.001), Pillai's trace was used. The analysis showed that there was a non-significant interaction between the condition and diet on the manipulation check items ($F (2,265) =.292$, $p =.747$, $\eta_p^2 = .002$). As a result, we reject hypothesis 1. The manipulation employed in this study was unsuccessful in inducing distinct conditions of normative and moral goal frames.

Since no interaction was found, we proceeded to examine the main effects of the independent variables, condition and diet, on the dependent variables. Condition did not have a significant main effect on the norm question ($F (1, 266) = 0.653$, $p = 0.420$, $\eta^2 = 0.002$) or the moral question ($F (1, 266) = 1.121$, $p = 0.291$, $\eta^2 = 0.004$). However, we found a significant main effect of diet on both the norm question ($F (1, 266) = 16.12$, $p < 0.001$, $\eta^2 = 0.057$) and the moral question ($F (1, 266) = 58.87$, $p < 0.001$, $\eta^2 = 0.181$), demonstrating that participants' diet had a significant influence on their responses to the manipulation check questions. This relationship will be further examined in the subsequent analyses.

*Mediation of Normative and Moral Goal Frames on Diet and Normal Rationalizations*

The results of the MANOVA showed that our manipulation was unable to place participants in separate goal frames. Nevertheless, we subsequently found that there was no significant correlation between the two manipulation check items ($r (270) = .034$, $p = .578$), suggesting that the items measured different aspects. Thus, we tested the remaining hypotheses using the two-manipulation check items as mediators. Henceforth, for the sake of simplicity, we

will use the terms "frames" or "goals" interchangeably to reflect an individual's perspective on

these items. To test the mediated effect of normative and moral goals between diet and levels of

"normal" rationalizations, a mediation analysis was conducted using Hayes' PROCESS Macro

(model 4) with 5,000 bootstrapped samples. Bias-corrected 95% confidence intervals were

employed to estimate the significance of the indirect effects. In the model, omnivores were coded

as 0, and veg*ns were coded as 1, serving as the independent variable. The dependent variable

was "normal" rationalizations.

As shown in Figure 2, the total effect of diet on "normal rationalizations" was significant

($c$-path, $\beta$ = -.57, $p$ <.001, *C.I.* [ -.85, -.35]), with omnivores reporting significantly higher levels

of "normal" rationalizations than veg*ns. This result provides support for hypothesis 2 and

reinforces previous studies that link diet with justifications for consuming meat as "normal."

**Figure 2**

*Conceptual model of mediation with regression coefficients.*
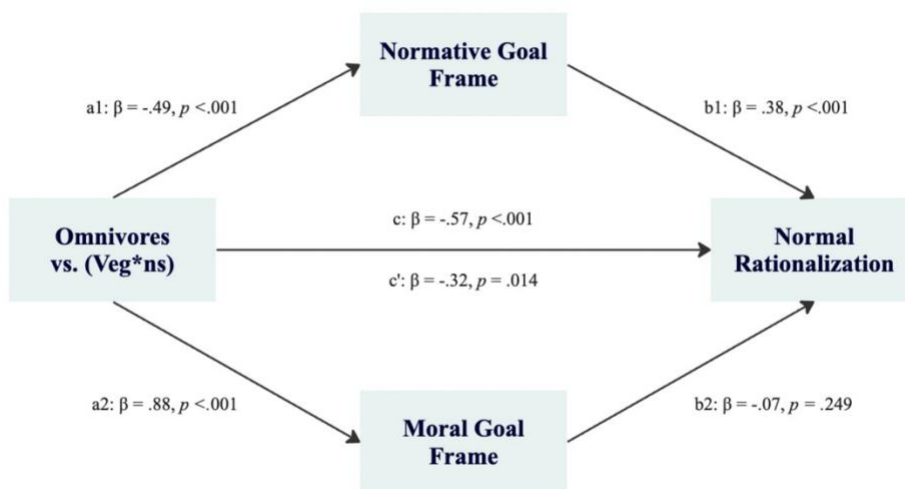


*Note.* Bias-corrected 95% confidence intervals with 5,000 bootstrapped samples. Omnivores coded as 0,

veg*ns coded as 1. Standardized coefficients for a dichotomous IV are in a partially standardized form.

The results show a significant negative relationship between diet and a normative frame (path $a_1$), such that omnivores are more likely to endorse normative goals compared to veg*ns. This result provides support for hypothesis 3. Additionally, those in a normative frame are significantly more likely to endorse the "normal" rationalization (path $b_1$), supporting hypothesis 4. Hypothesis 5 proposed that normative goal framing plays a mediating role in the relationship between diet and "normal" rationalizations. Table 3 presents the key findings of the parallel mediation analysis. The results demonstrated a significant indirect effect ($\beta$ = -.18, *SE* = .05, *C.I.* [ -.30, -.09]. Given that the confidence interval does not include zero, we find evidence to support hypothesis 5, that a normative frame mediates the association between diet and "normal" rationalizations.

**Table 3**

*Total, direct, and indirect effects of normative and moral goal frames.*

| | $\beta$ | *SE* | 95% *C.I.* | | *t* | *p* |
|---|---|---|---|---|---|---|
| | | | LL | UL | | |
| Total Effect of Diet on Normal | -.57 | .13 | -.85 | -.35 | -4.7 | <.001 |
| Direct Effect of Diet on Normal | -.32 | .14 | -.61 | -.07 | -2.5 | .0143 |
| Total Indirect Effects | -.25 | .08 | -.41 | -.10 | - | - |
| Indirect Effect (through Normative) | -.18 | .05 | -.30 | -.09 | - | - |
| Indirect Effect (through Moral) | -.06 | .05 | -.16 | .03 | - | - |

*Note.* Bias-corrected 95% confidence intervals with 5,000 bootstrapped samples. Omnivores coded as 0, veg*ns coded as 1. Standardized coefficients for a dichotomous IV are in a partially standardized form.

Further, we also find support for hypothesis 6 which suggests that diet is negatively related to moral goals (path $a_2$, Figure 2). This means that omnivores are significantly less likely

to endorse moral goals compared to veg*ns. However, while those in a moral frame were less likely to support "normal" rationalizations (path $b_2$, Figure 2), this relationship was non-significant, leading us to reject hypothesis 7. We postulated that moral goal framing acts as a mediator between diet and "normal" rationalizations in hypothesis 8. The results did not yield a statistically significant indirect effect ($\beta$ = -.06, $SE$ = .05, $C.I.$ [-.16 -.03]), suggesting that the relationship between diet and "normal" rationalizations is not mediated through a moral frame, consequently rejecting hypothesis 8.

Nonetheless, the total indirect effects of both the normative and moral frames were statistically significant ($\beta$ = -.25, $SE$ = .08, $C.I.$ [-.41 -.10]). Additionally, the presence of a significant direct effect, albeit attenuated, suggests partial mediation ($c'$ path, $\beta$ = -.32, $p$ = .0143, $C.I.$ [ -.61, -.07]). To summarize, the results of the mediation analysis show that omnivores tend to exhibit higher levels of "normal" rationalizations, which can be explained by their stronger normative and weaker moral frames compared to veg*ns. Importantly, both of these frames have an impact on levels of "normal" rationalizations. However, since the results point to partial mediation, it is worth noting that while normative and moral frames have an influence on whether or not individuals justify meat consumption as normal, there may be other factors contributing to this relationship.

**Exploratory Analysis**

*Dietary Self-Label*

Beyond the measures of diet using the adapted version of the DIQ, we also asked participants to select from a list of diet labels (See Appendix D). It is not uncommon for individuals to label themselves as following a specific diet, such as being a vegetarian, but their actual dietary practices may not strictly align with the diet's definition (Nezlek & Forestell,

2020). In examining the diet and dietary self-label variables, we observed some differences. Based on dietary self-labels, 177 individuals identified themselves as omnivores, while 93 considered themselves veg*ns. This means that through self-labeling, more participants were coded as omnivores compared to the DIQ measure ($n = 171$, $n = 99$). A Pearson correlation of the two measures revealed a strong positive correlation ($r$ (270) = .872, $p <$.001) between these two measures.

The same mediation analysis was conducted as the main analysis, with diet self-label as the independent variable. As shown in Table 4, both the indirect effects of the normative and moral frames as well as the total indirect effects, are significant. Furthermore, the direct effect of diet on "normal" rationalizations is non-significant. Hence, the main effect of dietary self-label on levels of "normal" rationalizations fails to exist when the normative and moral frames are added as mediators, indicating full mediation.

**Table 4**

*Diet Self-label: Total, direct, and indirect effects of normative and moral frames.*

| | Effect | *SE* | 95% CI | | *t* | *p* |
|---|---|---|---|---|---|---|
| | | | LL | UL | | |
| Total Effect of Diet on Normal | -.44 | .13 | -.71 | -.18 | -3.4 | <.001 |
| Direct Effect of Diet on Normal | -.09 | .14 | -.37 | .19 | -0.62 | .536 |
| Total Indirect Effects | -.36 | .08 | -.50 | -.18 | - | - |
| Indirect Effect (through Normative) | -.23 | .05 | -.34 | -.12 | - | - |
| Indirect Effect (through Moral) | -.11 | .05 | -.21 | -.01 | - | - |

*Note.* Bias-corrected 95% confidence intervals with 5,000 bootstrapped samples. Omnivores coded as 0, veg*ns coded as 1. Standardized coefficients for a dichotomous IV are in a partially standardized form.

*Exploration of the 4Ns*

A within-subjects analysis of variance (ANOVA) was conducted to analyze the means of the 4Ns across different diets. Consistent patterns emerge across all 4Ns, with omnivores scoring significantly higher on all rationalizations compared to veg*ns (see Figure 4).[1]

**Figure 4**

*Means of the 4Ns by Diet.*
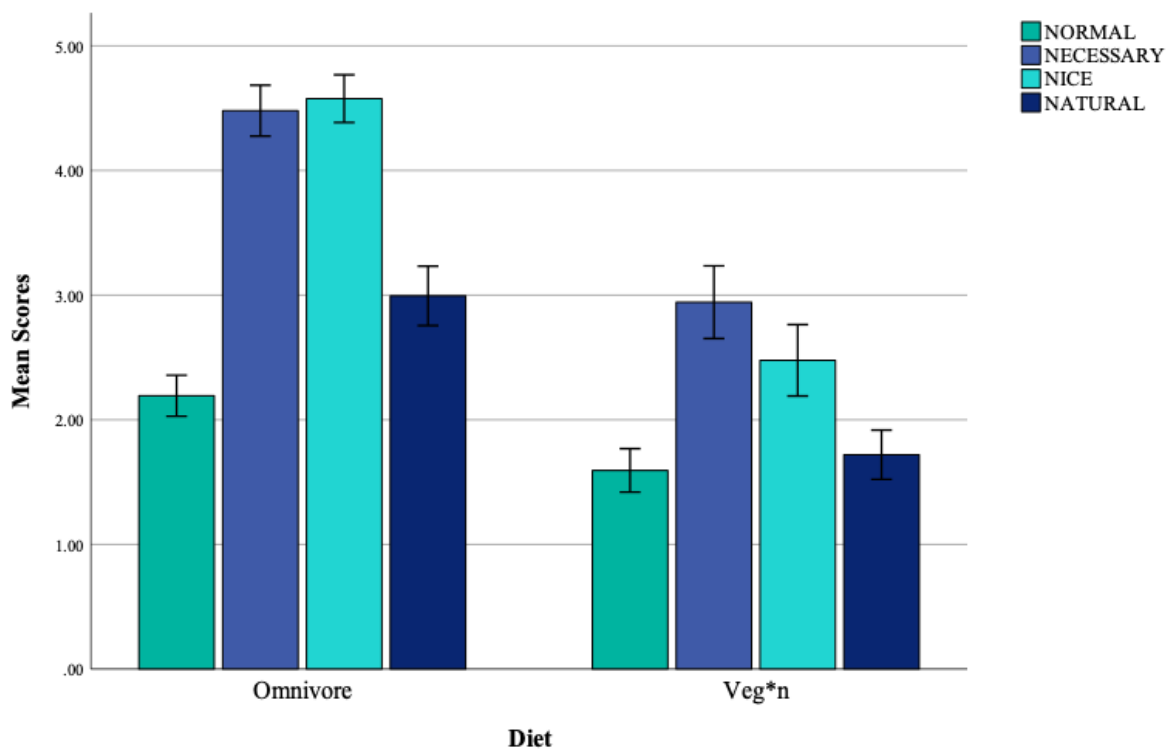


*Note.* Error bars at 95% confidence level.

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[1] Pairwise comparisons also revealed that differences between the 4Ns were statistically significant, with the exception of "necessary" and "nice" amongst omnivores and "normal" and "natural" amongst veg*ns. Due to the exploratory analysis being outside the scope of this thesis, the full results are not reported here, but can be found in Appendix E.

Three additional parallel mediation analyses were conducted to examine mediation for the remaining 4Ns (necessary, nice, natural). The results can be found in Table 5. No evidence of mediation was found on "necessary" or "natural" rationalizations as the indirect effects confidence interval contains zero. However, there was a mediating effect of a moral frame on the relationship between diet and "nice" rationalizations, and compared to omnivores, veg*ns in a moral frame had significantly lower levels of "nice" rationalizations. Considering veg*ns already abstain from meat, it is understandable that they may not perceive it as "tasty" in the same manner as omnivores.

**Table 5**

*Mediation analysis: Necessary, Nice, Normal.*

| | | | | | 95% CI | |
|---|---|---|---|---|---|---|
| *Outcome Variable* | *Mediator* | Effect of IV on mediator *(a)* | Effect of mediator on DV *(b)* | Indirect effect *(ab)* | LL | UL |
| Necessary | Normative | -.49 (*p* <.001) ** | .05 (*p* = .37) | -.03 | -.09 | .04 |
| | Moral | .88 (*p* <.001) ** | -.02 (*p* = .77) | -.12 | -.12 | .10 |
| Nice | Normative | -.49 (*p* <.001) ** | .08 (*p* = .13) | -.04 | -.10 | .02 |
| | Moral | .88 (*p* <.001) ** | -.15 (*p* = .005) ** | -.13 | -.24 | -.03 |
| Natural | Normative | -.49 (*p* <.001) ** | .04 (*p* = .51) | -.02 | -.09 | .04 |
| | Moral | .88 (*p* <.001) ** | .06 (*p* = .33) | -.05 | -.17 | .06 |

*Note.* Bias-corrected 95% confidence intervals with 5,000 bootstrapped samples. Omnivores coded as 0, veg*ns coded as 1. Standardized coefficients for a dichotomous IV are in a partially standardized form.

## Discussion

The purpose of this study was to test whether moral and normative goal frames have distinct effects on meat rationalizations. By examining diet, activation of normative and moral

goal frames, and rationalizations of meat consumption, our research aimed to provide insights into the relationships among these variables and uncover the determinants that shape individuals' justifications for continued meat consumption.

**The Distinction Between Moral and Normative Goal Framing**

While Onwezen (2022) successfully established separate conditions for examining normative and moral goal frames, the results of the current study did not find two distinct conditions between these frames in the context of omnivores and veg*ns and thus did not find support for hypothesis 1. This raises the possibility that activating each frame clearly is challenging.

One possibility is that the conceptual boundaries between these frames are inherently blurred or overlapping, making it difficult to separate them. Traditional goal-framing theory suggests that the normative goal centers around behaving appropriately and often encompasses both moral and social dimensions of appropriateness (Lindenberg & Steg, 2007). Additionally, individuals' subjective interpretations and personal values may influence how they perceive and activate these frames, further complicating the distinction. For example, in a social circle where environmental consciousness and vegetarianism prevail, individuals may be influenced by the norms of their group, which can shape their perception and activation of goal frames (Higgs, 2015). Incorporating phrases such as "align with the values of your friends and family" in our manipulation may have also evoked personal norms, as individuals may have associated their group's shared norms with those statements.

Furthermore, the manipulation involved using true/false options to encourage active participation, intending to elicit stronger engagement. However, in goal-framing theory, the activation of goal frames occurs automatically and unconsciously, independent of deliberate

choice (Lindenberg, 2008). By carefully considering the options and their implications, the goal framing process may have been influenced, potentially leading to a more conscious engagement.

**The Influence of Diet on Normative and Moral Frames**

Despite not finding an effect of participants' condition on the normative and moral questions, we did find evidence to suggest that the questions themselves were distinct. Furthermore, we found a significant main effect of diet on the normative and moral questions indicating that omnivores and veg*ns responded differently to these questions regardless of condition. It is not unexpected to see this result, considering the vast range of available evidence to support that omnivores and veg*ns have different attitudes regarding meat consumption (see, for example, Hayley et al., 2015; Mullee et al., 2017; Holler et al., 2022). Further, these findings, along with the results from our mediation analysis (paths $a_1$ & $a_2$), provide support for our third and sixth hypotheses.

One interpretation of these findings could be that a normal frame revolves explicitly around the perception of what is considered typical or socially acceptable behavior: "behaving appropriately." Omnivores, who were shown to have a stronger orientation toward social dominance and more traditional beliefs (Holler et al., 2022), may place greater importance on choosing foods that align with social norms, such that they value conforming to established practices and what is considered conventional or accepted by society.

On the other hand, veg*ns tend to prioritize values such as fairness, equality, and caring for others (Holler et al., 2022) and may rate the importance of choosing foods that align with personal morals higher because they believe it's essential to eat in a way that is consistent with their values, even if it goes against social norms or expectations. These differences in attitudes

reflect the diverse perspectives held by omnivores and veg*ns when it comes to food choices and lends an explanation to the influence of diet on normative and moral goal frames.

**Normal Rationalizations of Meat Consumption**

Consistent with hypothesis 2, the "normal" rationalization of meat consumption was found to be more pronounced among omnivores when compared to veg*ns. This finding aligns with previous research (Piazza et al., 2015; Hopwood et al., 2021; Latimer et al., 2021) and lends further credibility to the notion that rationalizations serve as a suitable measure for understanding how individuals justify their meat consumption to alleviate the discomfort associated with the "meat paradox."

In this study, the answers individuals gave to the normative question significantly impacted their levels of "normal" rationalizations, which supported our fourth hypothesis. In other words, when individuals were in a normative frame, they were inclined to view meat consumption as more typical and socially accepted. Conversely, we found that individuals who scored higher on the moral question scored lower on levels of "normal" rationalization. The direction of this finding makes sense as it aligns with previous research that suggests individuals who make food choices based on environmental concerns and animal welfare are less likely to agree with "normal" rationalizations (Piazza et al., 2015; Latimer et al., 2022), however, the results in our study were not significant and thus did not support hypothesis 7.

The results of our mediation analysis provided support for hypothesis 5, suggesting that the normal frame acts as an intermediate variable that helps explain how diet affects levels of "normal" rationalizations. In contrast, we found no significant mediating effect of the moral frame between diet and "normal" rationalizations, rejecting hypothesis 8. However, significant total indirect effects were found, which indicates that both normative and moral frames play a

meaningful role in mediating the relationship between diet and levels of "normal" rationalizations.

Interestingly, Rosenfeld (2019) discovered that among vegetarians, there was no clear distinction in terms of their moral goals or prosocial goals, which involve behaviors aimed at benefiting others or society. This suggests that these goals may be commonly shared among individuals who follow a vegetarian diet, regardless of their specific motivations, and adhering to a plant-based diet can serve as both a moral goal driven by personal values and a normative goal. (Rosenfeld, 2019). By emphasizing the overlap between moral and normative goals in the context of vegetarianism, it can be argued that these shared goals may play complementary roles in understanding how diet influences individuals' perceptions of meat consumption as normal. Additionally, given that the results point to partial mediation, while the normative and moral frames do impact individuals' justification of meat as "normal," there could be additional factors influencing this relationship. This raises further questions regarding the delineation of the moral and normative goal frames.

**Exploratory Analysis**

*Exploring Diet and Identity: Insights and Connections*

As part of an exploratory analysis, we looked at how measures of dietary self-label differed from that of the diet question from the DIQ and found some interesting results that are worth discussing. Namely, we found a full mediation effect of normative and moral frames between diet and "normal" rationalizations, suggesting that the impact of diet on "normal" rationalizations depends on the influence of normative and moral frames. The presence of full mediation, as opposed to partial mediation, could be attributed to a discrepancy between people's identification and their actual behavior. In this study, we only coded individuals as omnivores or

veg*ns. Flexitarians are individuals who primarily follow a vegetarian diet but occasionally consume meat (Rosenfeld, 2018). Increasingly, research demonstrates that the flexitarian diet stands out and can differ in terms of attitudes regarding meat consumption, which sets flexitarians apart as a distinct group from omnivores and veg*ns (Dagevos, 2021).

The beliefs and attitudes individuals hold regarding meat consumption are fundamental to their self-concept and the formation of their identities (Fox & Ward, 2008; Nezlek & Forestell, 2020; Randers & Thøgersen, 2023). Moreover, the formation of veg*n identities is influenced by a combination of internal factors, such as personal well-being and values, and external factors, including considerations of environmental sustainability (Fox & Ward, 2008; Bisogni et al., 2002). As a result, dietary preferences have implications for people's self-concept and how they are perceived by others (Rosenfeld & Burrow, 2017). Thus, identities related to diet form a dynamic relationship with eating behaviors, highlighting the fluid nature of identity formation within the context of food.

In light of these findings, it becomes evident that people utilize their dietary identities as a means to express their beliefs and attitudes. Hence, not considering additional dietary identities beyond omnivores and veg*ns may have impacted the results. Furthermore, a measurement of diet that categorizes individuals by their actions rather than their self-identification may be fundamentally different. Subsequently, the DIQ question could have been too vague (i.e., "I generally do not eat...") to invoke a true dietary identity in this study.

### *Exploring Rationalizations: Findings and Perspectives*

In order to dive deeper into the rationalizations associated with diets, an exploratory analysis was conducted. This analysis aimed to compare the findings with previous studies and shed light on the prevalence of the 4Ns across different diets.

The present study focused on the "normal" rationalization, and thus, it is interesting first to note some differences found between this justification compared to the others. The "normal" rationalization had the lowest scores among all of the 4Ns suggesting that individuals tend to rely less on the justification of meat eating based on its perceived normality compared to other rationales. One possible explanation for this could be because "normal" rationalization requires more external justification, possibly driven by the need for social acceptance and avoidance of judgment from others.

Additionally, Hopwood and Bleidorn (2019) highlight that the normal scale is distinct from the other Ns as it focuses on personality-related aspects, setting it apart from the value-oriented nature of the other rationalizations. The normal scale distinction could explain why the normative frame has a full mediating effect when the diet is self-labeled, as it is closely linked to identity. Hopwood and Bleidorn (2019) also suggest that the scale's slightly lower internal consistency may be attributed to its consideration of diverse perspectives on the normality of meat consumption. In line with this, the comparatively lower correlations between the other Ns and normal observed in this study (see Table 2) emphasize the importance of investigating the scale in greater depth.

**The Necessary Rationalization and Perceived Role of Meat.** The current study shows evidence that both omnivores and veg*ns perceive meat to be necessary, as indicated by the high score of "necessary" rationalizations (see Figure 4). Within the realm of vegetarianism, an intriguing contradiction emerges in the association between the "necessary" rationalization and health motivations. Health-motivated vegetarians consciously adopt a vegetarian diet for the sake of their well-being, considering meat avoidance as a healthier choice (Rosenfeld, 2019; Hopwood et al., 2020). However, the "necessary" rationalization suggests that some individuals

perceive meat as essential for survival, possibly due to the belief that it provides necessary proteins.

The contrasting perspectives on the role of meat in health-related motivations for vegetarianism highlight a divergence. Health-motivated vegetarians prioritize the benefits of a meat-free diet, while the "necessary" rationalization suggests meat's perceived indispensability due to its protein content. Exploring and reconciling these distinct viewpoints can offer valuable insights. Investigating dietary motivations influencing decisions on meat consumption and vegetarianism would contribute to a greater understanding.

**Goal-Framing Theory and Nice Rationalizations.** Interestingly, we found a mediating effect of the moral question on diet and the "nice" rationalization (see Table 5). Literature suggests that those who pursue moral goals with their diet are more sensitive to disgust towards meat than those who avoid meat for other reasons (Fessler et al., 2003, Buttlar & Walther, 2022). This may provide an explanation for why we found a significant reduction of "nice" rationalizations among individuals who scored higher on the moral question.

In goal-framing theory, background goals play a significant role in shaping our choices, influencing the order in which we consider options and the strength of our preferences (Lindenberg, 2006). Thus, individuals are known to hold multiple goal frames concurrently, with varying degrees of activation at different times. This idea is supported by the findings from the Onwezen (2022) study, where the gain and hedonic frames were reported more frequently, indicating their regular usage and difficulty in deactivation. Specifically, the hedonic frame, which is closely aligned with the "nice" rationalization due to its association with enjoyment, may persist in the background for many individuals. Considering this, when other goals are

activated to reduce rationalizations, the lingering presence of the hedonic goal might hinder the effectiveness of such attempts, particularly for the "nice" rationalization.

Despite this insight, it's noteworthy that a moral frame still played a significant role in reducing "nice" rationalizations. The role of hedonic and gain goals could be an interesting area for further investigation. While measuring these frames was outside of the scope of this thesis, future research on the 4Ns should consider the integration of multiple goal frames as well as the values people hold in studying their dynamics.

**The Influence of Natural Rationalization.** We found evidence to indicate that the "natural" rationalization was influenced by diet. Similar to the other Ns, omnivores score higher on this rationalization than veg*ns (see Figure 4). However, we found no evidence to support any significant relationship between normative and moral frames and justification of the naturalness of meat consumption (see Table 5). Interestingly, our exploratory findings show no significant difference in the mean scores of "normal" and "natural" for veg*ns.

The major position of meat and livestock in human societies is often attributed to historical and evolutionary importance, such as humans having a genetic disposition to consume meat (Chiles & Fitzgerald, 2017). This perspective has led to the perception that meat consumption is the default behavior (Chiles & Fitzgerald, 2017). Considering this, it's not surprising to see similarities between these two rationalizations.

**Limitations and Future Research**

This research represents the first empirical study to examine the connection between goal-framing theory and the 4N rationalizations of meat consumption. The study acknowledges limitations in distinguishing between moral and normative goal frames, which may limit the ability to draw firm conclusions about their distinctiveness and effectiveness in influencing

rationalizations and diets. Onwezen (2022) was able to manipulate the normative and moral goal frames successfully, whereas, in this study, we were unable to separate individuals into separate conditions. Depending on research goals, it may be valuable to continue to study these frames together as one. Alternatively, if researchers wish to differentiate between these frames, it is essential to carefully consider and strategically plan manipulations to effectively distinguish between them.

The MEMI and distractor questionnaire, which included the manipulation check items, were presented in a randomized order in an effort to reduce order effects. However, if we introduced the MEMI before the manipulation check, we may have guaranteed that the responses to the MEMI were not affected by the distractor questionnaire (Hauser et al., 2018). An important critique is that we used only one item to measure the level of each goal frame. Measuring the activation of each frame with additional measures may have provided more insight. Furthermore, it would be beneficial to manipulate additional goal frames (hedonic and gain) to gain an understanding of how these goals interact with rationalizations of meat consumption. This calls for further research to explore the underlying mechanisms of goal frames, aiming to gain a nuanced understanding of their interactions and the factors influencing their activation and impact on behaviors.

In this study, we used one of the two commonly used scales to measure rationalizations of meat consumption within the framework of the 4Ns: the Meat-Eating Motives Inventory (MEMI) (Hopwood et al., 2021). The alternative scale is the 4N scale created by Piazza et al. (2015).

The decision to employ the MEMI was driven by its unique design, which offers empirically distinct sub-scales rather than relying solely on an overall sum score like the 4N

Scale. However, Hopwood et al. (2021) indicate that the MEMI and the 4N Scale differ in their focus and purpose. While the 4N Scale measures moral rationalizations used to justify meat consumption or relieve cognitive dissonance, the MEMI assesses motivations behind individual choices for eating meat. Thus, given that we were interested in the differences between omnivores and veg*ns, we may have found different results using the 4N scale over using a scale that was developed to assess reasons for eating meat.

In light of the full mediation results using dietary self-label, in future studies, it would be valuable to incorporate additional variables, particularly those related to identity, to enhance our understanding of dietary decision-making. One specific aspect worth considering is the inclusion of measures of dietary identity, such as those from Rosenfeld & Burrow's (2018) Dietarian Identity Questionnaire (DIQ). This measurement assesses centrality, personal and private regard, and prosocial and personal motivations related to dietary identity. Specifically, measuring personal and private regard may provide insight into how people rationalize when considering the norms and beliefs of their own dietary group. Moreover, the assessment of prosocial and personal motivations may help to tease out further differences in the normative and moral frames. By investigating these aspects, we could gain a deeper understanding of the multifaceted influences that shape rationalizations of meat consumption and dietary choices.

Within this study, our sample consisted mainly of females. Previous studies examining meat consumption have highlighted distinctions between various aspects of meat consumption between males and females such that males have higher levels of rationalization that females (Rothgerber, 2013; Latimer et al., 2021). Furthermore, we did not have an even distribution of omnivores and veg*ns in our study, which may have reduced our statistical power. Future studies should ensure a more even distribution of diets. Additionally, the study's demographics may not

fully capture the rich diversity of perspectives and behaviors exhibited by individuals with diverse demographic characteristics. Differences may be particularly pronounced among individuals from different cultural backgrounds, especially contrasting Eastern and Western cultures. Different cultures have distinct culinary traditions, dietary practices, and beliefs about food that can impact people's perspectives on meat consumption and food choices (Choi & Lee, 2022; Shiekh & Thomas, 1994). Furthermore, in some cultures, fish and seafood may be more central to the conception of meat than in others (Piazza et al., 2015). Thus, it may also be useful to investigate a more robust range of diets, such as pescetarian, in addition to flexitarian diets, as previously mentioned. Therefore, caution should be exercised when extrapolating the study's conclusions to broader populations.

Finally, the reliance on self-report measures introduces potential biases, including social desirability bias and participants' potential ambivalence towards their meat consumption. This emphasizes the need for additional objective measures and multiple data collection methods to enhance the measurement of these constructs. One promising approach that could complement self-report measures is the utilization of mouse tracking, which provides objective data on participants' cognitive processes and decision-making. One study conducted by Buttlar and Walther (2022) demonstrated the relationship between morality, cognitive consistency, and dietary choices using mouse tracking. Their findings revealed that individuals who experienced moral disgust towards meat exhibited decreased ambivalence towards meat-related choices, regardless of their diet.

Another interesting avenue for exploration involves examining how rationalizations of meat consumption evolve over time during the transition to a more plant-based diet. For example, a notable study by Rozin et al. (1995) investigated the development of disgust related

to meat in individuals after transitioning to a vegetarian diet. By adopting a longitudinal approach, we can gain deeper insights into the psychological processes underlying dietary shifts and gain a better understanding of the factors that facilitate or impede the transition to a plant-based diet.

**Practical Implications**

Our results indicate that higher levels of goal activation are associated with increased rationalizations of meat consumption as normal. Retail businesses can leverage this by incorporating cues that present plant-based options as mainstream and widely accepted choices and including messages that invoke these frames on food packaging. By challenging the perception that plant-based diets are niche, businesses can encourage a broader range of individuals, including those who rationalize their meat consumption, to consider and embrace plant-based alternatives.

Furthermore, investing in the innovation and development of plant-based products can effectively reduce the significant rationalizations of meat, such as "it's nice" and "it's necessary," when these products are created to be both tasty and nutrient-rich. Finally, it's important to communicate that plant-based options do not only include those that replace meat but also products that are found naturally. Educating consumers about the nutritional value and variety of plant-based foods enables informed choices and promotes a plant-based lifestyle. This includes information on balanced diets, essential nutrients, and practical tips for incorporating plant-based foods into meals. Comprehensive guidance and a focus on the natural abundance of plant-based options fosters greater understanding and appreciation for plant-based eating.

## Conclusion

To conclude, this study aimed to investigate the efficacy of activating moral and normative goal frames and the variations in rationalizations of meat consumption among omnivores and veg*ns. While the study was unable to separate individuals into moral and normative goal frames, it did present differences in how individuals responded to questions that assessed their normative or moral frames and revealed that omnivores engage in more pronounced rationalizations of meat consumption compared to veg*ns. Individuals' rationalizations for meat consumption as "normal" were found to be significantly influenced by their diet, operating through both normative and moral frames. These findings could be used to promote plant-based options through packaging cues. Understanding the significance of normative and moral goal frames in reducing rationalizations of meat consumption offers opportunities for promoting plant-based diets and encouraging a shift towards more sustainable dietary choices.

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**Appendix A.** *Demographics: age, gender, diet, educational level, and employment status.*

| Baseline Characteristics | Full sample (N = 270) | | Prolific (N = 80) | | SONA (N = 174) | | Convenience (N = 15) | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| Age | | | | | | | | |
| 18 – 24 | 174 | 64.4% | 4 | 5.0% | 166 | 95.4% | 4 | 26.7% |
| 25 - 34 | 31 | 11.5% | 19 | 23.8% | 8 | 4.6% | 4 | 26.7% |
| 35 - 44 | 30 | 11.1% | 24 | 30.0% | - | - | 6 | 40.0% |
| 45 - 54 | 14 | 5.2% | 14 | 17.5% | - | - | - | - |
| 55 - 64 | 13 | 4.8% | 13 | 16.3% | - | - | - | - |
| 65+ | 7 | 2.6% | 6 | 7.5% | - | - | 1 | 6.7% |
| Gender | | | | | | | | |
| Female | 190 | 27.1% | 58 | 72.5% | 122 | 70.1% | 10 | 66.7% |
| Male | 73 | 70.6% | 22 | 27.5% | 47 | 27.0% | 4 | 26.7% |
| Other | 6 | 2.3% | - | - | 5 | 2.8% | 1 | 6.7% |
| Diet | | | | | | | | |
| Omnivore | 171 | 63.3% | 13 | 16.3% | 146 | 83.4% | 12 | 80.0% |
| Vegetarian | 68 | 25.2% | 42 | 52.5% | 24 | 13.7% | 2 | 13.3% |
| Vegan | 31 | 11.5% | 25 | 31.3% | 5 | 6.7% | 1 | 6.7% |
| Educational | | | | | | | | |
| Primary | 3 | 1.1% | - | - | 3 | 1.7% | - | - |
| Some secondary | 3 | 1.1% | 2 | 2.5% | 1 | .6% | - | - |
| Secondary | 100 | 37.2% | 12 | 15.0% | 87 | 50.0% | 1 | 6.7% |
| Vocational or similar | 15 | 5.6% | 11 | 13.8% | 4 | 2.3% | - | - |
| Some university | 73 | 27.1% | 9 | 11.3% | 64 | 36.6% | - | - |
| Bachelor's degree | 44 | 16.4% | 26 | 32.5% | 10 | 5.7% | 8 | 53.3% |
| Graduate/professional | 26 | 9.7% | 19 | 23.8% | 1 | .6% | 6 | 40.0% |
| Other | 5 | 1.9% | 1 | 1.3% | 4 | 2.3% | - | - |
| Employment | | | | | | | | |
| Full-time | 45 | 16.8% | 35 | 44.3% | - | - | 10 | 66.7% |
| Part-time | 34 | 12.7% | 23 | 29.1% | 10 | 5.7% | 1 | 6.7% |
| Unemployed | 3 | 1.1% | 3 | 3.8% | - | - | - | - |
| Homemaker | 3 | 1.1% | 3 | 3.8% | - | - | - | - |
| Student | 168 | 62.7% | 4 | 5.1% | 161 | 92.5% | 3 | 20.0% |
| Retired | 7 | 2.6% | 6 | 7.6% | - | - | 1 | 6.7% |
| Other | 8 | 3.0% | 5 | 6.3% | 3 | 1.7% | - | - |

**Appendix B.** *An Explanation of the Creation of the Manipulation.*

The manipulation was created based on previous experimental manipulation in the

following three studies: Onwezen (2022), Barboupolus (2017), Thøgersen & Alfinito (2020*).

*Full manipulation as it was presented in the presented study:*

<u>**Moral Goal Framing Manipulation**</u>
Imagine a scenario where you are feeling hungry and planning to make a meal. Please respond to
the following questions about the food choices you are going to make.

Your choices will...

1. Satisfy your hunger and **align with your values**. T/F
2. Allow you to feel **connected to nature**. T/F
3. Consider your surroundings and the impact of your food choices on others and the
   environment and **lead by example**. T/F
4. Be compatible with your **personal and moral obligations** and **not violate your
   principles**. T/F
5. Allow you to behave in a way that is consistent with your **ideals and opinions**. T/F
6. Give you a **good conscience** and **not be morally wrong**. T/F
7. Allow you to **take a stand for something** you believe in, such as promoting animal
   welfare, or advocating for **social justice**. T/F
8. Consider the **consequences for others** and have a positive impact on the world around
   you. T/F

<u>**Normative Goal Framing Manipulation**</u>
Imagine a scenario where you are feeling hungry and planning to make a meal with friends.
Please respond to the following questions about the food choices you are going to make.

Your choices will...

1. Align with the **values of your friends and family.** T/F
2. Allow you to make a **good impression on people who are important to you.** T/F
3. Not go against your **friends' expectations of you**. T/F
4. Be approved **by people who are important to you**. T/F
5. Be the **popular** choice among your social group. T/F
6. Permit you to **show others** that what you're choosing is right. T/F
7. Be choices that are **approved by environmentalists** as supporting sustainable agriculture
   practices. T/F
8. Reflect the expectations and values of society, such as cultural or dietary norms. T/F

*Relevant measures from Onwezen (2022):*

1.  Activating moral frame: Imagine you are in the supermarket and like to choose products that match your personal values. You are going to make a dish that considers the environment and animal welfare.

2.  Activating normative frame: Imagine you are in the supermarket with a friend and are buying groceries. You are going to make a dish based on what they think is a good choice.

*Relevant measures from Barboulous (2017):*

| | ETHICS | SOCIAL ACCEPTANCE |
|---|---|---|
| **Normative** | **Good conscience:** _ should give me a good conscience | **Popularity:** _ should be popular in my circle of friends |
| | **Ideals and opinions:** _ should be compatible with my ideals and opinions | **Friends' expectations:** _ should not go against my friends' expectations of me |
| | **Principle:** _ should not violate my principles | **Liked:** _ should be liked by people who are important to me |
| | **Not morally wrong:** _ should not be morally wrong | **Friends' approval:** _ should be approved by my friends |
| | **Obligations:** _ should be compatible with my personal and moral obligations | **Good impression:** _ should make a good impression on people who are important to me |

*Relevant measures from Thøgersen & Alfinito (2020)*

Specifically used the T/F scale.

| Table B: Goal priming, random assignment to the three different versions below | |
|---|---|
| Traveling, normative | Type |
| The average car driven in Denmark/Brazil produces around two tons of carbon dioxide per year – About the same as a flight to America and back | T/F |
| Driving a car is good for the environment | T/F |
| The more people there are in a car, the better it is for the environment | T/F |
| Cars with bigger engines produce less carbon dioxide | T/F |
| Car-sharing means that less pollution and greenhouse gases are released into the atmosphere | T/F |
| Some motorways now have special lanes for cars that have more than one occupant to encourage people to car-share and protect the environment | T/F |

**Appendix C.** *The Motives to Eat Meat Inventory (Hopwood et al., 2021).*

| Scale | Item | Below there is a list of reasons to eat meat and other animal products like eggs and dairy. Please rate how important different reasons are for you, personally. You should give a range of ratings to indicate the reasons that are especially important for you, those that are relatively unimportant, and those that are moderately important.<br>Scale:<br>7 Most important<br>6<br>5<br>4 Moderately important<br>3<br>2<br>1 Least important |
|---|---|---|
| Natural | 1 | It goes against nature to eat only plants. |
| Necessary | 2 | Our bodies need the protein. |
| Normal | 3 | I want to fit in. |
| Nice | 4 | It is delicious. |
| Necessary | 5 | It makes people strong and vigorous. |
| Normal | 6 | I don't want other people to be uncomfortable. |
| Nice | 7 | It is in all of the best tasting food. |
| Natural | 8 | It could be unnatural not to eat meat. |
| Necessary | 9 | It is necessary for good health. |
| Normal | 10 | It is just one of the things people do. |
| Nice | 11 | It gives me pleasure. |
| Necessary | 12 | I want to be sure I get all of the vitamins and minerals I need. |
| Normal | 13 | Everybody does it. |
| Nice | 14 | It has good flavor. |
| Necessary | 15 | It gives me strength and endurance. |
| Normal | 16 | I don't want to stand out. |
| Nice | 17 | Meals without it don't taste good. |
| Natural | 18 | It is human nature to eat meat. |
| Natural | 19 | Eating meat is part of our biology. |

*Note.* For those that don't eat meat, an instruction was added that the items should be answered based on the reasons the respondent might or would have to eat meat, even though they do not.

**Appendix D.** *Measures of Diet.*

*Dietary Pattern (taken from Rosenfeld & Burrow's DIQ, 2018).*

In general, which of the following food groups do you not eat? Please select all that apply. If you generally eat all of these food groups, please select the last response.

- ☐ I generally do not eat red meat
- ☐ I generally do not eat poultry
- ☐ I generally do not eat fish
- ☐ I generally do not eat dairy
- ☐ I generally do not eat egg
- ☐ I generally eat all of these food groups

*Additional questions related to self-labeling of diet were included to investigate correlations.*

*These same questions were included in the internship study with Benjamin Buttlar.*

Please indicate your dietary pattern.

- o Meat Eater (I regularly eat meat or fish)

- o Meat Reducer/Flexitarian (I try to rarely eat meat or fish)

- o Pescetarian (I do not eat meat but I do eat fish)

- o Vegetarian (I do not eat meat or fish, but I do eat other animal products, like eggs and dairy products)

- o Vegan (I do not eat meat, fish, or other animal products, like eggs and dairy products)

**Appendix E.** *Pairwise Comparisons of the 4Ns by Diet.*

| Diet | Ns (I) | Ns (J) | Mean Difference (I-J) | SE | p | 95% C.I.[b] LLCI | ULCI |
|------|--------|--------|------------------------|-----|------|------|------|
| Omnivore | Normal | Necessary | -2.29* | .116 | <.001 | -2.60 | -1.98 |
| | | Nice | -2.38* | .112 | <.001 | -2.68 | -2.09 |
| | | Natural | -.80* | .105 | <.001 | -1.08 | -.52 |
| | Necessary | Normal | 2.29* | .116 | <.001 | 1.98 | 2.60 |
| | | Nice | -.09 | .104 | 1.00 | -.37 | .18 |
| | | Natural | 1.48* | .101 | <.001 | 1.22 | 1.75 |
| | Nice | Normal | 2.38* | .112 | <.001 | 2.09 | 2.70 |
| | | Necessary | .09 | .104 | 1.00 | -1.8 | .37 |
| | | Natural | 1.58* | .111 | <.001 | 1.29 | 1.88 |
| | Natural | Normal | .80* | .105 | <.001 | .52 | 1.08 |
| | | Necessary | -1.48* | .101 | <.001 | -1.75 | -1.22 |
| | | Nice | -1.58* | .111 | <.001 | -1.88 | -1.29 |
| Veg*n | Normal | Necessary | -1.35* | .152 | <.001 | -1.75 | -.95 |
| | | Nice | -.88* | .148 | <.001 | -1.28 | -.50 |
| | | Natural | -.13 | .138 | 1.00 | -.49 | .24 |
| | Necessary | Normal | 1.35* | .152 | <.001 | .95 | 1.75 |
| | | Nice | .47* | .137 | .005 | .10 | .83 |
| | | Natural | 1.22* | .133 | <.001 | .87 | 1.58 |
| | Nice | Normal | .88* | .148 | <.001 | .50 | 1.28 |
| | | Necessary | -.47* | .137 | .005 | -.83 | -.10 |
| | | Natural | .76* | .145 | <.001 | .37 | 1.14 |
| | Natural | Normal | .13 | .138 | 1.00 | -.24 | .50 |
| | | Necessary | -1.22* | .133 | <.001 | -1.58 | -.87 |
| | | Nice | -.76* | .135 | <.001 | -1.14 | -.37 |

*Note.* Based on estimated marginal means. *The mean difference is significant at the .05 level. *b.* Adjustment for multiple comparisons: Bonferroni.