Utrecht University

Master's Thesis

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Sustainable Business and Innovation

Exploring Perceived Sacrifices in Reducing Meat Consumption: An Investigation of the Role of Personal Norms and Contexts

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Abstract

Introduction – High meat consumption, based on deep-rooted norms, contributes to environmental, animal welfare and health problems. Despite growing awareness, personal norms and perceived sacrifices discourage meat reduction efforts. This study is the first to examine the relationship between integrated and introjected personal norms and sacrifice feelings in different contexts of meat reduction to uncover the socio-psychological barriers to reducing meat consumption behavior.

Theory – Sacrifices are defined and framed as giving up personal interests for the common good. Different types of sacrifices regarding meat consumption were identified in literature, namely taste, functional, emotional, social, conditional, and financial. Studies demonstrate that personal norms strongly determine pro-environmental behavior and significantly shape one's intention to make sacrifices. The norm-activation model provides insights into how personal norms, awareness, and responsibility shape sacrifice feelings when making sustainable choices.

Methods – To achieve the research aim, a quantitative (within-subject) study was conducted with a sample size of 467 participants. Data was collected using a questionnaire and was mainly analyzed using multiple linear regression analyses and analyses of variance (ANOVA).

Results – This study revealed that Integrated Norms, characterized by a voluntary commitment to reducing meat, predict lower *general* sacrifice feelings. This norm also shows lower *situational* sacrifice feelings, although fluctuations do occur on an individual basis. Introjected Norms, which are predominantly driven by a sense of obligation or pressure, predict higher *general* sacrifice feelings. Yet, the influence of Introjected Norms on *situational* sacrifice feelings is not significant, but there is a notable variability in *situational* sacrifice feelings among people with stronger Introjected Norms, suggesting a more complex relationship with this norm.

Discussion - As expected, Integrated Norms predict lower *general* sacrifice feelings, possibly caused by being deeply embedded in a person's identity, aligning choices with their norms and values. Unexpectedly, Introjected Norms do not predict higher *situational* sacrifice, potentially due to the psychological distance and cognitive dissonance in hypothetical situations, mitigating emotional reactions. This highlights the complex and nuanced interplay between personal norms and sacrifice feelings. Despite some limitations, this research pioneers the prediction of situation-dependent and general sacrifice feelings based on personal norm types in meat reduction contexts, providing a foundation for future studies.

Conclusion – The findings add to the knowledge of underlying mechanisms influencing meat consumption behavior. This study provides valuable insights for shaping marketing and policy

strategies to mitigate sacrifice perceptions and foster sustainable behaviors for environmental, animal, and health benefits.

Table of Content

List of Tables and Figures

1. Introduction

"Eating animals, […], is an overwhelming norm." (Rothgerber & Rosenfeld, 2021)

People's desires for always wanting more (e.g., more pleasure, more comfort, more convenience) contributes to environmental harm, animal suffering, and even human diseases, and yet people are reluctant to give them up (Stern, 2000). However, to protect the environment, enhance public health, and lessen animal suffering, it is recommended to switch to a diet that includes less meat and more plant-based foods. Due to the impact of livestock, meat consumption is one of the crucial environmentally relevant behaviors (Abrahamse & Steg, 2009). Significant portions of the consumer population are aware of it but do not seem ready to change their meat consumption behavior (Graça et al., 2015). A study that investigated how people want to combat climate change found that 66% would reduce their meat consumption. Yet giving up meat, as it is often a normative and habitual behavior, was stated as the second hardest action to take in Europe, after giving up their car (European Investment Bank, 2021; Rothgerber & Rosenfeld, 2021). Research has shown that altruistic, prosocial, and pro-environmental behaviors, such as avoiding meat for animal welfare and environmental reasons, are highly influenced by the individual's moral standards and values, known as personal norms (Harland et al., 1999; Schwartz, 1977). These can be divided into integrated personal norms, which are characterized by strong internalized values, and introjected personal norms, which are more influenced by external factors (Thøgersen, 2006). However, engaging in altruistic behavior, such as reducing meat consumption, often involves personal sacrifice for the benefit of the collective, which can act as a potential barrier to environmentally friendly behavior (Kaplan, 2000). In addition, sacrifice feelings about meat reduction fall into several categories, including functional, social, taste, conditional, financial, and emotional (Da Costa Birchal et al., 2018; Rosenfeld & Tomiyama, 2020). Chwialkowska and Flicinska-Turkiewicz (2021) highlight sacrifice feelings as a barrier but also illuminate its potential in fostering sustainable behavior. Their study revealed that low-effort priming, such as plant-based meal default options, can effectively reduce sacrifice feelings and promote sustainable behavior. Yet the context also plays an important role in how people perceive costs or sacrifices (Stankevich, 2017; Hunecke et al., 2001), and it has an impact on how norms influence behavior (Horne, 2003). This highlights the connection and complexity between personal norms, sacrifice perceptions, and situations[a] in the field of meat consumption reduction. Therefore, it can be assumed that the feeling of sacrifice changes depending on the personal norm and the context. For example, some vegetarians may occasionally choose to consume small amounts of meat in specific situations, driven by high sacrifice feelings and the desire to conform to societal norms. In contrast, other vegetarians

[a] The terms "context" and "situation" are used interchangeably in this study.

adhere strictly to their dietary principles, even if it feels like a sacrifice (Stiles, 1998). Building on the findings of Chwialkowska and Flicinska-Turkiewicz (2021), the present study further underscores the significance of sacrifice feelings in driving sustainable behavioral change by investigating the crucial role of introjected and integrated personal norms in shaping individuals' sacrifice feelings in different situations of reduced meat consumption. This leads to the following research question:

To what extent does the type of personal norm influence whether people feel they make a sacrifice when reducing their meat consumption and what is the influence of context?

The purpose of this study is to examine how the type of personal norm[b] (integrated and introjected) impacts the extent to which people perceive the reduction[c] of meat as a sacrifice, by also considering different situations. While previous studies have examined the relationship between norms and pro-environmental behavior also concerning meat consumption (e.g., Kwasny et al., 2022; Cheah et al., 2020; Cialdini & Jacobson, 2021), as well as the willingness or intention to sacrifice related to pro-environmental behaviors and very few concerning meat consumption (e.g., Da Costa Birchal et al., 2018; Han et al., 2019; Macias, 2015). However, there is currently no research on the interplay between personal norms, situations, and feelings of sacrifice in the domain of meat consumption. Moreover, research has not previously differentiated between the two types of personal norms, nor has it made distinctions among the various types of sacrifices. By filling this research gap, this study can make a relevant scientific contribution to the theoretical and empirical knowledge on (underlying) socio-psychological barriers of meat consumption behavior and other environmentally friendly behaviors. It especially deepens the understanding of underlying decision-making mechanisms regarding sacrifice, as the *willingness to make a sacrifice* stems from *the feeling of making a sacrifice* and its trade-offs (Parkinson et al., 2018). The societal contribution of this study is to gain valuable insights into leverage effects of different personal norms. Understanding the context in which sacrifices are felt most strongly can help develop interventions to mitigate sacrifice feelings and thus remove barriers to reducing meat consumption. Thus, insights into this relationship can help tailor interventions to individuals' needs and preferences and shift societal norms towards sustainable diets. It can inspire marketing campaigns, policy decisions, and individual consumer dietary choices, enabling effective action to promote lower meat consumption in different situational contexts, thereby reducing environmental and animal harm and improving human health.

[b] In this study, "personal norms" consistently pertain to the reduction of meat consumption.
[c] "Reducing" in this study always also means "avoiding" meat, e.g., in a certain situation.

2. Theoretical background

2.1. The feeling of making a sacrifice

Sacrifices and ethics

Looking at sacrifice feelings from an ethical perspective, Singer (1980) notes that there may be situations where a vegetarian diet would require some sacrifice, such as when social norms or personal preferences make it difficult to choose vegetarian options. Nevertheless, Singer argues that such sacrifices are minor compared to the benefits of reducing animal suffering and promoting greater well-being for humans and the environment. This is a normative perspective, so-called utilitarianism, that says that actions should be judged by their ability to reduce pain and produce the greatest overall happiness for majority. In this sense, sacrificing one's own interests or desires for the sake of others is often seen as morally right if it leads to a net increase in overall happiness (environmental & animal welfare & human health).

What is perceived as a sacrifice? – Sacrifice and sustainability

However, distinctions exist between how people should act from an ethical perspective and how they actually act and feel about it. Something is perceived as a sacrifice when an individual gives up something, i.e., puts aside his or her own interests for the common good, the benefit of someone else, or for the benefit of their future self, taking into account both material and immaterial components (Pura, 2005). This might be, for example, going vegan for animals and the environment even though a person usually likes to eat dairy and meat products. Regarding sustainability, many people who know about and acknowledge human-induced climate change, are eager for the climate crisis to be resolved, and intend to behave in a more environmentally friendly way for the collective good, however, actual behavior does not match up, as people are less willing to give up their own comforts (Hornsey & Fielding, 2020). Historically, environmental harm has been mainly a by-product of humanity's wants and desires for physical comfort, movement, freedom from labor, pleasure, power, social standing, safety, preservation of tradition, as well as the institutions and innovations humans have developed to satisfy these desires (Stern, 2000). Prosocial and pro-environmental (motivated) behaviors like reducing meat consumption are often equated with giving up these, i.e., making sacrifices[d].

Through the concept of making sacrifices in the context of dietary choices and environmentalism, it becomes evident that what is perceived as a sacrifice varies significantly. In turn,

[d] In other studies, instead of *sacrifice*, the terms *(personal/perceived) constraints, cost,* and *loss* are used (Schenk et al., 2018; Da Costa Birchal et al., 2018; Gaspar, 2013).

this illustrates that there are different types of sacrifice that people experience in relation to meat consumption.

Different types of sacrifices in meat consumption context

Da Costa Birchal et al. (2018), a research team specialized in the field of consumer behavior, (environmental) management and dietary studies, investigated the benefits and sacrifices associated with vegetarianism. Their comprehensive study was the first that has identified five distinct types of sacrifice that individuals perceive or experience in relation to meat consumption, a classification that has been incorporated into this study. Furthermore, another study on barriers to vegetarian diets found a similar pattern but also included the *taste of meat* as a relevant sacrifice (Rosenfeld & Tomiyama, 2020). Therefore, this type of sacrifice is added in the current study. Finally, the six sacrifices being used in the current study are listed and explained in Table 1.

Table 1

Types of sacrifices

Type of sacrifice	Description	Example
Functional	Physiological function of food	Perceived low diversity on the plate, perceived nutrient deficiencies, lower physical well-being
Emotional	Negative feelings or emotional states related to food or a meal	Individuals may feel agitated and annoyed with others, feel they are different, and/or feel excluded, especially due to difficulties in social interactions
Financial	Consumers' expectations of price	Perceiving vegetarian food as more expensive
Conditional	Consumers' perception of hindering settings and conditions	Increased effort and inconvenience due to limited access and variety of vegetarian options, need to prepare meals at home
Social	Feeling of group belonging, social interaction, and social image that consumers want to be associated with	Not being able to eat at certain restaurants, disagreements with others for violating cultural and social norms, being seen as different and difficult
Taste	The taste of meat and the (sensory) experience of eating meat	Liking the taste and texture of meat, disliking an ingredient in a vegetarian dish, missing certain flavors that are unique to meat dishes

Note. Adapted from Da Costa Birchal et al. (2018) and Rosenfeld & Tomiyama (2020).

Sacrifices and altruism

With regards to the different types of sacrifices mentioned above, many people are often unwilling to undertake them, particularly because they are often framed and associated as the opposite of a "quality-of-life-enhancing" activity (Kaplan, 2000). People tend to perceive social and environmental benefits as not compensating for the personal sense of loss and abandonment. Nonetheless, it is important to note that making sacrifices is also viewed as an admirable, altruistic trait (Kaplan, 2000). Jencks (1990) defines altruism as having feelings or acting in ways that promote the welfare of others when self-serving is not possible. As there cannot theoretically be an advantage that compensates for any cost or effort involved in this selfless behavior, it inevitably includes sacrifice (Kaplan, 2000). However, research that looked at the use of meat replacements revealed that having a variety of alternative protein options offers the chance to restrict meat without appearing to make any sacrifices in terms of choices (Sahakian et al., 2020). A study on altruisms, helping, and volunteering found that high cost of helping elicits self-worries that can override empathic driven altruistic impulses (Batson et al., 1983). It is argued that the negative framing of sacrifice ultimately leads people to act in a less prosocial and environmentally friendly manner. Therefore, some argue that environmentally friendly behavior should not be portrayed as a sacrifice but should rather be promoted with benefits and as inherently desirable (Prinzing, 2023).

In addition, philosophy professor Peter Murphy presents effective altruism, which is the ability of people to do good for others without making great sacrifices (Murphy, 2017). It is claimed that for an act to be considered one of the morally best acts, it need not involve self-sacrifice. Instead, it is argued, that self-sacrifice is a requirement that actors must fulfill to be deserving of the highest recognition. In this case, sacrifice ends ultimately in something positive through social praise, for example. So, some authors even argue that true self-sacrifice does not exist (Overvold, 1980).

On the one hand, sacrificing one's own interests for the greater good may make one feel proud, a feeling that has been characterized as a positive self-conscious emotion brought on by fulfilling societal expectations, sense of accomplishment and keeping a positive self-image (Tracy & Robins, 2004). A sense of pride may be achieved through inhibitive control, a mental process that supports effective self-control in situations when holding on to a long-term goal despite a disruptive short-term goal and hence can achieve a feeling of pride (Katzir et al., 2010). For example, someone aiming to reduce their meat consumption may face short-term temptations to eat meat, like cravings or social pressure at a social event, but feel proud when they can resist through inhibitory control. Self-conscious feelings such as pride can then act as a motivator to make short-term sacrifices. On the other hand, people experience distressing feelings such as guilt and shame caused by the fear of defying a social standard

if they refuse to make a sacrifice for the common good and thus people often try to prevent feeling guilt in the first place (Tracy & Robins, 2004).

Exploring the dynamics of sacrifice and altruism reveals a complex interplay between self-conscious emotions and societal perceptions and expectations. This complexity is the basis for a more in-depth examination of how people perceive and approach sacrifices in different ways and situations.

Different perceptions of sacrifice

People differ in many ways, so people also differ in how they perceive and feel about sacrifices and it may also depend on the situation and the people they are with. For example, people are more concerned with making a positive impression on less familiar people and would therefore be more likely to make a sacrifice in a situation (De Mello Marsola et al., 2021; Tice et al., 1995, Carrington et al., 2014). However, research has shown that a person's willingness to sacrifice is significantly influenced by their knowledge, environmental concern, perceived threat, and perceived control (Oreg & Katz-Gerro, 2006; Macias, 2015).

In terms of perceived threat and control, research has shown that, one reason why people are not willing to make prosocial and pro-environmental sacrifices is their sense of abstractedness of climate change and the fact that it does not directly affect them. This can be explained by *psychological distancing*, which can be caused by the subjective perception of space, time, or social distance including perceived social impact, such as a certain degree of ambiguity or skepticism about people's impact on, for instance, combating climate change (Trope & Liberman, 2010). For example, according to research on college students' propensity for pro-environmental action, individuals are less inclined to make personal sacrifices when they perceived their impact and control as low and the impact of technology as much higher (Gigliotti, 1994). Furthermore, individuals who have a strong egoistic orientation tend to not follow a prosocial or pro-environmental behavior when it negates a person's needs and desires, an example being eating beef daily to achieve fitness goals (Stern et al., 1993).

In terms of environmental concern, individuals who are more environmentally concerned and altruistic seek, for example, less the economic advantage than the general satisfaction of knowing they are doing something good and useful. This is because it creates a positive attitude that is fostered through experienced self-discipline and (cap)abilities which can outweigh their enjoyment of meat (De Young & Kaplan, 1985; Da Costa Birchal et al., 2018). Like the knowledge of doing something good, a strong positive correlation was found between knowledge of a problem and willingness to make sacrifices. When people are educated about and aware of a problem like climate change, they are much more willing to make sacrifices (Macias, 2015).

A study of decision-making processes regarding eco-friendly cruises showed that feelings and norms, especially personal norms, increase willingness to sacrifice (Han et al., 2019). Another study also highlighted that the above-mentioned self-conscious emotions have a mediating effect on pro-environmental behavior, that includes sacrifices, via personal norms (Onwezen et al., 2013). Thus, personal norms become a crucial aspect of ethical decision-making, as when it comes to making a sacrifice.

2.2. Personal norms

Personal norms and ethics

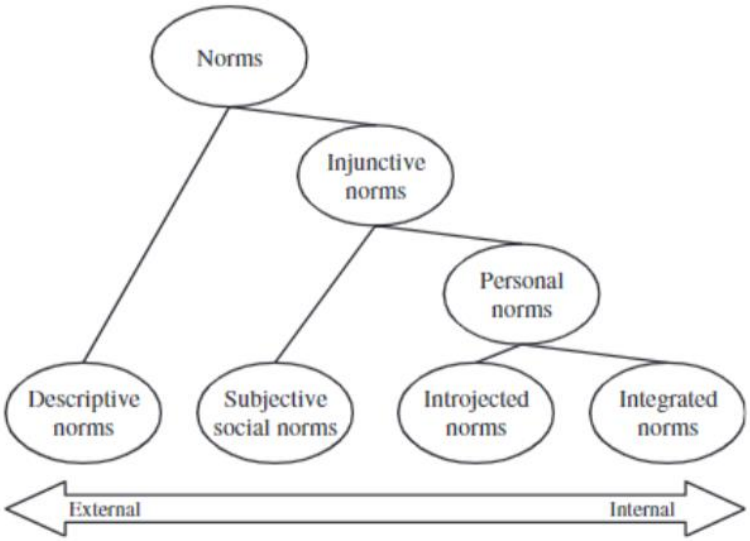
Humans have moral obligations to the natural environment, environmental ethicists argue. In order to guide moral decision-making, virtue ethics emphasizes the development of moral character traits, such as compassion and responsibility. They argue that reducing or avoiding meat consumption is a moral responsibility that reflects compassion and care for animals, the environment, and human health (Hill, 1983). These character traits are developed through habituation and practice and become internalized as personal norms (Sandler, 2013).

What are norms?

Norms are constructs that can help to describe and explain human behavior (Schwartz, 1977). According to Schwartz and Howard (1984) norms are collective beliefs about the way individuals should behave and are upheld by the fear of punishment or the prospect of rewards. However, different types of norms exist (see Figure 1).

Figure 1

Norm taxonomy



Note. Norm taxonomy by Thøgersen (2006).

Social norms are formed through societal expectations, duties, and its anticipated sanctions or rewards such as group belonging that are embedded in social groupings. Social norms can be either *descriptive* (what others actually do) or *injunctive* (what others think one should do) and do influence personal norms. Personal norms are a type of internalized belief system and self-expectation that guide an individual's behavior in wanting to behave in a certain way in a given situation based on their values, sense of moral obligation, and sense of responsibility (what is right or wrong, good or bad?) (Schwartz, 1977; Thøgersen, 2006; Ajzen & Fishbein, 1980). Overall, personal norms are influenced by many factors such as societal norms, anticipated emotions, upbringing, personal experiences, values, attitude, problem awareness and (moral) responsibility (Han et al., 2019; Matthies et al., 2012, Thøgersen, 2006). A distinction can be made between *integrated* and *introjected* personal norms Thøgersen, 2006).

Integrated Norms are values or principles that are entirely internalized and are coherent with a person's self-concept, autonomy, and self-determination. A strong integrated norm feels volitional and indicates that individuals are intrinsically driven to behave in a certain way, even if this is relatively expensive for example. Thus, it can be assumed that integrated norms may also override social norms in certain situations where the individual's values and sense of responsibility are strong enough to resist social pressures. Introjected norms are values or principles that are only partly internalized and are based on outside pressures, such as social acceptance or the avoidance of guilt (Thøgersen, 2006).

For example, a study found out that the less people feel guilty about eating animal products, the less likely they are to restrict their consumption even further (Piazza et al., 2015). In sum, Schwartz (1977) highlights that adherence to expectations (introjected) and own internalized norms (integrated) can lead to increased self-esteem and a sense of pride, while violating them can cause feelings of guilt and shame and reduce self-esteem. Besides, expected guilt predominantly impacts moral standards when society norms are casually accepted without giving them much thought or contemplation regarding how they relate to personal goals and values. Thøgersen (2006) argues that integrated norms remain strong as they do not rely on emotional cues such as pride or guilt, whereas introjected norms often rely on these emotions, especially in social settings.

Overall, the concept of norms plays a critical role in understanding human behavior, particularly personal norms, which are internalized beliefs that guide behavior based on values and moral commitments. This explanation forms the basis for understanding the Schwartz's (1977) norm-activation model (NAM), which describes the steps individuals go through to respond to different situations and how personal norms influence behavior.

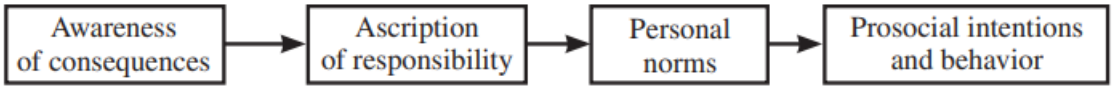
The situational norm-activation model

Personal norms are the core of the norm-activation model (Schwartz, 1977). The NAM is a situational model that addresses the connection between activators, norms, and behavior and suggests that personal norms are a key determinant of pro-environmental and prosocial behavior, which is referred to as altruistic behavior. The crucial activators, according to the NAM, are a person's understanding of the impacts of their acts (*awareness of consequences*) as well as their capacity and desire to accept responsibility for those impacts (*ascription of responsibility*) which activates personal norms that then can influences behavior (see Figure 2). So, the NAM outlines the steps that an individual goes through from perceiving a need to responding to it in a certain situation. The model includes four main steps: *activation steps, obligation step, defense steps, and response step*. The *activation steps* involve awareness of a person (or animal or environment) in need, perception that actions can help, recognition of own ability to provide relief, and apprehension of responsibility to become involved. The *obligation step* involves the activation of personal norms and the generation of feelings of moral obligation. The *defense step* involves assessment, evaluation of costs (can be interpreted as sacrifices), and reassessment of potential outcomes. For instance, for someone considering reducing meat consumption, this could involve thinking about the potential costs, i.e., sacrifices, such as giving up certain favorite foods or adjusting their dietary habits. Finally, the *response step* involves taking action or inaction (Schwartz, 1977).

Overall, this theory is one of the most used one and most popular social science theory when environmental behavior is investigated (Han, 2014; Jackson, 2005; Hunecke et al., 2001). For this research, the situational model is useful as it illustrates and increases the understanding how personal norms, shaped by awareness, responsibility, and moral obligation, can influence the way individuals evaluate and perceive sacrifices (evaluation of costs) when making decisions related to behaviors like reducing meat consumption. For example, if (integrated) personal norms strongly support reducing meat consumption, individuals may view sacrifices like abstaining from meat in a particular situation as a way to align with their values, potentially reducing their perception of sacrifices.

Figure 2

Norm-activation model



Note. Schwartz's (1977) Norm-activation model, done by De Groot & Steg (2009).

2.3. Norm-sacrifice relationship and hypotheses development

In sum, the theory chapter highlighted that the significant influence of personal norms on pro-environmental and prosocial behaviors has been widely acknowledged in research (e.g., Kwasny et al., 2022; Cheah et al., 2020; Cialdini & Jacobson, 2021). While no studies have delved into the interplay between the two types of personal norms, specific situations, and feelings of sacrifice in the context of meat consumption, a pro-environmental behavior study by Han et al. (2019) did indicate that intentions to sacrifice are significantly influenced by personal norms. Thøgersen's (2006) research has shown significant differences in the internalization of norms related to distinct environmentally friendly behaviors. In particular, the purchase of organic food is found to be the most internalized and integrated behavior. As the study highlighted, people apply different norms when it comes to different environmentally friendly behaviors. Therefore, it can be hypothesized that individuals apply different norms in different situations, pointing out the importance of context. In addition, the low-cost hypothesis by Diekmann and Preisendörfer (2003) posits that individuals weigh, often subconsciously, personal costs (e.g., financial, time, effort, status, or pleasure) against the benefits of adhering to their personal norms when deciding to act in a pro-environmental way. For example, when individuals have stronger integrated norms regarding reduced meat consumption, it means that making sustainable dietary choices aligns with their core values and identity (e.g., Dietz et al., 1995). It can therefore be

assumed that this alignment can reduce the perceived sacrifice, in contrast to introjected norms, and that there are differences between dietary types, e.g., between meat-eaters and vegetarians. In addition, according to Thøgersen (2006), while integrated norms stand robust without the need for emotional reinforcements like pride or guilt, introjected norms often seek such reinforcement, especially in societal contexts. Given this, it can be assumed that that both the behavior and the associated emotions exhibit greater variability with introjected norms, potentially leading to fluctuating perceptions of sacrifice, unlike with integrated norms.

To systematically examine the relationship between the variables of personal norms, sacrifice feelings, and context, and to answer the research question the following hypotheses were developed:

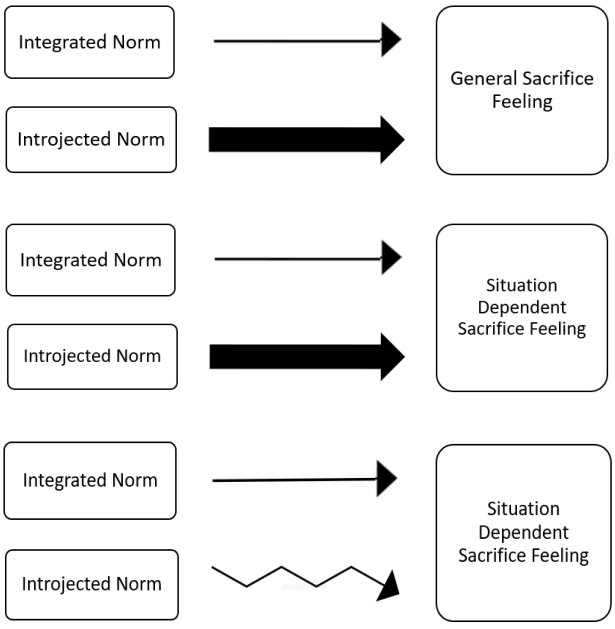
H1: Introjected Norms predict higher general sacrifice feelings, whereas Integrated Norms predict lower general sacrifice feelings.

H2: Introjected Norms predict higher situational sacrifice feelings, whereas Integrated Norms predict lower situational sacrifice feelings.

H3: People with stronger Introjected Norms show a higher degree of fluctuation of sacrifice feelings across different situations than people with stronger Integrated Norms.

Figure 3

Hypotheses visualizations



3. Methodology

3.1. Research design

The aim of this study was to explore to what extent the type of personal norm (Integrated and Introjected) influences people's feelings of making a sacrifice when reducing their meat consumption and what role diverse situations play. A quantitative within-subject research design was used to compare the effects of different conditions, i.e., different situations, on the same group of participants in order to draw inferences about the underlying mechanisms in the relationships between *personal norms, Perceived Sacrifice,* and *situations*, with respect to meat consumption decisions.

The general sacrifice feeling (*Perceived Sacrifice*) and the situational sacrifice feelings arising in the different contexts (*Situation-dependent Sacrifice*) were used as the dependent variables in this research, the two types of personal norms were used as independent variables (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). The situations covered six types of sacrifices, namely *functional, social, emotional, conditional, financial, and taste sacrifices,* as well as *taste* (Da Costa Birchal et al., 2018; Rosenfeld & Tomiyama, 2020). The variable concerning sacrifice feelings was divided into two categories: the situation-independent variable, assessed through general statements encompassing participants' overall feelings of sacrifice when reducing or avoiding meat, and the situation-dependent variable, evaluated through six distinct situations.

3.2. Sampling strategy

The sampling strategy aimed to select a diverse representation of different dietary types, including meat-eaters (omnivores), meat-reducers (flexitarians), vegetarians, and vegans in the Netherlands and Germany. These countries were selected because of their similar food habits and culture, including significant meat consumption traditions and growing trends in vegetarian and vegan lifestyles (Rong et al., 2021; Weinrich & Elshiewy, 2023). Looking at statistics, in 2022, 55% of Germans identified as flexitarians, 33.6% as meat-eaters, 9.5% as vegetarians, and 1.9% as vegans (Rehder, 2023). In the Netherlands, 43% identified as flexitarians, 48% as meat-eaters, 4.9% as vegetarians, and 2% identified as vegans (van Haaster de Winter et al., 2022). A cumulative target sample size of at least 300 participants was chosen to represent German and Dutch meat-eaters, meat-reducers, vegetarians, and vegans. This ensured that the study's high likelihood of detecting meaningful differences or effects between the different dietary groups in the population being studied. Furthermore, a sample size of 300 strikes a balance between feasibility and statistical power, taking into consideration the available resources, time constraints, and the scope of the research project (Lakens, 2022).

Participants were asked to take part in an online survey run on Qualtrics (Qualtrics, 2023). As an incentive, they had the chance to win a 15 Euro voucher for the Avocadostore, an environmentally conscious online retailer. Additionally, participants were given the option to express their interest in receiving the survey results upon completion. The survey was made available on May 25, 2023, and participants were able to take part until June 8, 2023. Recruitment was initially through the researcher's personal network by distributing the survey link on social media platforms and subsequently in online vegetarian and vegan forums (i.e., purposive sampling) and by snowball sampling by asking participants to refer others who met the inclusion criteria for the study (i.e., living in Germany or the Netherlands).

3.3. Procedure

Interested participants were directed to an online survey that took place on the secure Qualtrics server, where they received a short explanation of the study and provided informed consent. Then, to begin, participants filled in basic demographic information, such as age, gender, average income, and highest education level. Second, participants indicated their current dietary preference and duration of adherence to that diet, as well as the frequency of meat consumption of omnivores or flexitarians in an average week. After that, participants were exposed to six different hypothetical situations where they had the option to abstain from meat consumption. In these situations, participants were asked about the degree of sacrifice involved and the reasons contributing to their perception of it. This assessment aimed to evaluate Situation-dependent Sacrifice feelings. Next, in the second part of the questionnaire, situation-independent questions were asked. A measure of responsibility, awareness of consequences, and personal norms related to meat consumption were completed by participants, to examine their (moral) feelings about meat reduction. Finally, participants were asked to provide information on their general perceptions of reduced meat consumption as a sacrifice, including when and to what extent they perceived it as such (see Appendix A. Meat consumption survey). At the end of the survey, participants could enter additional topic-related thoughts in the "Additionals" text box and indicate whether they would like to participate in the raffle and/or receive the survey results.

3.4. Participants

A total of 850 participants responded to the survey. 106 of the responses were incomplete and thus not considered for analysis. Furthermore, during the survey period, 157 responses were flagged by the survey platform Qualtrics as potential bot submissions. To ensure the integrity and quality of the data, these flagged responses were removed from the final sample size, resulting in a revised sample size of

587 participants. When reviewing the dataset in SPSS, additional bots were discovered as the exact same responses occurred for the "Additionals" item. Eventually, the final sample size consists of 466 participants (52.5% female, 46.5% male, 0.4% non-binary, and 0.6% other) for analysis, hence obtaining a more significant number of participants than the targeted sample size of 300. They had a mean age of 32.8 years (*SD* = 10.8), with the youngest person being 16 years and the oldest being 76 years old. Moreover, 71.3% of the participants live in Germany and 28.7% in the Netherlands. For both countries, most participants live in urban rather than rural areas. Furthermore, all participants are educated with at least a High School degree, and most earn an annual income between 12.001 and 80.000 Euros (see

Table ***2***).

Table 2

Sociodemographics

Sociodemographics	n	%
Gender		
Female	245	52.6
Male	216	46.4
Non-binary	2	0.4
Other	3	0.6
Highest Education		
High School	46	9.9
Apprenticeship	86	18.5
Bachelor's degree	234	50.2
Master's degree	92	19.7
Ph.D or higher	8	1.7
Residential Area Distribution		
More rural area DE	82	17.6
More urban area DE	251	53.9
More rural area NL	45	9.7
More urban area NL	88	18.9
Annual Income		
< 12.000 Euros	79	17.0
12.001 – 50.000 Euros	172	36.9
50.001 – 80.000 Euros	162	34.8
> 80.000 Euros	25	5.4
Do not say / prefer not to say	28	6.0

In terms of diet types and eating habits, the survey results indicated that 41.5% of the participants identified as omnivores (meat-eaters), followed by 36.2% flexitarians (meat-reducers), then 15% vegetarians (no meat), and finally 7.3% vegans (plant-based) (see

Figure ***3***). This is comparable to the dietary habits of the German and Dutch populations (see above). These self-identified labels were triangulated with the frequency of meat consumption for

omnivores and flexitarians. Among the participants who identified as omnivores and flexitarians, most people eat meat 1-2 days per week (29.1%) or 3-4 days per week (27.4%) out of a total sample size of 363 (see Figure 4). Additionally, in terms of the duration of their respective diets, 41.3% (193) had maintained it for 1 to 5 years, 30.4% (142) reported having followed their dietary choice all their life, 15.0% (70) for 6 to 10 years, 9.9% (46) had adhered to it for less than 1 year, and 3.4% (16) fell into the "Other" category. The majority of omnivores appeared to have lifelong dietary preferences, while flexitarians, vegetarians, and vegans show more diverse durations, with a notable proportion adopting their diets within 1 to 5 years. For the vegans, it is notable that 29.4% have been vegan for 6 to 10 years, and 14.7% pursued a vegan diet for more than 10 years (M =16.81, SD =7.65). 10% of vegetarians have also been on a vegetarian diet for more than 10 years, with the highest duration being 31 years (M = 17.85, SD = 5.62) (see

Table **3**).

Figure 3

Dietary habits in percentage

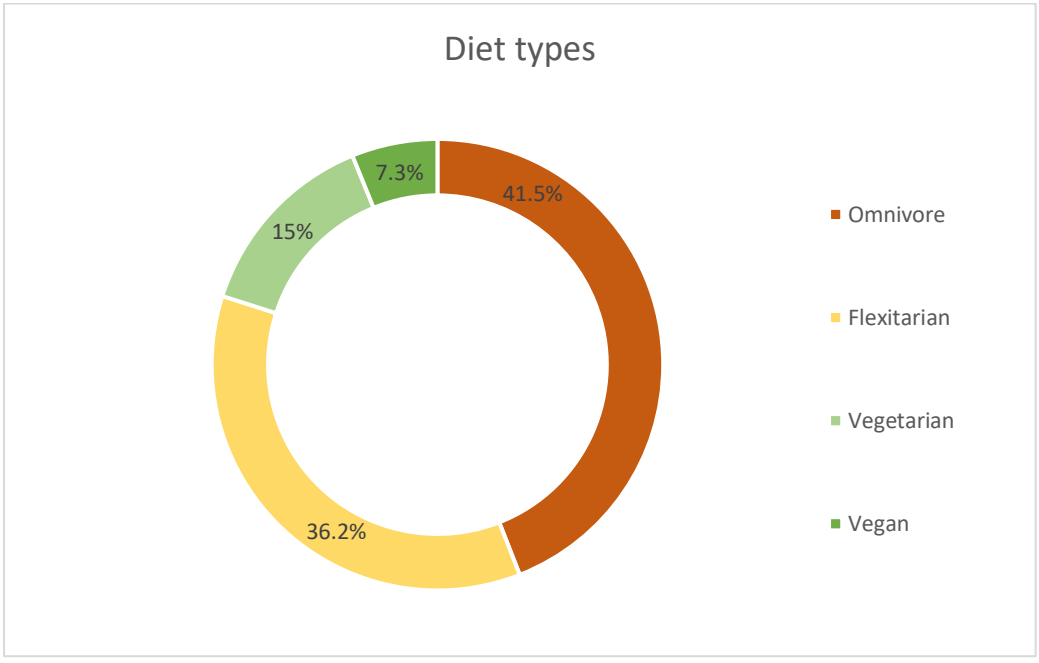


Figure 4

Meat consumption of omnivores and flexitarians in an average week

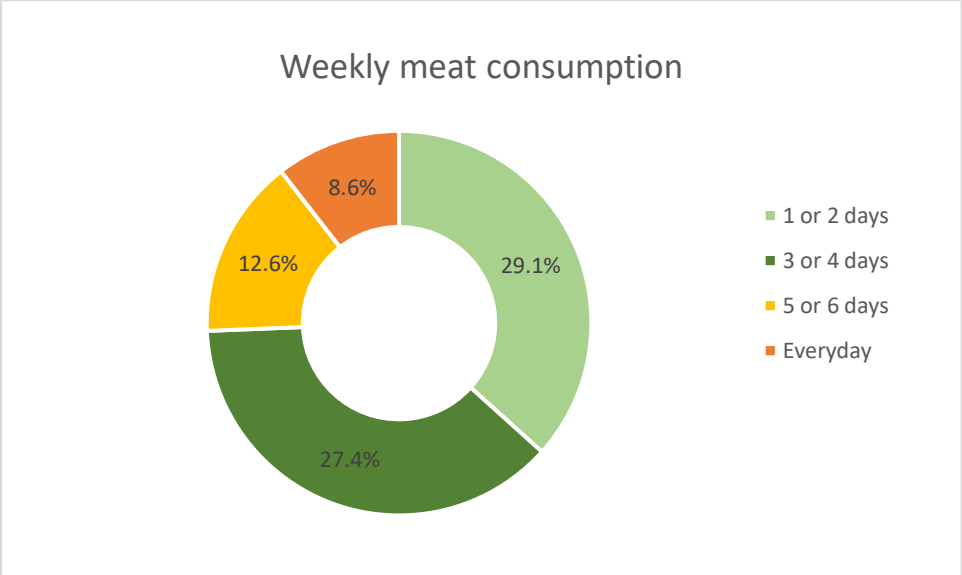


Table 3

Crosstabulation dietary type and diet duration

			Diet duration										
			All my life		< 1 year		1 - 5 years		6 - 10 years		Other		Total
			n	%	n	%	n	%	n	%	n	%	
Type of diet	Omnivore	n	122	**62.9**	17	8.8	39	20.1	13	6.7	3	1.5	194
		%	**85.9**		37.0		20.2		18.6		18.8		41.5
	Flexitarian	n	16	9.5	20	11.8	104	**61.5**	28	16.6	1	0.6	169
		%	11.3		**43.5**		**53.9**		**40.0**		6.3		36.2
	Vegetarian	n	1	1.4	6	8.6	37	**52.9**	19	27.1	7	10.0	70
		%	0.7		13.0		19.2		27.1		**43.8**		15.0
	Vegan	n	3	8.8	3	8.8	13	**38.2**	10	29.4	5	14.7	34
		%	2.1		6.5		6.7		14.3		31.3		7.3
Total		n	142	30.4	46	9.9	193	41.3	70	15.0	16	3.4	467
		%	30.4		9.9		41.3		15.0		3.4		100

Note. The numbers in bold show the highest percentages in terms of diet type and diet duration.

4. Measures and materials

4.1. Independent variables

4.1.1. Awareness of consequences

The item Awareness was adapted from Carfora et al.'s (2020) scale as their scale also addressed the ascription of responsibility, awareness of consequences, and personal norms related to reduced meat consumption. For awareness of consequences, Carfora et al. (2020) used three items, such as "An excessive red and processed meat consumption causes environmental problems", which were synthesized into one overarching statement within this study: "I think I am aware of the consequences of meat consumption". It was measured on a 5-point Likert Scale ranging from *strongly disagree (1)* to *strongly agree (5)* as a scale (continuous) variable. Thus, the higher the score, the higher the participants' awareness of meat consumption consequences. The purpose of including this item was to relate it to the construct's responsibility and personal norms based on the NAM.

4.1.2. Responsibility

Responsibility was adapted from Carfora et al.'s (2020) scale. For responsibility, the authors included three items, such as "I think it is useful to reduce red and processed meat consumption (RPMC) to reduce environmental problems" and "I can take on responsibility for the environment by reducing my RPMC". In the current study, these items were consolidated into the following generalized statement:

"I feel personally responsible to reduce my meat consumption," along with the following response options:

- *I do not feel responsible*
- *I feel responsible because it harms the environment*
- *I feel responsible because it harms animals*
- *I feel responsible because it harms my own health*
- *other, specify: ____.*

Participants were allowed to tick multiple response options, reflecting the multifaceted nature of their perceived responsibility toward reducing meat consumption. Responsibility was assessed using a categorical (nominal) scale.

4.1.3. Personal norms

Personal norm was measured with six items: three items measuring *Integrated Norms* and three measuring *Introjected Norms*. For these statements, participants were asked to rate their agreement with each item on a 5-point Likert scale ranging from *strongly disagree (1)* to *strongly agree (5)*. Both constructs were measured as scale variables and were assessed by averaging the three corresponding items, resulting in an aggregated overall score for each construct. Higher scores indicated a stronger Integrated or Introjected Norm related to reduced meat consumption.

Integrated Norm was measured using the three items: "It feels meaningful to reduce my meat consumption", "Having an excessive meat consumption is against my moral principles", and "I think it is important to reduce meat consumption". The initial item was derived from Thøgersen's (2006) Integrated Norms scale, while the latter two items were adapted from Carfora et al.'s (2020) personal norm scale. For example, the initial item was changed from Thøgersen's question "How meaningful or pointless is it to buy organic milk?" to the statement, "It feels meaningful to reduce my meat consumption". All three items were averaged together and have a relatively high Cronbach's alpha of .865. Thus, internal reliability is ensured.

To measure Introjected Norm, the following three items were used: "I would feel guilty and get a bad conscience if I would not (have had) reduce(d) my meat consumption", "I feel pressure from others to reduce my meat consumption", and "I feel pressured by others to reduce my meat consumption, even though I am not completely committed to it myself". For instance, Carfora et al.'s (2020) original item, "I would feel guilty if I would not reduce my red/processed meat consumption", was refined to "I would feel guilty and get a bad conscience if I would not (have had) reduce(d) my meat consumption" to better align with this research context. However, the additional phrase "I get a bad conscience" stems from Thøgersen's (2006) work. All three items were also averaged together, yielding an adequate Cronbach's alpha of .774, ensuring a robust level of internal reliability.

For subsequent analyses, a new variable, Norm type, was created whereby participants were categorized based on the comparison of the means of the Integrated Norm and the Introjected Norm related to the participants' normative orientation. The coding was performed as follows: If the Integrated Norm score was greater than the Introjected Norm score, the variable Norm type was assigned the value 1, categorizing participants into the Integrated Group. If the Integrated Norm score was less than the Introjected Norm score, the variable Norm type was assigned the value -1, placing participants into the Introjected Group. If the Integrated Norm and Introjected Norm scores were equal, the variable Norm type was assigned to the value of 0, designating participants as part of the No Group.

4.2. Dependent variables

4.2.1. Perceived sacrifice

The scale variable *Perceived Sacrifice* is the situation-independent variable. It aimed to explore participants' *general* feelings of making a sacrifice when reducing or avoiding meat consumption, independent of specific situations. The measure was constructed using nine items, six of which were developed by merging the sacrifice types described by Da Costa Birchal et al. (2018) (conditional, emotional, financial, social, and functional), supplemented by Rosenfeld and Tomiyama's (2020) taste sacrifice, as well as using Lea and Worsley's (2003) vegetarian diet barriers questionnaire items in a modified form. As an illustration for the six items, Lea and Worsley's (2003) questionnaire included items such as "It takes too long to prepare vegetarian food" and "There is too limited a choice when I eat out", which signify a conditional sacrifice based on Da Costa Birchal et al. (2018). Subsequently, these were adapted into the item "Reducing meat is inconvenient as it needs more effort, time and there is often a limited availability of vegetarian options". Similarly, items like "Vegetarian diets are boring" and "I would be (or am) worried about my health (other than lack of iron or protein)" were categorized as a functional sacrifice and were rephrased as "Reducing meat means less variety on the plate in terms of nutrition like protein and iron".

Concerning the three exploratory items, which were self-developed, the item "Reducing meat would feel/feels/felt like a sacrifice" intended to provide a more general overview of the feeling of making a sacrifice. The item "The more reducing meat feels like a sacrifice, the less I am willing to actually reduce meat" sought to uncover the relationship between the Perceived Sacrifice associated with reducing meat consumption and the willingness to engage in that behavior. Besides, this statement is relevant as it aimed to explore the interplay between personal norms and the perception of sacrifice. The third item, "I would say that the feeling of making a sacrifice when reducing meat decreases over time", was designed to probe the temporal dimension of how the perception of sacrifice changes.

For all nine items, participants were asked to rate their agreement with each statement on a 5-point Likert scale ranging from *strongly disagree (1)* to *strongly agree (5)*. Concerning the initial seven items, higher scores indicated stronger feelings of making a sacrifice related to reducing or avoiding meat consumption. To evaluate the construct of Perceived Sacrifice, the initial seven items were averaged together and have a high Cronbach's alpha of .834. The latter two items were analyzed separately to explore their distinct implications. For the penultimate item, higher scores corresponded to a higher degree of participant's belief that a high sacrifice feeling leads to decreased motivation for reducing meat intake. In terms of the last item, the higher the score, the more participants believe that the feeling of sacrifice decreases over time.

4.2.2. Situations

To be able to draw conclusions about individuals' *Situation-dependent Sacrifice* feelings, a situational judgment task was explicitly developed for this study. In this task, participants were presented with a series of six hypothetical situations in which they were asked how easy it is for them to put themselves in this situation, whether they would eat meat in that situation, and to what extent it would feel like a sacrifice if they did not eat meat in this situation. In the first query, participants were asked to rate the easiness on a 5-point Likert scale ranging from *very difficult (1)* to *very easy (5)*. Responses that received a low score were considered with caution. For the second question, participants rated the likelihood on a 5-point Likert scale that ranged from *very unlikely (1)* to *very likely (5)*. Higher scores indicated a higher desire and likelihood to eat meat in that situation. The response items of the six situations were averaged to get an overall tendency across all situations. The third question, related to Situation-dependent Sacrifice feelings, is discussed in more detail in Section 4.2.3.

The six situations have been developed based on the six types of sacrifices (see theory chapter), on Veflen et al.'s (2020) vignettes of differences in the magnitude of norms in various social situations of food consumption, as well as on Michel et al.'s (2021) items testing the appropriateness across different meat and meat-alternative consumption situations (see Table 4). Subsequently, six situations were selected that represent the most common situations in which meat consumption is considered: Being invited to a family dinner (Situation 1), dining with meat-eating vs. vegetarian friends (Situation 2 & 3), traveling and dining alone (Situation 4), being invited to a work barbeque (Situation 5), and going grocery shopping and eating alone at home (Situation 6). After these six situations were selected, two to four sacrifice types were identified according to the type of situation. In the pretest phase, the situations underwent an iterative process with different groups of participants until the core sacrifice reasons were integrated into the survey's different situations. In Situation 4, for example, about 40% of pretest participants indicated a preference for trying out local food as an additional sacrifice reason.

4.2.3. Situation-dependent sacrifice

In the assessment of the sacrifice feelings for each situation using the item "Would it feel like a sacrifice if you did not order a meat dish in that situation?", responses were gathered on a 5-point Likert scale ranging from *Not at all (1)* to *Very likely (5).* To establish an overall measure of Situation-dependent Sacrifice, the responses for each situation were averaged. This approach was chosen to provide an average perception of sacrifice across various situations. The results indicated high reliability for the measurement of this variable, with Cronbach's alpha at .876 across all situations.

All participants, except those who chose “Not at all”, i.e., indicating they would not experience a sacrifice feeling at all, were asked the follow-up question: “Why would it feel like a sacrifice?”. For this question, situation-specific response options related to the sacrifice types the situation was intended to address were provided (see Table 4). For example, the response option “Because of the very limited number of vegetarian options” represented the conditional sacrifice. Additionally, participants were provided with a blank response box for further input. The binary coding employed assigned a value of “1” to respondents who selected the corresponding answer option and “0” to those who did not opt for it. As participants could choose multiple response options, the results are presented in terms of “x times”. In case of Situation 6, however, a procedural error was found in the questionnaire. Due to a technical glitch, this follow-up question about the reasons for their sacrifices was only presented to participants who had selected “neutral”. It is essential to note this limitation and acknowledge that data on reasons for sacrifice feelings in Situation 6 may be distorted due to this unintentional selection bias.

Furthermore, an additional variable, called Fluctuation, was created to provide insights into the degree of variability in participants’ perceptions of Situation-dependent Sacrifice across the six different situations. The process involved calculating the squared differences between the overall Situation-dependent Sacrifice score and each of the six individual situational sacrifice item scores (see Appendix B. Syntax SPSS: Main and exploratory analyses

Table 4

Sacrifice type related response options

	Response option	Type of sacrifice	Reference
Situation 1			
Imagine you are at a family gathering and a beloved family member has prepared their famous and tasty meatball soup as an appetizer. It is a family tradition and you might feel obligated to eat the meatball soup also because the family member put a lot of effort into making it and you like the taste of it.	Because I like/prefer the taste of meat ((side) dishes).	Taste[a]	Da Costa Birchal, R. A. M., Moura, L. R. C., Vasconcelos, F. C. W., & da Silveira Cunha, N. R. (2018). The value perceived and the sacrifice perceived by vegetarian food consumers. *Revista Pensamento Contemporâneo em Administração*, *12*(1), 1-17.
	Because a family member made an effort and I feel bad or guilty for not eating it as it might hurt their feelings.	Emotional[b], Social	
	Because I would break the social norms and traditions and thus I might sacrifice group belonging.	Social[c]	
Situation 2			
Imagine you are at a restaurant with friends and everyone is ordering meat dishes. On the menu there is only one vegetarian/vegan option which is more expensive than the meat options.	Because I like/prefer the taste of meat ((side) dishes).	Taste	Rosenfeld, D. L., & Tomiyama, A. J. (2020). Taste and health concerns trump anticipated stigma as barriers to vegetarianism. *Appetite*, *144*, 104469.
	Because all my friends order meat dishes, I would feel socially isolated or different from the group (for example because I am not fully participating in the shared dining experience).	Social	
	Because of financial reasons as the meat options are cheaper.	Financial[d]	
Situation 3			
You go out to eat with friends and everyone orders the vegetarian option. There are only two vegetarian/vegan options on the menu and each contain an ingredient you dislike (such as mushrooms, cilantro or olives) and cannot be excluded.	Because I like/prefer the taste of meat ((side) dishes).	Taste	Veflen, N., Scholderer, J., & Langsrud, S. (2020). Situated food safety risk and the influence of social norms. *Risk Analysis*, 40(5), 1092-1110.
	Because I would only follow my friends' choices to avoid conflict or to avoid being different from the group.	Social	
	Because I dislike an ingredient.	Taste	
	Because of the very limited number of vegetarian options.	Conditional[e]	

Situation 4			Michel, F., Hartmann, C., & Siegrist, M. (2021). Consumers' associations, perceptions and acceptance of meat and plant-based meat alternatives. *Food Quality and Preference*, *87*, 104063.
You are traveling alone through Europe and go to a restaurant that serves many local dishes. There are only two vegetarian/vegan options on the menu, each with an ingredient you dislike (such as mushrooms, cilantro, or olives) that cannot be excluded.	Because of the very limited number of vegetarian options.	Conditional	
	Because I like/prefer the taste of meat ((side) dishes).	Taste	
	Because I would like to try out local dishes.	Social & taste	
Situation 5			
You are invited to a barbecue with your new work colleagues and they are only serving meat dishes. If you want to eat something vegetarian/vegan you would need to prepare and bring your own vegetarian dish.	Because I would feel uncomfortable and different if I was the only one who did not eat meat.	Social	
	Because it is inconvenient and requires extra effort (time) to bring my own food.	Conditional	
Situation 6			
You want to achieve fitness goals for which you need protein. You are grocery shopping and you want to cook a particular high protein vegetarian recipe. The store only caries vegetarian meat substitutes that are more expensive and have less protein than their meat counterparts. You could go to another store to find your preferred alternative.	Because of financial reasons as the meat options are cheaper.	Financial	
	Because of the lower protein content of vegetarian options.	Functional[f]	
	Because of the extra effort of going to another store.	Conditional	

[a] Explanation of taste sacrifice: The taste of meat and the (sensory) experience of eating meat.

[b] Explanation of emotional sacrifice: Various emotional states or feelings that may be experienced.

[c] Explanation of social sacrifice: Feeling of group belonging, social interaction, and social image that consumers want to be associated with.

[d] Explanation of financial sacrifice: Consumers' expectations of price.

[e] Explanation of conditional sacrifice: Consumers' perception of external settings and conditions that may impact their choices or preferences.

[f] Explanation of functional sacrifice: Physiological function of food.

4.3. Control variables

4.3.1. Demographics and dietary habits

Demographic data, including age, gender, income, geographical setting, and education level, as well as dietary habits, were chosen as categorical control variables to be able to consider various factors that could potentially affect the relation between the dependent variable and the independent variables.

Age: Participants were requested to provide their age in years within a designated text field.

Gender: Participants choose from categories like “female”, “male”, “non-binary”, and “other”.

Education level: Categories include “High school”, “Apprenticeship”, “Bachelor’s degree”, “Master’s degree”, and “Ph.D. or higher”.

Geographical setting: Participants choose between options such as “More rural area - Germany (less than 50,000 inhabitants)”, “More urban area - Germany (more than 50,000 inhabitants or in proximity to a major city)”, and similar options for the Netherlands.

Income: Response options encompass “Less than 12,000 Euros”, “Between 12,000 and 50,000 Euros”, “Between 50,000 and 80,000 Euros”, “More than 80,000 Euros”, and “Do not know/prefer not to say”.

Dietary type: Categories include “Vegetarian”, “Vegan”, “Omnivore”, and “Flexitarian”.

Diet duration: Options range from “All my life”, “Less than 1 year”, “Between 1 and 5 years”, “Between 6 and 10 years”, and an open-text field labeled “Other”.

Frequency of meat consumption - weekly: For omnivores and flexitarians, response options such as “1 or 2 days”, “3 or 4 days”, “5 or 6 days”, and “Everyday” are provided.

4.4. Reliability and validity

First, to assure the internal reliability of the measured constructs, validated scales were used, and Cronbach’s α of each scale was calculated. Reliability scores above .7 are deemed reliable (Kline, 2013). Second, given the detailed description of the research approaches, replication should be feasible. Finally, Bryman (2012) divides a study’s validity into measurement validity, internal validity, and external validity. Measurement validity is assured mainly by using established, slightly adjusted, scales and measures that have been validated in previous research that have shown high internal reliability. Besides, a pretest of the survey was conducted to identify any issues with item clarity or response options and to assure measurement validity. Minor changes were made, such as changing the response

option "Because I like the taste of meat" to "Because I like/prefer the taste of meat ((side) dishes)" because pretest participants indicated that they felt offended by the first statement as it would make them sound “barbaric”. Internal validity of the measured constructs is assured by introducing control variables. These control variables are the sociodemographics and dietary habits mentioned above. By controlling for these demographic variables, it is possible to ensure that the observed effects of personal norms on sacrifice feelings are not merely due to differences in demographic characteristics or variations in dietary habits. By using stratified random sampling, the sample accomplished to include individuals from each subgroup in proportion to their representation in the population, which assured external validity.

4.5. Ethical considerations

The study adhered to ethical guidelines for research involving human participants, including obtaining informed consent, protecting participant privacy and confidentiality, and by ensuring that participants had the right to withdraw from the study at any time. Participants were requested to give their informed consent for the collection, sharing (only with Utrecht University), preservation, and use of their data. All information was handled anonymously. The e-mail addresses were collected specifically for the raffle at the end of the survey, to which the participants additionally gave their consent. The data management practice of this study is in line with the General Data Protection Regulation (GDPR) and provides transparency regarding data handling towards participants.

4.6. Data analysis

4.6.1. Variable and data set assessment

All variables and the dataset were carefully examined within the SPSS environment prior to the data analysis. Every variable was reviewed to ensure it was adequately aligned with the measurement level (scale, ordinal, or nominal) and its intended data type (numeric or string). All variables retained their original Qualtrics configuration except gender. Gender was changed from a scale measurement to a nominal measurement. In terms of assigned values, the scales of the variables Awareness of consequences, Personal Norms, and Perceived Sacrifice originally ranged from *strongly agree (1)* to *strongly disagree (5)* and were reverse scored to *strongly disagree (1)* to *strongly agree (5)*. Furthermore, by conducting a missing value analysis in SPSS, it was determined that no data or values were missing from the entire data set.

4.6.2. Statistical analyses

All statistical analyses were conducted using SPSS software. Descriptive statistics were used to summarize the collected demographic characteristics of the participants, including age, gender, income, highest level of education, geographical setting, and diet, which were control variables in this study. To investigate the research question, "To what extent does the type of personal norm influence whether people feel they make a sacrifice when reducing their meat consumption and what is the influence of context?" and hence to gain insights into the influence of Integrated and Introjected Norms on Perceived Sacrifice, and what role different situations might play, the analysis was divided into three parts:

For **hypotheses 1** and **2**, the same sequence of analytical steps was undertaken to investigate their respective relationships. The analyses aimed to investigate the relationship between Introjected Norms and Integrated Norms and their influence on Perceived Sacrifice (H1), as well as Situation-dependent Sacrifice (H2). Initially, partial correlations were executed, considering sociodemographic variables to identify those suitable for inclusion as confounding variables. Subsequently, assumptions for multiple regression, i.e., linearity, multicollinearity, independence of residuals, homoscedasticity, and normality of residuals, were checked. Finally, a multiple regression, with Integrated and Introjected Norm as independent variables and Perceived Sacrifice and Situation-dependent Sacrifice as dependent variables, was performed, incorporating sociodemographics as control variables.

Concerning **hypothesis 3**, the analysis aimed to investigate whether individuals with stronger Introjected Norms related to reduced meat consumption exhibit greater fluctuations in sacrifice feelings across situations than individuals with stronger Integrated Norms. First, the assumptions for performing a parametric ANOVA, i.e., normality, sample independence, and variance equality, were tested. Subsequently, a one-way ANOVA, with Fluctuation of sacrifice feelings as the dependent variable (described in chapter 4.2.3.) and the grouping variable Norm type as the independent variable (described in chapter 4.1.3), was performed.

A significance level of $\alpha = 0.05$ will be used for all statistical tests.

5. Results

5.1. Descriptive statistics

5.1.1. Personal norms

Awareness of consequences

Regarding awareness of consequences, a large number of participants (74.7%) reported that they are (strongly) aware of the consequences of meat consumption, while 15.7% neither agreed nor disagreed, and 9.7% (strongly) disagreed that they are aware of the consequences (*M* = 3.95, *SD* = .95).

Responsibility

In response to the question of whether participants felt personally responsible for their meat consumption, where multiple answers were possible, a considerable portion of participants (103, i.e., 22.1%) expressed that they did not feel personally responsible for their meat consumption. Of the 77.9% (*n* = 364) who felt responsible, responsibility for animal welfare was indicated 236 times, responsibility for the environment 211 times, and personal health 155 times. In addition, a few participants (*n* = 16) cited various other reasons, such as feeling responsible for avoiding cheap meat, paying attention to its origin, and eating less meat but more consciously.

Personal norms

Participants, on average, reported a slightly lower level of Introjected Norms compared to Integrated Norms. On average, participants reported a moderate to high level of Integrated Norms, with a mean value of 3.59 and a standard deviation of 1.06, while the mean for Introjected Norm was 2.70, with a standard deviation of .84.

The Spearman's Rho correlation coefficient, with a value of *p* = .121, indicated a relatively small effect size. However, it is statistically significant at the .01 level (*N* = 466). This positive correlation suggests that as Integrated Norms increase, there is a tendency for Introjected Norms also to increase.

Concerning the groupings, most participants (66.3%) fell into the Integrated Group, indicating that a significant portion of the sample had higher levels of Integrated Norms. 20.8% of participants fell into the Introjected Group, suggesting a substantial presence of Introjected Norms among the respondents. A smaller proportion (12.9%) fell into the No Group category, indicating that some participants had the same score for Integrated and Introjected Norms.

5.1.2. Sacrifice feelings

Regarding the overall construct of Perceived Sacrifice, responses were diverse, yielding a mean score of 2.87 (*SD* = .81). Concerning the four dietary types, omnivores exhibited the highest mean in this case (*M* = 3.31, *SD* = 1.05), whereas vegans exhibited the lowest (*M* = 2.02, *SD* = 1.11). In terms of the initial statement within this construct, "Reducing meat would feel/feels/felt like a sacrifice", a substantial portion of participants, 45.2%, (strongly) disagreed, while 28.9% (strongly) agreed (*M* = 2.77, *SD* = 1.14). The six sacrifice type items are considered individually below (see Figure 5):

Financial sacrifice (M = 3.05*, SD* = 1.06): 33.2% of respondents had no opinion on whether a vegetarian/plant-based diet is more expensive, while 34.7% (strongly) agreed with this notion, and 32.1% (strongly) disagreed that such a diet is costlier. Omnivores exhibited the highest mean in this case (*M* = 3.34, *SD* = .93), indicating that financial aspects have an impact on their sacrifice feelings, whereas vegans exhibited the lowest (*M* = 2.70, *SD* = 1.05).

T*aste sacrifice (M* = 3.42*, SD* = 1.15*)*: While 23.3% of participants neither agreed nor disagreed, 54% (strongly) agreed with the notion that reducing meat intake would require giving up foods they enjoy, and 22.7% (strongly) disagreed with this idea. Omnivores exhibited the highest mean also compared to the other sacrifice types (*M* = 3.81, *SD* = .90), whereas vegetarians exhibited the lowest, suggesting rather low sacrifice feelings regarding taste and meat avoidance (*M* = 2.48, *SD* = 1.27).

Functional sacrifice (M = 2.84*, SD* = 1.18*)*: 43% of respondents expressed (strong) disagreement that reducing meat means less variety and nutrients, whereas 32.8% leaned towards (strong) agreement. Omnivores exhibited the highest mean in this case (*M* = 3.44, *SD* = 1.04), whereas vegans exhibited the lowest (*M* = 1.85, *SD* = .92).

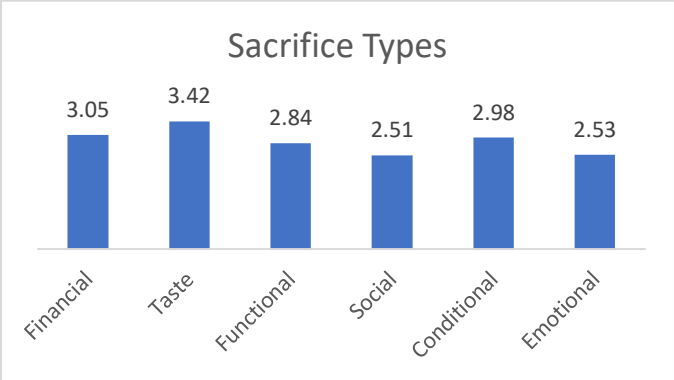
Social sacrifice (M = 2.51*, SD* = 1.19*)*: A majority (54.4%) (strongly) disagreed that reducing meat consumption has negative implications for their social life, while 22% (strongly) agreed. Omnivores exhibited the highest mean score of 3.02 (*SD* = 1.18), vegans the second highest (*M* = 2.21, *SD* = 1.05), and vegetarians exhibited the lowest mean (*M* =1.81, *SD* = 1.00).

Conditional sacrifice (*M* = 2.98, *SD* = 1.18): 37.9% of participants (strongly) agreed, a similar percentage (38.1%) (strongly) disagreed, and 24.0% neither agreed nor disagreed that reducing or avoiding meat involves inconvenience, such as additional effort, time, and limited availability of vegetarian options. Omnivores exhibited the highest mean score of 3.48 (*SD* = .92), flexitarians the second highest (*M* = 2.88, *SD* = 1.18), and vegetarians exhibited the lowest mean (*M* =2.05, *SD* = .99).

Emotional sacrifice (*M* = 2.53, *SD* = 1.19): A majority (54.9%) (strongly) disagreed, 21.8% had no strong opinion on the matter, and 23.3% (strongly) agreed that meat reduction is emotionally frustrating and draining. Omnivores exhibited the highest mean score of 3.19 (*SD* = 1.09), and vegetarians exhibited the lowest mean also compared to other sacrifice types (*M* = 1.71, *SD* = .91).

Figure 5

Means – Sacrifice types



For the latter two items, excluded from the Perceived Sacrifice construct, opinions on the item "The more reducing meat feels like a sacrifice, the less I am willing to actually reduce meat" were relatively evenly distributed (*M* = 2.89, *SD* = 1.15). The item "I would say that the feeling of making a sacrifice when reducing meat decreases over time" had a mean score of 3.33 (*SD* = 1.09), indicating a tendency toward agreement with this statement.

5.1.3. Situations

Overall, the participants found it rather easy to picture themselves in these situations (*M* = 3.49, *SD* = .84) (see Figure 6***Figure 6***). In terms of the tendency to consume meat, there is a slightly stronger inclination toward choosing meat-based options across all six situations, with an average score of 3.16 and a standard deviation of 1.13 (see Figure 7). Regarding sacrifice feelings in abstaining from meat, on average, across all situations, participants tend to have relatively low sacrifice feelings (*M* = 2.73, *SD* = 1.08) (see Figure 8). Below, each situation will be discussed separately.

Figure 6

Means - Easiness to put oneself in the situation

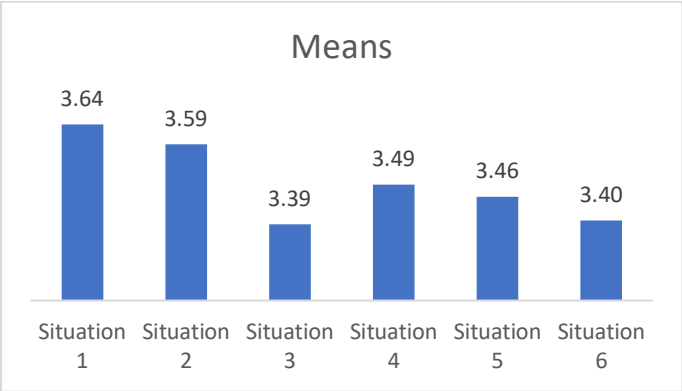


Figure 7

Means - Meat consumption likelihood across situations

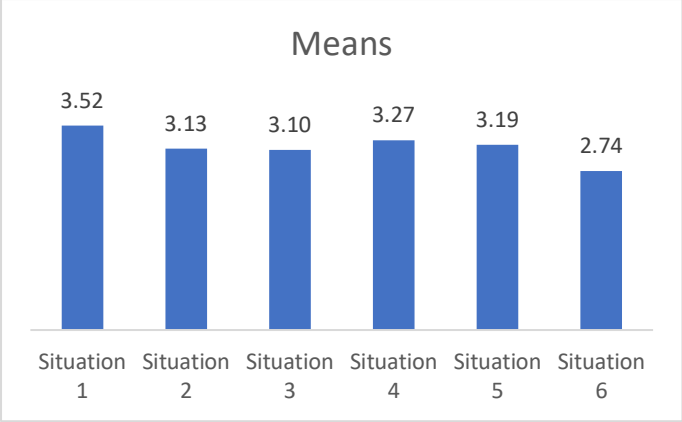
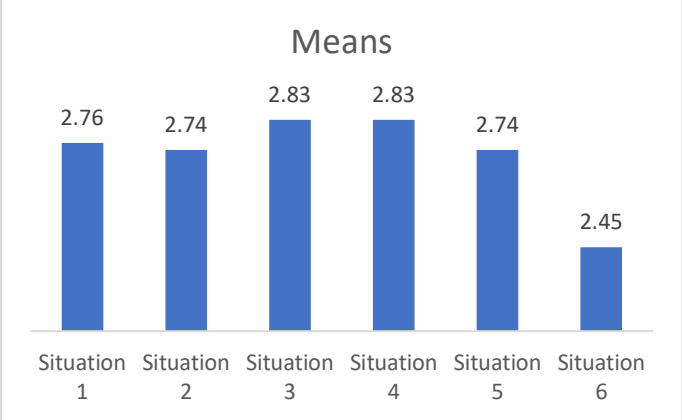


Figure 8

Means - Perceived sacrifice across situations



Situation 1: Family gathering

In Situation 1, participants imagined attending a family gathering where a beloved family member had prepared their famous meatball soup, a cherished tradition. Participants might feel obligated to enjoy this dish due to the family member's effort and its delicious taste. Participants, on average, found it relatively easy to put themselves in Situation 1, with a mean score of 3.64 (*SD* = 1.13). On average, participants indicated a relatively high likelihood of eating the meatball soup *(M* = 3.52, *SD* = 1.37). 58.6% of participants indicated that it is (very) likely to order a meat dish in this situation, whereas 24.5% stated that it is (very) unlikely. Regarding their sacrifice feelings of not eating meat in this situation, on average, participants reported a slightly low level of sacrifice (*M* = 2.76, *SD* = 1.31). 36.9% said it would feel (a lot) like a sacrifice, while 46.1% said it would feel (rather) not like a sacrifice.

In total, 361 participants were shown the question "Why would it feel like a sacrifice?" if they were to abstain from meat, with multiple answers being possible to select. The most chosen reason (199 times) was the effort made by a family member and concerns about potentially hurting their feelings (emotional and social sacrifice). 145 times, taste was reported as a sacrifice, and 74 times, concerns about breaking social norms and family traditions (social sacrifice) were indicated. A few participants (15 times) cited various other reasons, such as the desire for freedom of food choice, not wanting to waste meat if it was prepared for them, feeling like a complicated person for requesting vegetarian options, and varying preferences for vegetarian alternatives.

Situation 2: Restaurant with meat-eating friends

In Situation 2, participants were prompted to envision dining at a restaurant with friends where the majority of the group was ordering meat dishes. In this setting, the menu presented only one vegetarian/vegan option, notably more expensive than the meat options available. Participants, on average, found it relatively easy to put themselves in Situation 2 (*M* = 3.59, *SD* = 1.13). 46.1% of participants indicated that it is (very) likely to order a meat dish in this situation, whereas 31.5% indicated that it is (very) unlikely (*M* = 3.13, *SD* = 1.37). Regarding the sacrifice feelings of not eating meat in this situation, on average, participants reported a slightly low level of sacrifice, with a mean score of 2.74 (*SD* = 1.41). 36.9% said it would feel (a lot) like a sacrifice, while 45.9% said it would feel (rather) not like a sacrifice.

In total, 336 participants were shown the question "Why would it feel like a sacrifice?" if they were to abstain from meat, with multiple answers being possible to select. The most chosen reason (152 times) was the preference for the taste of meat (taste sacrifice). 114 times social sacrifice (feeling different from the group) was reported, and 109 times financial sacrifice was indicated. A few

participants (22 times) cited various other reasons, including considering their specific needs when selecting a restaurant, the limited availability of vegetarian options, the acceptability of eating meat in certain cases, and the feeling of injustice regarding the more expensive vegetarian/vegan option.

Situation 3: Restaurant with vegetarian friends

In Situation 3, participants were asked to imagine dining out with friends. In this situation, everyone chose the vegetarian option, but there were only two choices available, both containing an ingredient participants would dislike (e.g., mushrooms, cilantro, olives) with no option to remove it. Participants, on average, found it relatively easy to put themselves in Situation 3 (*M* = 3.39, *SD* = 1.11). 33.7% of participants indicated that it is (very) unlikely to order a meat dish, and 47.6% of participants indicated that it is (very) likely (*M* = 3.10, *SD* = 1.34). Regarding the sacrifice feeling of not eating meat in this situation, on average, participants reported a slightly low level of sacrifice, with a mean score of 2.83 (*SD* = 1.33) but higher than in the first two situations. 38.9% said it would feel (a lot) like a sacrifice, while 43.6% said it would feel (rather) not like a sacrifice.

In total, 363 participants were shown the question "Why would it feel like a sacrifice?" if they were to abstain from meat, with multiple answers being possible to select. The most chosen reason (165 times) was taste sacrifice, where participants disliked a specific ingredient. 113 times the other taste sacrifice regarding enjoying the taste of meat was reported, 95 times social sacrifice was indicated, and 92 times conditional sacrifice. A few participants (9 times) cited other reasons, such as not wanting to spend money on something they dislike.

Situation 4: Dining alone

In Situation 4, participants were asked to envision dining alone while traveling in Europe, in a restaurant with limited vegetarian/vegan options, both containing ingredients they dislike (e.g., mushrooms, cilantro, olives) that cannot be excluded. Participants, on average, found it relatively easy to put themselves in Situation 4, with a mean score of 3.49 (*SD* = 1.11). 27% of participants indicated that it is (very) unlikely to order a meat dish, and 51.9% of participants indicated that it is (very) likely (*M* = 3.27, *SD* = 1.29). Regarding the Perceived Sacrifice of not eating meat in this situation, on average, participants reported a rather low level of sacrifice, with a mean score of 2.83 (*SD* = 1.29). 38.7% said it would feel (a lot) like a sacrifice, while 42.3% said it would feel (rather) not like a sacrifice.

In total, 366 participants were shown the question "Why would it feel like a sacrifice?" if they were to abstain from meat, with multiple answers being possible to select. Most frequently cited was the desire to try out local dishes as a sacrifice if not ordering meat in this situation (*n* = 168). 156 times,

taste was cited as a sacrifice, and 111 times, the limited availability of vegetarian options as a (conditional sacrifice) was indicated. A few participants (13 times) cited various other reasons, such as the preference for local and regional food, the presence of disliked ingredients in vegetarian options, and exceptions made for holiday periods.

Situation 5: Work BBQ

In Situation 5, participants responses revealed their attitudes towards attending a barbecue with new work colleagues where only meat options are served, and the option to have a vegetarian/vegan meal requires them to bring their own food. On average, participants found it relatively easy to envision themselves in this situation, as reflected by a mean score of 3.46 (*SD* = 1.14). When considering their likelihood of consuming meat at such an event, the data shows a mean score of 3.19 (*SD* = 1.42). It indicates that, on average, people lean towards consuming meat, however, the standard deviation suggests that participants' likelihood ratings vary to some extent in this situation. A significant portion of respondents (47.8%) indicated that it is (very) likely that they would opt for a meat dish, while 31.3% of participants expressed that it is (very) unlikely to do so. Regarding the sacrifice feelings associated with not eating meat at the barbecue, the data suggests that participants, on average, reported a relatively low level of sacrifice, with a mean score of 2.74 (*SD* = 1.35). 35.7% said it would feel (a lot) like a sacrifice, while 45.1% said it would feel (rather) not like a sacrifice.

In total, 346 participants were shown the question "Why would it feel like a sacrifice?" if they were to abstain from meat, with multiple answers being possible to select. The most chosen reason (162 times) was feeling uncomfortable and different, being the only one not eating meat (social sacrifice). 199 times, it was indicated that the sacrifice would stem from the inconvenience and extra effort required to bring their own food (conditional sacrifice). A few participants (26 times) cited various other reasons, which included the appeal of the taste of grilled meat, feeling disregarded by the group due to not eating meat, the limited variety of vegetarian options, and the potential criticism arising from insufficient offered vegetarian food when someone brings their own food.

Situation 6: Fitness goal and grocery shopping

In Situation 6, participants considered their fitness goals that demand a high-protein diet while grocery shopping. They faced a dilemma as the store offered pricier and lower-protein vegetarian meat substitutes compared to meat options, with the possibility of finding alternatives at another store. On average, participants found it relatively easy to place themselves in this situation, with a mean score of 3.40 (*SD* = 1.09). When considering their likelihood of buying meat in this situation, the data shows

that the mean score is 2.74 (*SD* = 1.37). 47.6% of participants indicated that it is (very) unlikely to buy meat, while 35% indicated that it is (very) likely. Regarding the sacrifice feelings associated with not buying meat, the data suggests that participants, on average, reported a somewhat lower level of sacrifice, with a mean score of 2.45 (*SD* = 1.32). 25.8% said it would feel (a lot) like a sacrifice, while 57.1% said it would feel (rather) not like a sacrifice.

In total, 80 participants were shown the question "Why would it feel like a sacrifice?" if they were to abstain from meat, with multiple answers being possible to select. The most chosen reason (47 times) was the functional sacrifice, i.e., perceived lower protein content in vegetarian options. 30 times the additional effort (conditional sacrifice) was indicated, and 22 times cost savings associated with meat options (financial sacrifice) was selected. One participant commented on the time-consuming aspect of researching alternatives as an additional reason.

5.2. Correlations

In the following chapter, multiple partial correlations were performed to examine which sociodemographic variables were confounding variables and, therefore, included as control variables in the two multiple regression analyses.

5.2.1. Partial correlation – personal norms and perceived sacrifice

In the zero-order analysis, there was a strong negative correlation between Integrated Norms and Perceived Sacrifice (r = -.598, N = 464, p < .001), indicating that without considering other variables, higher Integrated Norm was associated with lower Perceived Sacrifice. Regarding control variables, gender, diet type, and diet duration demonstrated statistically significant effects, with correlation coefficients exceeding .1 or falling below -.1 in relation to both Perceived Sacrifice and Integrated Norm individually, as well as impacting their relationships' strengths or direction. The other control variables did not show a significant effect. The robustness of these results was further confirmed by a bivariate Spearman correlation analysis, further highlighting the role of these three variables as confounding variables.

The zero-order correlation between Introjected Norms and Perceived Sacrifice was .027, which was not statistically significant (p = .556). This suggests a weak and non-significant association between these two variables. Regarding control variables, age, diet type, and duration of diet demonstrated statistically significant effects for the same reasons as described above. The remaining control variables

did not exhibit significant effects (see Appendix D1 Partial correlation: personal norms and perceived sacrifice).

5.2.2. Partial correlation – personal norms and situation-dependent sacrifice

In the zero-order analysis, there was a strong negative correlation between Integrated Norm and Situation-dependent Sacrifice (r = -.615, N = 464, p < .001), indicating a highly positive and significant correlation between these variables. After checking all sociodemographic variables for statistically significant effects, with correlation coefficients greater than .1 or less than -.1 in relation to both Situation-dependent Sacrifice and Integrated Norm individually and observing if they have an impact on their relationships' strengths or direction, gender, diet type, and diet duration were identified. The robustness of these results was further confirmed by a bivariate Spearman correlation analysis, which highlighted the role of these three variables as confounding factors.

In the zero-order analysis, there was a negative and non-significant correlation between Introjected Norm and Situation-dependent Sacrifice (r = -.059, N = 464, p = .200). After checking all sociodemographic variables for statistically significant effects, in the same manner described above, age, diet type, and diet duration were identified. The robustness of these results was further confirmed by a Spearman correlation analysis, which highlighted the role of these variables as confounding factors (see Appendix D2 Partial correlation: personal norms and situation-dependent sacrifice.

5.3. Main analyses

5.3.1. Personal norms and perceived sacrifice

The correlation table below presents the relationships between Perceived Sacrifice, personal norms, and the previously identified control variables. Notably, Integrated Norm showed a significantly strong negative correlation with Perceived Sacrifice (r = -.603, p < .001), while Introjected Norm had a weak positive correlation which was not statistically significant (r = .023, p = .314). Most control variables exhibited significant correlations.

Table 5

Descriptive statistics and correlations (Analysis 1)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Perceived Sacrifice	2.86	.80	-														
2. Integrated Norm	3.59	1.06	-.603**	-													
3. Introjected Norm	2.70	.85	.023	.163**	-												
4. Age	32.80	10.64	-.120**	-.033	-.143**	-											
5. Female			-.321**	.347**	.020	.025	-										
6. Male			.321**	-.347**	-.020**	-.025	-1.000**	-									
7. Omnivore			.531**	-.616**	-.156*	.023	-.291**	.291**	-								
8. Flexitarian			-.164**	.282**	.120	-.015	.170**	-.170**	-.634**	-							
9. Vegetarian			-.371**	.327**	.034	-.052	.191**	-.191**	-.357**	-.317**	-						
10. Vegan			-.194**	.197**	.028	.057	-.026	.026	-.235**	-.208**	-.117**	-					
11. Diet years All life			.350**	-.384**	-.260**	.112**	-.150**	.150**	.595**	-.341**	-.268**	-.130**	-				
12. Diet years 1			.095**	-.035	.118**	-.093**	-.028	.028	-.026	.043	-.017	-.006	-.218**	-			
13. Diet years 1-5			-.222**	.233**	.219**	-.166**	.057	-.057	-.371**	.323**	.098**	-.029	-.558**	-.277**	-		
14. Diet years 6-10			-.123**	.127**	-.032	.076	.109**	-.109	-.190**	.019	.148	.122**	-.276**	-.137**	-.350**	-	
15. Diet years other			-.200**	.150**	-.064	.168**	.059	-.059	-.088**	-.118**	.151**	.177**	-.126**	-.062**	-.159**	-.079**	-

Note. N = 461.

*p < .05. **p < .01.

As mentioned earlier, Analysis 1 aimed to assess the influence of Introjected and Integrated Norms on predicting individuals' overall sacrifice feelings, conducting a multiple regression including age, gender, diet type, and diet duration as control variables. All variables incorporated in the regression modeling were examined, and they satisfied the assumptions of multiple linear regression. Through a boxplot visualization, some outliers were identified for Integrated Norm, characterized by exceptionally high (5.00) and low (1.00) mean scores. Nevertheless, they were retained in the data analysis as they may contain valuable information about extreme or unusual cases in the data, contributing to a more comprehensive understanding.

The multiple regression analysis, which accounted for a significant portion (48.7%) of the variance in Perceived Sacrifice (R^2 = .487), demonstrated the collective contribution of the predictors to the model's statistical significance in predicting Perceived Sacrifice (F(11,449) = 38.709, p < .001). Introjected Norms positively predicted Perceived Sacrifice, albeit with a relatively small effect (β = .121, 95% CI [.048, .182], p < .001), while Integrated Norms negatively predicted Perceived Sacrifice (β = -.385, 95% CI [-.358, -.223], p < .001). Other significant predictors included age, gender, diet type, and duration.

The results supported the hypothesis that Introjected Norms predict higher sacrifice feelings, whereas Integrated Norms predict lower sacrifice feelings. The positive relationship with Introjected Norms suggests that when Introjected Norms, i.e., feeling a sense of obligation and/or external pressure concerning meat reduction, increase, Perceived Sacrifice feelings increase too. On the other hand, the negative relationship with Integrated Norms suggests that as Integrated Norms, i.e.,

reflecting a more internalized and voluntary commitment to meat reduction, increase, Perceived Sacrifice feelings decrease.

5.3.2. Personal norms and situation-dependent sacrifice

The relationships between Situation-dependent Sacrifice and Integrated as well as Introjected Norm is presented in the table below. Notably, Integrated Norm showed a significant strong negative correlation with Situation-dependent Sacrifice (r = -.619, p < .001). A weak, negative, and non-significant correlation was found between Situation-dependent Sacrifice and Introjected Norm (r = -.059, p = .103). Most control variables exhibited significant correlations.

Table 6

Descriptive statistics and correlations (Analysis 2)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Situation-dependent Sacrifice	2.72	1.07	-														
2. Integrated Norm	3.59	1.06	-.619**	-													
3. Introjected Norm	2.70	.85	-.059	.163**	-												
4. Age	32.80	10.64	-.115**	-.033	-.143**	-											
5. Female			-.367**	.347**	.020	.025	-										
6. Male			.367**	-.347**	-.020**	-.025	-1.000**	-									
7. Omnivore			.524**	-.616**	-.156*	.023	-.291**	.291**	-								
8. Flexitarian			-.122**	.282**	.120	-.015	.170**	-.170**	-.634**	-							
9. Vegetarian			-.382**	.327**	.034	-.052	.191**	-.191**	-.357**	-.317**	-						
10. Vegan			-.241**	.197**	.028	.057	-.026	.026	-.235**	-.208**	-.117**	-					
11. Diet years All life			.302**	-.384**	-.260**	.112**	-.150**	.150**	.595**	-.341**	-.268**	-.130**	-				
12. Diet years 1			.001	-.035	.118**	-.093**	-.028	.028	-.026	.043	-.017	-.006	-.218**	-			
13. Diet years 1-5			-.124**	.233**	.219**	-.166**	.057	-.057	-.371**	.323**	.098**	-.029	-.558**	-.277**	-		
14. Diet years 6-10			-.128**	.127**	-.032	.076	.109**	-.109	-.190**	.019	.148	.122**	-.276**	-.137**	-.350**	-	
15. Diet years other			-.178**	.150**	-.064	.168**	.059	-.059	-.088**	-.118**	.151**	.177**	-.126**	-.062**	-.159**	-.079**	-

Note. N = 461.

*p < .05. **p < .01.

Building upon these correlation findings, Analysis 2 investigated the influence of Introjected and Integrated Personal Norms on individuals' Situation-dependent Sacrifice feelings by conducting a multiple regression including age, gender, diet type, and diet duration as control variables. All variables incorporated in the regression modeling were examined and did not show a clear violation of the assumptions of multiple linear regression.

Considering all participants, the predictors collectively contributed significantly to the model (F(11,449) = 40.806, p < .001), indicating the statistical significance of the model in predicting Situation-dependent Sacrifice and explaining 50% of the variance in Situation-dependent Sacrifice. Among the predictor variables, Integrated Norm stood out as a significant negative predictor (β = -.395, 95% CI [-.487, -.310], p < .001), indicating that higher Integrated Norm scores, reflecting a more internalized commitment to reducing meat intake, are associated with lower Situation-dependent Sacrifice

feelings. In contrast, Introjected Norm was not a significant predictor (β = .022, 95% CI [-.060, .116], p = .529), suggesting that the feelings of obligation and external pressure associated with Introjected Norm do not strongly influence Situation-dependent Sacrifice.

Excluding the participants who were identified as outliers with std. residuals falling below -3 or exceeding 3, the predictors in the multiple regression model collectively explained 56.9% of the variance in Situation-dependent Sacrifice. The predictors collectively contributed significantly to the model (F(11,442) = 53.152, p < .001), highlighting the statistical significance of the model in predicting Situation-dependent Sacrifice. Integrated Norm again emerged as a significant negative predictor (β = -.430, 95% CI [-.516, -.352], p < .001). Introjected Norm again emerged as a non-significant predictor (β = .015, 95% CI [-.063, .100], p = .651).

Overall, the model excluding outliers suggested a potentially improved model fit indicated by the higher variance explained and the higher F-statistic and it provided slightly different effect sizes for the predictors, especially for Integrated Norm. However, both models agreed on the direction of the relationships and the lack of significance for Introjected Norm.

In conclusion, these results were unexpected as they indicate that Introjected Norms do not predict higher Situation-dependent Sacrifice feelings. However, the hypothesis that Integrated Norms predict lower Situation-dependent Sacrifice feelings was supported.

5.3.3. Personal norms and fluctuation of sacrifice

Since not all assumptions for the ANOVA were met, notably the normality assumption, the analysis continued with the nonparametric Kruskal-Wallis test. The test was conducted to examine whether people with stronger Introjected Norms (Introjected Group) regarding reduced meat consumption show more fluctuating sacrifice feelings across different kinds of situations than people with stronger Integrated Norms (Integrated Group). All assumptions for this test were met.

Overall, there was a positive and statistically significant correlation between Fluctuation and Norm type (r = .122, N = 466, p =.009). The positive correlation suggests that individuals with different norm orientations tend to experience varying degrees of fluctuation in their sacrifice feelings. However, it is important to note that while the correlation was statistically significant, the effect size (r = 0.122) was relatively small.

The Kruskal-Wallis test revealed a significant difference in the degree of fluctuation of sacrifice feelings across norm types (Introjected, Integrated, No Group), (H(2) = 12.21, p = .002). The minimum fluctuation score was 0, the maximum was 19.29, and the median was 2.25. Integrated Group

participants (n = 309) had the highest mean rank of 246.81, participants with stronger Introjected Norms (Introjected Group, n = 97) had a mean rank of 222.42, and participants with equal Integrated and Introjected Norm scores (No Group, n = 60) had the lowest mean rank of 182.88.

As the Kruskal-Wallis test did not go into detail too much, a one-way ANOVA was still conducted. The ANOVA test yielded a statistically significant difference between the norm groups in terms of Fluctuation scores (F(2,463) = 4.805, p = .009). This indicated that the mean Fluctuation scores were not equal across all norm types, providing empirical support for the notion that individuals with different norm orientations exhibit varying degrees of sacrifice feeling fluctuations. The descriptive statistics revealed noteworthy distinctions among the norm groups. Individuals assigned to the Introjected Group exhibited an average Fluctuation score of 3.17, showcasing considerable individual variability (SD = 3.82). The relatively high standard deviation suggests that within the Introjected Group, sacrifice responses to situations varied more widely, with some participants reporting substantially higher fluctuation and others considerably less. Contrastingly, those in the No Group reported a lower average Fluctuation score of 2.07, with comparatively less individual variation (SD = 2.42). Integrated Group participants, on average, recorded Fluctuation scores of 3.49, slightly higher than for the Introjected Group, yet with comparatively lower individual variability (SD = 3.22). The effect size, although small, suggests a meaningful difference between norm types in influencing the variability of sacrifice feelings across situations (η^2 = .020). Bonferroni-adjusted post hoc tests revealed that the Fluctuation scores significantly differed between the No Group and the Integrated Group (p = .006), as well as between the Integrated Group and the No Group (p = .006). However, it is worth noting that these differences may be influenced by the varying standard deviations between these groups. Furthermore, there were no significant differences between the Introjected Group and the No Group (p = .123) or between the Introjected Group and the Integrated Group (p = 1.000).

In conclusion, these results were unexpected as they indicate that Integrated Norms exhibit slightly higher fluctuations regarding situational sacrifice feelings than Introjected Norms. However, the results suggest that individuals with stronger Introjected Norms tend to show greater variability in these feelings across people. Therefore, the observed differences in variability lead to a partial support to this hypothesis. The Integrated Norm Group exhibits fluctuations on an individual level, while those with stronger Introjected Norms experience less individual fluctuation. However, there is a noticeable high variability across individuals within this latter group.

5.4. Exploratory Analyses

5.4.1. Personal norms and dietary types

The first one-way ANOVA assessed the impact of dietary type on Integrated Norm scores, revealing a significant difference among the four dietary types. Omnivores had the lowest Integrated Norm, while vegetarians had the highest, followed by vegans and flexitarians. Given the violation of homogeneity of variances, a Kruskal-Wallis test corroborated these findings, confirming significant differences and the same dietary type ranking. Similarly, the second one-way ANOVA examined the relationship between dietary type and Introjected Norm scores, finding a significant difference. Omnivores showed the lowest Introjected Norm, while flexitarians had the highest mean score, followed by vegetarians and vegans. Detailed statistics can be found in Appendix C1 Personal norms and dietary types.

5.4.2. Sacrifice and dietary types

The first one-way ANOVA assessed the impact of dietary type on Perceived Sacrifice, revealing a substantial and statistically significant difference in Perceived Sacrifice scores across the four dietary groups. Omnivores reported the highest mean Perceived Sacrifice score, followed by flexitarians, then vegans, and lastly vegetarians. The second one-way ANOVA assessed the impact of dietary type on Situation-dependent Sacrifice, revealing a substantial and statistically significant difference in Situation-dependent Sacrifice scores among the four dietary groups. Descriptive statistics show that omnivores had the highest mean score for Situation-dependent Sacrifice, followed by flexitarians, then vegans, and lastly vegetarians. Detailed statistics can be found in Appendix C2 Sacrifice and dietary types.

5.4.3. Perceived sacrifice, situation-dependent sacrifice, and sacrifice types

Two bivariate Spearman correlation analyses were conducted to explore the relationships between situational sacrifice feelings (Situation-dependent Sacrifice), the six sacrifice types, and individuals' general sacrifice feelings (Perceived Sacrifice). More precisely, the aim was to identify the most influential types of sacrifice and assess to what extent each situation reflected an individual's overall Perceived Sacrifice.

The results of the first correlation analysis showed that the financial and taste sacrifice types had significant moderate correlations, while the functional, social, conditional, and emotional sacrifice types strongly and significantly correlated with individuals' general sacrifice feelings (see Table 7).

Thus, these factors appeared to be decisive in shaping people's perceptions of sacrifice regarding meat reduction.

Table 7

Correlation table – perceived sacrifice and sacrifice types

Variable	Perceived Sacrifice
Financial Sacrifice	.557**
Taste Sacrifice	.558**
Functional Sacrifice	.740**
Social Sacrifice	.669**
Conditional Sacrifice	.726**
Emotional Sacrifice	.785**

Note. N = 466.

**$p < .01$.

The results of the second analysis highlighted that certain situations, such as dining with vegetarian friends and dining alone while traveling, have moderate positive correlations, while others, such as fitness-related grocery shopping and dining with meat-eating friends, have strong positive correlations (see Table 8). Thus, the latter two situations more strongly shape individuals' sacrifice feelings. These results emphasized the complex interplay between different situations and the overall Perceived Sacrifice feeling, highlighting the significance of specific situations in shaping individuals' sacrifice perception. Detailed statistics and explanations can be found in Appendix C3 Perceived sacrifice, situation-dependent sacrifice, and sacrifice types.

Table 8

Correlation table – perceived sacrifice and situation-dependent sacrifices

Variable	Perceived Sacrifice
Situation 1	.502**
Situation 2	.564**
Situation 3	.479**
Situation 4	.437**
Situation 5	.521**
Situation 6	.605**

Note. N = 466.

**$p < .01$.

6. Discussion

6.1. Theoretical and empirical contribution

6.1.1. Summary of key findings

In the present study, three main hypotheses were tested to answer the research question regarding the influence of Introjected Norms (those who feel external and internal pressure to eat less meat) and Integrated Norms (those who eat less meat aligns with their core values) on individuals' sacrifice feelings in different meat reduction situations. The results of the first analysis demonstrated, as expected, that individuals whose reduced meat consumption is motivated by a sense of pressure (Introjected Norms) are more likely to experience higher sacrifice feelings. Conversely, those who abstain from meat due to an alignment with their intrinsic values (Integrated Norms) report lower sacrifice feelings. The results of the second analysis demonstrated that Integrated Norms emerged as a significant negative predictor of Situation-dependent Sacrifice feelings, meaning that they do not feel too much sacrifice in different situations. However, Introjected Norms did not significantly contribute to this prediction, i.e., no clear link between Introjected Norm and high sacrifice feelings in different situations was found. The results of the third analysis unexpectedly demonstrated that individuals with stronger Integrated Norms experienced slightly more fluctuation in their sacrifice feelings across various situations on an individual basis than those with Introjected Norms. However, the Introjected Norm Group showed a more wide-ranging set of responses regarding sacrifice feelings, with some feeling it much more and others much less, which gives some support to the idea that Introjected Norms show more variably in sacrifice feelings.

6.1.2. Evaluation of hypotheses

This subchapter unfolds by first examining the supported hypotheses, followed by a discussion on unsupported hypotheses, and concludes with exploring other interesting findings.

Supported hypotheses

Considering the supported parts of the first two hypotheses, it becomes evident that the relationship between personal norms and sacrifice is indeed significant in the context of meat consumption, reflecting patterns observed in pro-environmental behavior research (Kwasny et al., 2022; Cheah et

al., 2020; Cialdini & Jacobson, 2021). Building on the findings of Han et al. (2019), this study emphasizes the crucial role of personal norms regarding sacrifice intentions, focusing in particular on the feelings underlying these sacrifice intentions. This study found that Integrated Norms predict lower *general* sacrifice feelings, which could be explained by the congruence with one's identity that intrinsically motivates behavior and influences feelings, similar to the findings of Thøgersen (2006) in relation to organic food and Dietz et al. (1995). For instance, an individual who has internalized the value of sustainability (Integrated Norms) may choose a vegetarian meal over a steak, even though they like the taste of it, without feeling they are making a sacrifice. For the same reason, it could be that the same result was found for Integrated Norms predicting lower *situational* sacrifice feelings. Moreover, this study found that Introjected Norms predict higher *general* sacrifice feelings, which could be explained by the lower degree of internalization, necessitating emotional reinforcement through feelings like pride or guilt (Thøgersen, 2006). However, the hypothesis that stronger Introjected Norms also predict higher *situational* sacrifice feelings could not be confirmed.

Unsupported hypotheses

In contrast to the supported first hypothesis that Introjected Norms predict higher general sacrifice feelings, Introjected Norms did not prove to be a significant predictor in the second analysis. This suggests that there is no substantial evidence for a link between Introjection Norms and higher *situational* sacrifice feelings. A reason for that could be that in hypothetical situations, Introjected Norms may not be felt as strongly as in real situations due to psychological distance, for instance. Psychological distance refers to the sensation of objects or events that are distant from the immediate, direct experience of reality, i.e., anything that is not directly experienced or felt (Liberman et al., 2007). Experiencing psychological distance diminishes the strength of emotional responses, whereas engaging in abstract thinking tends to enhance positive feelings, as Williams et al. (2014) demonstrated. Therefore, when participants rate their sacrifice feelings in specific situations, they may underestimate the sacrifices they would actually feel when faced with those situations in real life.

Another plausible explanation lies in the phrasing of the statements used to assess the overall Perceived Sacrifice feelings, in which the term "sacrifice" was not explicitly used, compared to Situation-dependent Sacrifice feelings, which used the term. When the term "sacrifice" is explicitly mentioned, it could evoke stronger, more dramatic emotions than statements that do not mention it. This may be since meat consumption is still a profoundly ingrained norm in Western culture that leads many to consume meat without consciously thinking about it (Joy, 2020; Sanchez-Sabate et al., 2019). This habitual behavior could lead to downplaying the emotional significance of meat in their lives, thus avoiding dramatic terms such as "sacrifice", potentially leading to more sacrifice feelings as a result

when the term is not used. Furthermore, direct confrontation with meat reduction can trigger feelings of shame and guilt (Tangney et al., 1996) as it highlights a moral conflict, especially as meat consumption is both culturally valued and ethically criticized. This inconsistency leads to cognitive dissonance (Festinger, 1957), as people's attitudes and behaviors about meat consumption do not match (Loughnan et al., 2010). This incongruence may be one reason why some people are hesitant to admit that giving up meat feels like a sacrifice. They may prefer to perceive meat reduction as an easier task in certain situations to reduce the dissonance between their positive attitudes toward meat consumption, such as cultural or taste preferences, and their desire to make ethical or environmental choices. Admitting that it feels like a sacrifice could increase this internal conflict and make it more difficult to align their attitudes and behaviors.

Additionally, individuals often have deep emotional connections to the foods they enjoy (Jiang et al., 2014). Any alteration in their diet, irrespective of whether it is framed as a "sacrifice", may evoke feelings of loss or discomfort. The framing of dietary changes as sacrifices may further intensify negative emotions, potentially resulting in reactance, psychological resistance to external pressures or perceived restrictions. Several studies (Berke & Larson, 2023; Hielkema & Lund, 2022; Steindl et al., 2015) have highlighted the significance of framing food choices, emphasizing the potential drawbacks of labeling food as "vegetarian" or "vegan" as such labels can lead to fewer individuals choosing these options due to perceived restricted freedom of choice and concerns about paternalism.

As for the third hypothesis, the results were contrary to expectations. Although there was significant variation in situational sacrifice feelings between individuals in the Introjected Norm Group, however those in the Integrated Norm Group experienced slightly higher fluctuations on an individual basis. One argument for the relatively high fluctuations for the people with stronger Integrated Norms could be that not all contextual influences are fully captured in the hypothesis which may have affected their situational sacrifice feelings. Therefore, while their commitment is generally stable, individuals with stronger Integrated Norms for meat reduction may experience fluctuating emotional reactions to sacrifices, influenced by the specific circumstances of each situation. This variation may be due to their tendency to thoughtfully consider their actions in line with their values, combined with an increased sense of reflection and sensitivity (Tan et al., 2021). This suggests a nuanced relationship between personal values, personality traits, and situational influences, which requires further investigation. Moreover, it is crucial to also delve into how the different sacrifice types are experienced across distinct situations to understand their impact fully.

Furthermore, the findings also indicate a significant variability in the way individuals with stronger Introjected Norms experience sacrifice. In contrast to Integrated Norms, which are deeply rooted in a person's identity and values, Introjected Norms are adopted more superficially as they are

based on an “should” rather than intrinsic desires, which might make them less predictable, as Deci and Ryan (2000) also argue that introjected regulated behaviors are relatively unstable. Another reason could be that the Introjected Norm Group is quite heterogeneous, and individuals internalize social expectations to different degrees and for different reasons, similar to what Thøgersen (2006) argues. Consequently, sacrifice feelings may differ significantly from person to person within this group, resulting in a wide dispersion of reported feelings of sacrifice due to their unique psychological makeup, experiences, and specific social and cultural contexts. Another reason could be that since Introjected Norms can be seen as a step in the process toward fully integrating a norm (Thøgersen, 2006), the feelings of sacrifice associated with these norms may differ highly between people depending on which stage they are in.

Another plausible explanation could be that individuals with stronger Introjected Norms vary more in evaluating their costs of pro-environmental actions against the social benefits of these actions, as per low-cost hypothesis proposed by Diekmann and Preisendörfer (2003). The low-cost hypothesis suggests that people are more likely to act on their environmental concerns when it is, for example, easy and inexpensive for them. Thus, it may illustrate the significant variability in sacrifice feelings among this group. Individuals who perceive social approval as a substantial benefit may not experience the decision to abstain from meat as a high cost, leading to lower feelings of sacrifice. Conversely, those who place a higher value on immediate sensory pleasure or convenience may feel a greater sense of sacrifice in the same situation. This divergence in this cost-benefit comparison could be a contributing factor to the wide standard deviation observed in situational sacrifice feelings within the Introjected Norms group.

Additional interesting findings

Other interesting and unexpected findings have been discovered through the study. One finding is that vegetarians exhibit the highest Integrated Norm scores for reducing meat consumption, which was unexpected. It was assumed that vegans, with their strict avoidance of animal products, would have the strongest Integrated Norm regarding meat reduction. This may be because the study focused on meat reduction rather than the broader area of animal product avoidance, including dairy, which is central to vegan values (Kessler et al., 2016). Consequently, these measures of Integrated Norms may not fully capture the breadth of vegans’ ethical commitments and highlight the variability within dietary groups in terms of personal norms.

Another interesting finding is the discovery about flexitarians and their Introjected Norms. Flexitarians, who primarily adhere to a vegetarian diet but occasionally incorporate meat, exhibited

the highest mean Introjected Norm score for reducing meat consumption (2.85, *SD* = .89) among the four dietary types. This finding suggests that when flexitarians occasionally eat meat, it might be influenced by situational factors or social pressures. Rosenfeld et al. (2020) also highlight that flexitarians seem to balance their dietary decisions with both personal motivations and external influences. This correlation between flexitarians and Introjected Norms is striking, as both show a considerable degree of adaptability and flexibility in their definitions and flexitarians consider their dietary choices less integral to their identity (Rosenfeld et al., 2020). This could emphasize the similarity of the characteristics of personal norms and dietary habits. Flexitarians, in particular, are an intriguing group for further research on reducing meat consumption.

Another interesting finding relates to the results of the hypothetical situations. In Situations 2 and 3, participants cited taste as the most important sacrifice when considering giving up meat, reporting a strong preference for meat flavors and an unwillingness to eat disliked vegetarian ingredients. In the situation with meat-eating friends, taste was the primary concern, followed by social and financial sacrifices. In contrast, when eating with vegetarian friends, taste considerations still predominated, but social sacrifice played a lesser role and came third. This suggests that the desire for the taste of meat and the social context significantly influence the Perceived Sacrifice. The strong preference for taste over social factors in both dining scenarios could stem from entrenched meat-eating norms in Western societies, which foster strong taste preferences, as Joy (2020) suggests. This ingrained taste preference could explain why participants consistently rated taste as a primary sacrifice overriding social considerations. When dining with meat-eating peers, however, the added dimension of social pressure to align with the group's food choices emerges, making social harmony a competing concern. This reflects Kahneman and Tversky's (1984) concept of loss aversion, where the fear of social exclusion outweighs other beneficial considerations. More precisely, this effect is described as a value asymmetry, which means that people often feel that the pain of losing something is stronger than the happiness they get from gaining something. In summary, various cultural, social, personal, and psychological factors could shape individuals' prioritization of taste and social considerations in different dining situations.

6.1.3. Societal contribution

Based on the theoretical and empirical contribution, societal contribution was discovered. It is evident that despite increased awareness of the environmental, ethical, and health concerns related to meat consumption, a significant number of people are still hesitant to modify their eating patterns (Graça et al., 2015). This reluctance represents a societal challenge that this study aimed to address. The societal contribution of the study was to gain insights into the leverage of different personal norms to

help develop effective interventions that mitigate feelings of sacrifice and hence remove barriers to reducing meat consumption to make sustainable behavior change a more integrated part of individual lifestyles. Building on the theoretical findings, the next chapter on practical implications aims to draw on the layered understanding of personal norms and sacrifice feelings to develop strategies that can be effectively translated into societal benefits.

6.2. Practical implications

Building upon the insights gained from this study, practical implications for promoting more sustainable dietary choices will be explored in this chapter. Schwartz's norm-activation model (1977) proposes that pro-environmental behaviors are influenced by personal norms, which are activated by awareness of consequences of one's actions and ascribed responsibility. Applying this model to effectively reduce the feeling of sacrifice when transitioning to a meat-reduced diet, is crucial to increase awareness and the sense of responsibility, focusing on incorporating and reinforcing integrated personal norms. Below, practical implications are described in more detail and additional implications are added.

Increasing awareness

As this study's findings found out that approximately 10% of participants are unaware of the negative impacts of meat consumption, with another 16% feeling indifferent, strategies could include:

Educational Campaigns: Launch more campaigns that consistently educate the public on the impacts of meat consumption on the environment, health, and animal welfare. Findings by Wehbe et al. (2022) suggest that repeated exposure to reliable information about this topic can significantly raise awareness. This could also be done, for example, through more educational information on food packaging or in supermarkets in general.

Positive Framing: Develop educational campaigns that avoid inducing guilt and negative feelings and rather focus on reframing meat reduction as a positive and healthy lifestyle choice rather than a sacrifice or a restriction in freedom of choice. Highlighting the benefits, such as improved health, reduced environmental impact, and culinary exploration, could make individuals more willing for dietary shifts. This is reflected in the results of the study, according to which taste sacrifices are of great importance to people. Furthermore, this approach aligns with findings that suggest that emotions are pivotal in promoting pro-environmental behavior, particularly at the early stages of the behavior change process (Weibel et al., 2019). In addition, a study among students highlighted that

gain framing (increase plant-based diet) is more effective than loss framing (reduce meat) (Carvalho et al., 2022). Furthermore, fostering a supportive environment that acknowledges the emotional journey of dietary change, helping omnivores feel understood and encourage a more appealing view of vegetarian diets could be helpful.

Enhancing responsibility

Considering that a notable 22.1% of respondents reported that they do not feel personally responsible for their meat consumption, it is essential to emphasize the role of individuals in protecting the environment. Strategies to increase personal responsibility could include:

Positive Reinforcement: Implement interventions in supermarkets, such as push notifications at checkout, to inform individuals about their reduced environmental impact for choosing meat alternatives. These notifications can quantify the amount of CO2 saved, providing positive reinforcement for their choices. The research by Tate et al. (2014) underscores the effectiveness of pro-environmental messages and goal priming in influencing consumer behavior towards more environmentally friendly choices. In addition, displaying real-time savings in water and carbon emissions for vegetarian meals in places like canteens and schools can directly link individual choices to environmental impact, thus increase responsibility and reduce meat consumption, as supported by Betz et al. (2022).

Social Engagement: The power of society could be used to increase the individual's sense of responsibility. This could be achieved by highlighting statistics, personal success stories regarding dietary change and global trends that demonstrate the growing movement and its positive impact. By spotlighting the collective actions, people can see that when many individuals change their consumption behavior, it has an impact, increasing their sense of responsibility, as supported by Obradovich and Guenther (2016).

Activating personal norms

Situational Cues and Nudges: Reducing situational cues could help to decrease sacrifice feelings and follow personal norms more easily, for instance, by providing tastier vegetarian alternatives, communicating before a dinner or a barbeque about the availability of vegetarian options, or providing clear labels on vegetarian products indicating their protein content. As meat dishes are many times the default option due to cultural norms and associated familiarity, requiring less cognitive effort and hence making it more convenient to stick with this option (Jachimowicz et al., 2019). However, the use of such "nudges" in different environments such as restaurants, hotels, workplaces, and schools could

make it easier to comply with personal norms. For example, when making vegetarian options the default choice it might make it easier for individuals to follow their values and personal norms without perceiving it as a sacrifice. This is in line with the study by Venema and van Gestel (2021), which indicates that nudge interventions can promote positive behavior without interfering with the individual's freedom of choice.

Utilizing Technology: Develop smartphone apps that could help individuals reduce meat consumption by shifting more easily from Introjected to Integrated Norms. These apps could send push notifications with vegetarian recipes, awareness messages about meat consumption's impact, and practical tips while grocery shopping or dining out. Research indicates that regular notifications can positively change user opinions towards meat reduction (Carfora et al., 2019). Furthermore, supermarkets could motivate customers to buy more sustainable products, like meat alternatives, by offering a rewards program where points earned from these sustainable purchases can be used for discounts or donated to environmental causes. This strategy, which provides financial incentives for choosing vegetarian or vegan options, could boost demand for these products as affordability increases, as per Thakur's findings (2019).

Visibility of Action: Visibility is a key factor in establishing norms. As more people see others committing to reducing meat consumption, the more accepted and easier the behavior becomes (Ela, 2009). By showcasing role models, opinion leaders, and celebrities who live a meat-reduced lifestyle, the behavior of these individuals serves as a strong standard or norm for people in their area of influence to adapt this behavior. Public commitments to reduce meat consumption, particularly by influential figures like celebrities and opinion leaders, enhance the visibility of this action. Thus, it is more likely they are to be adopted by the wider public, transforming reduced meat consumption from a personal choice into a widely accepted norm (Ohnmacht et al., 2017; Abrahamse et al., 2005).

Overall, understanding how personal norms shape the perception of sacrifice when it comes to reducing meat consumption offers many practical ways to address the significant societal challenges stemming from preexisting meat-consumption norms and creating a cultural shift towards sustainable eating habits.

6.3. Limitations

Despite the valuable insights into the complex dynamics of dietary decision-making that this study offers, it is important to acknowledge its limitations to ensure a transparent assessment of the study's reliability and validity. These limitations stem primarily from the constraints of the research design, notably the sample size, and are mainly the result of the study's time and resource constraints.

Firstly, the geographic focus on Germany and the Netherlands may restrict the generalizability of the findings to other cultural or geographical contexts. While these findings offer valuable insights within this context, it is crucial to acknowledge the potential variations regarding meat consumption behavior, sacrifice feelings, and personal norms that could exist in other global regions, highlighting the need for cross-cultural research. Secondly, the relatively homogenous sample, characterized by higher levels of education and income, might not fully represent the broader population, and might introduce bias into the study as these individuals may have different motivations, values, and resources when it comes to dietary choices and sustainability practices. Studies, like Hulshof et al.'s (2003), have shown that socioeconomic factors, including education and income, can significantly impact dietary behaviors and choices. Additionally, self-reported data in questionnaire-based studies can be influenced by social desirability bias, where respondents may underreport behaviors like meat consumption to fit social norms or align with their idealized self-image, and recall bias, where accuracy is compromised due to difficulties accurately recalling their feelings or behaviors (Bryman, 2012). Finally, another limitation arises from a technical glitch in the survey regarding the follow-up question concerning sacrifice reasons in Situation 6. This unintentional selection bias could potentially skew the data, warranting caution when interpreting and generalizing these findings. It is important to acknowledge this limitation, nevertheless it does not significantly impact the direct answer to the research question. Overall, replicating the study with different and larger demographic segments will facilitate making more empirically substantiated generalizations.

6.4. Further research

This study is the first to connect the role of personal norms and feelings of sacrifice in the context of meat consumption reduction. This quantitative study has provided a solid foundation by using a structured approach, systematic methods, and strong statistical analyses and has uncovered general trends and associations related to personal norms, sacrifice feelings, and different situations. This provides a foundation for future qualitative and quantitative research to validate, replicate, and broaden these findings in various contexts and among diverse populations. In addition, this chapter will explore more potential and promising directions for future research in the field of meat consumption, personal norms, and sacrifice feelings.

As the current research highlights the complexity of the distinction between personal norms, a more in-depth examination of the circumstances that influence behavior according to Integrated and Introjected Norms would further enhance understanding. For this, an experimental or observational study designs could be used. For example, an experiment could involve participants making food choices in the presence of peers who either advocate for or against meat consumption, to observe if

their choices align with perceived social expectations or own values. Another experiment might introduce a system of rewards for choosing meat alternatives or penalties for selecting meat-based dishes, to examine how financial or social incentives impact behaviors driven by Introjected Norms. Another approach could be to design experiments that manipulate contextual factors such as the social environment, availability of food, etc., including all sacrifice types, in order to measure how exactly sacrifice feelings fluctuate among those with stronger Integrated Norms.

Furthermore, the current research design limits the ability to establish causal relationships or track changes in perceptions of sacrifice over time. A longitudinal approach could offer valuable insights into how and when sacrifice feelings evolve or decrease and whether they are influenced by changing personal norms, experiences, or external factors. Additionally, incorporating the behavioral change theory in the future study could clarify the stages individuals experience while reducing meat consumption and the roles played by Integrated and Introjected Norms at each stage to be able to effectively target people, similar to Weibel et al. (2019).

Moreover, this study explored different sacrifice types, including financial, taste, social, emotional, conditional, and functional to some extent. The study's findings, particularly the prevalence of taste and social sacrifices in both Situation 2 and 3, provide valuable insights into the sacrifice types that individuals focus on in specific meat consumption situations. For future research, it is crucial to further investigate the relative significance and interplay of these sacrifice types in diverse situations. An experimental study design could be used to find out which sacrifices, such as taste or social factors, are the main barriers to meat consumption. For example, the different seasoning and presentation of meat and vegetarian dishes could shed light on how taste sacrifice influences the choice of plant-based foods. Understanding these influences could serve as a basis for strategies that make it easier for people to give up meat. Moreover, the concept of the emotional sacrifice, as defined by Da Costa Birchal et al. (2018), requires further examination due to its vagueness and significant overlap with the social sacrifice type. By identifying the sacrifice types that have the greatest and least impact on individuals in different situations, researchers could develop tailored interventions and strategies.

This research carefully designed hypothetical situations that participants recognized as mirroring real-world situations, affirming the situations' realism, and highlighting the solid framework of this research methodology. However, it is essential to acknowledge that these scenarios allowed participants more time for reflection, potentially leading to more considered responses than the intuitive decisions typically made in real-world contexts. Future research could test these findings in real-world settings through in situ interviews to better understand instinctive versus reflective decision-making, thereby offering further insights of how personal norms and feelings about sacrifice

affect actual meat consumption behavior. This approach could also help investigate the attitude-behavior gap theory in this case.

7. Conclusion

The aim of this study was to examine the relationship between personal norms, particularly Integrated and Introjected Norms, and sacrifice feelings, considering different situations involving meat reduction, to illuminate the socio-psychological barriers to changing meat consumption behavior. To achieve the research objective, a quantitative, within-subject study was conducted with a sample size of 467 participants. Data was collected using a questionnaire and was mainly analyzed using multiple linear regression analyses and analyses of variance (ANOVA) to answer the research question: *To what extent does the type of personal norm influence whether people feel they make a sacrifice when reducing their meat consumption and what is the influence of context?*

The study's findings provide first insights into how Introjected and Integrated Norms influence sacrifice feelings, both overall and situation-dependent ones. The results affirm that individuals with stronger Introjected Norms to meat reduction, which are only partially internalized and often associated with a sense of obligation or external pressure, tend to experience higher sacrifice feelings. In contrast, Integrated Norms, reflecting a more internalized and voluntary commitment, predict lower sacrifice feelings. This reinforces the idea that the type of personal norm significantly shapes perceptions of sacrifice. Additionally, the findings show that Integrated Norms play a crucial role in predicting lower sacrifice feelings in specific situations. However, while Introjected Norms contribute to higher general sacrifice feelings, their impact on Situation-dependent Sacrifice is not as pronounced. Moreover, individuals within the Integrated Norm Group, i.e., having stronger Integrated Norms than Introjected ones, had slightly higher fluctuations in their feelings of sacrifice on an individual level. This suggests that sacrifices are not consistent and vary more across situations. In contrast, the Introjected Norm Group exhibited a greater diversity in sacrifice feelings across people, indicating that some might feel a strong sense of sacrifice because they are not acting out of personal belief, while others may feel less so because the external pressure does not impact them as deeply. Overall, the findings confirm Integrated Norms' role in predicting lower sacrifice feelings but do not support the expected significant relationship between Introjected Norms and high sacrifice feelings. This indicates a more complex interplay between personal norms and sacrifice feelings.

In conclusion, this study demonstrates the first successful attempt to predict (situation-dependent) sacrifice feelings by the two types of personal norms in meat-reduction situations. By

bridging the gap in existing research on this topic, this study contributes significantly to the theoretical and empirical understanding of the socio-psychological factors that influence meat consumption behavior. Given that consumer decisions in today's world are highly influenced by convenience and pleasure (Stern, 2000), this research provides important guidance for marketers and policymakers, for example, seeking to correct the negative image of sacrifice in relation to environmentally friendly behavior. More precisely, the insights shed light on the complex and underlying decision-making processes surrounding personal norms and sacrifice feelings. By identifying the contexts and norms in which sacrifice feelings are least and most pronounced, this research paves the way for developing targeted interventions that can effectively mitigate these feelings. This strategic approach can remove barriers to reducing meat consumption, but also to other sustainable behaviors, and ultimately facilitate action toward reducing environmental and animal harm while improving human health.

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Appendices

Appendix A. Meat consumption survey

Start of Block: Introduction and consent

Introduction

Dear participant,

Thank you for your interest in this study, your participation makes a valuable contribution to my research!

This study investigates the relationship between personal norms and the feeling of making a sacrifice (i.e., giving something up) related to meat consumption. Thus, by participating, you contribute to a better understanding of the sociopsychological factors that influence individuals' decisions regarding meat consumption.

Your information is processed anonymously, and the General Data Protection Regulation (GDPR) is followed in the collection, treatment, and storage of data. You have the option to stop participating in this survey at any time. After completing this survey, you will also have the opportunity to indicate your interest if you would like to obtain the results of this study.

Do you consent to these terms?

- ○ Yes, I consent. (1)
- ○ No, I do not consent. (2)

End of Block: Introduction and consent

Start of Block: Demographics and dietary habits

*

Age

How old are you?

_____

Gender

How do you identify?

- ○ Female (1)
- ○ Male (2)
- ○ Non-binary (3)
- ○ Other (4) _____

Education

What is the highest level or degree of education that you have completed?

- ○ High School (1)
- ○ Apprenticeship (2)
- ○ Bachelor's degree (3)
- ○ Master's degree (4)
- ○ Ph.D or higher (5)

Living

What kind of area do you live in?

- ○ More rural area - Germany *(less than 50.000 inhabitants)* (1)
- ○ More urban area - Germany *(more than 50.000 inhabitants or very close to a big city)* (2)
- ○ More rural area - Netherlands *(less than 50.000 inhabitants)* (3)
- ○ More urban area - Netherlands *(more than 50.000 inhabitants or very close to a big city)* (4)

Income

What is your annual income before taxes?

- ○ Less than 12.000 Euros (1)
- ○ Between 12.000 and 50.000 Euros (2)
- ○ Between 50.000 and 80.000 Euros (3)
- ○ More than 80.000 Euros (4)
- ○ Do not know / prefer not to say (5)

Dietary habits

What best describes your type of diet?

- ○ Omnivore (meat-eater) (1)
- ○ Flexitarian (meat-reducer) (2)
- ○ Vegetarian (no meat) (3)
- ○ Vegan (plant-based) (4)

Diet years

How many years have you had this diet?

- ○ All my life (1)
- ○ Less than 1 year (2)
- ○ Between 1 and 5 years (3)
- ○ Between 6 and 10 years (4)
- ○ Other (5) _____

Display This Question:

If What best describes your type of diet? = Omnivore (meat-eater)

Or What best describes your type of diet? = Flexitarian (meat-reducer)

Meat consumption

How often do you eat meat in an average week?

(All types of meat including both processed meats like ham, bacon, and sausages, as well as unprocessed meats like fresh chicken or beef, are meant here)

- ○ 1 or 2 days (2)
- ○ 3 or 4 days (3)
- ○ 5 or 6 days (4)
- ○ Everyday (1)

End of Block: Demographics and dietary habits

Start of Block: Situational context

Explanation

Below you will be presented with 6 situations, each with 3 questions. I would like you to imagine being in this situation.

To answer the last question, here is a definition of the concept of " sacrifice ":

> Something is perceived as a sacrifice when an individual gives up something, i.e., puts aside their own interests for the common good. For example, a sacrifice can be good taste, nutrients, social belonging, etc.
>
> Synonyms for "sacrifice" include, for example, loss, restriction, and renunciation.

*Additional information: Whenever meat *reduction* is mentioned, it also means *avoiding* meat.

Situation 1

Situation 1:

Imagine you are at a family gathering and a beloved family member has prepared their famous and tasty meatball soup as an appetizer. It is a family tradition and you might feel obligated to eat the meatball soup also

because the family member put a lot of effort into making it and you like the taste of it.

How easy is it for you to put yourself in this situation? (1)	○ Very difficult (1)	○ Difficult (2)	○ Neutral (3)	○ Easy (4)	○ Very easy (5)
How likely is it that you would **eat** the meatball soup? (2)	○ Very unlikely (1)	○ Unlikely (2)	○ Neutral (3)	○ Likely (4)	○ Very likely (5)
Would it feel like a sacrifice if you decided to **not** eat the meatball soup? (3)	○ Not at all (1)	○ Rather not (2)	○ Neutral (3)	○ Rather yes (4)	○ Very much (5)

Display This Question:

*If Situation 1: Imagine you are at a family gathering and a beloved family member has prepared their... != Would it feel like a sacrifice if you decided to **not** eat the meatball soup? [Answer 1]*

Sacrifice 1

Why would it feel like a sacrifice? *(**multiple** answers are possible)*

☐ Because I like/prefer the taste of meat ((side) dishes). (1)

☐ Because a family member made an effort and I feel bad or guilty for not eating it as it might hurt their feelings. (2)

☐ Because I would break the social norms and traditions and thus I might sacrifice group belonging. (3)

☐ Other reason, please specify: (4)

_____

Page Break

Situation 2

Situation 2:

Imagine you are at a restaurant with friends and everyone is ordering meat dishes. On the menu there is only one vegetarian/vegan option which is more expensive than the meat options.

How easy is it for you to put yourself in this situation? (1)	Very difficult (1)	Difficult (2)	Neutral (3)	Easy (4)	Very easy (5)
How likely is it that you would order a meat dish in this situation? (2)	Very unlikely (1)	Unlikely (2)	Neutral (3)	Likely (4)	Very likely (5)
Would it feel like a sacrifice if you did not order a meat dish in this situation? (4)	Not at all (1)	Rather not (2)	Neutral (3)	Rather yes (4)	Very much (5)

Display This Question:

*If Situation 2: Imagine you are at a restaurant with friends and everyone is ordering meat dishes. O... != Would it feel like a sacrifice if you did **not** order a meat dish in this situation? [Answer 1]*

Sacrifice 2

Why would it feel like a sacrifice? ***(multiple** answers are possible)*

- ☐ Because I like/prefer the taste of meat ((side) dishes). (1)
- ☐ Because all my friends order meat dishes, I would feel socially isolated or different from the group (for example because I am not fully participating in the shared dining experience). (2)
- ☐ Because of financial reasons as the meat options are cheaper. (5)
- ☐ Other reason, please specify: (6) _____

Page Break

Situation 3

Situation 3:

You go out to eat with friends and everyone orders the vegetarian option. There are only two vegetarian/vegan options on the menu and each contain an ingredient you dislike (such as mushrooms, cilantro or olives) and cannot be excluded.

How easy is it for you to put yourself in this situation? (1)	Very difficult (1)	Difficult (2)	Neutral (3)	Easy (4)	Very easy (5)
How likely is it that you would order a meat dish in this situation? (2)	Very unlikely (1)	Unlikely (2)	Neutral (3)	Likely (4)	Very likely (5)
Would it feel like a sacrifice if you did **not** order a meat dish in this situation? (3)	Not at all (1)	Rather not (2)	Neutral (3)	Rather yes (4)	Very much (5)

Display This Question:

*If Situation 3: You go out to eat with friends and everyone orders the vegetarian option. There are... != Would it feel like a sacrifice if you did **not** order a meat dish in this situation? [Answer 1]*

Sacrifice 3

Why would it feel like a sacrifice? *(**multiple** answers are possible)*

- [ ] Because I like/prefer the taste of meat ((side) dishes). (1)
- [ ] Because I would only follow my friends' choices to avoid conflict or to avoid being different from the group. (2)
- [ ] Because I dislike an ingredient. (7)
- [ ] Because of the very limited number of vegetarian options. (3)
- [ ] Other reason, please specify: (6) _____

Page Break

Situation 4

Situation 4:

You are traveling alone through Europe and go to a restaurant that serves many local dishes. There are only two vegetarian/vegan options on the menu, each with an ingredient you dislike (such as mushrooms, cilantro, or olives) that cannot be excluded.

How easy is it for you to put yourself in this situation? (1)	Very difficult (1)	Difficult (2)	Neutral (3)	Easy (4)	Very easy (5)
How likely is it that you would order a meat dish in this situation? (2)	Very unlikely (1)	Unlikely (2)	Neutral (3)	Likely (4)	Very likely (5)
Would it feel like a sacrifice if you did not order a meat dish in this situation? (3)	Not at all (1)	Rather not (2)	Neutral (3)	Rather yes (4)	Very much (5)

Display This Question:

*If Situation 4: You are traveling alone through Europe and go to a restaurant that serves many local... != Would it feel like a sacrifice if you did **not** order a meat dish in this situation? [Answer 1]*

Sacrifice 4

Why would it feel like a sacrifice? *(**multiple** answers are possible)*

- ☐ Because of the very limited number of vegetarian options. (3)
- ☐ Because I like/prefer the taste of meat ((side) dishes). (1)
- ☐ Because I would like to try out local dishes. (7)
- ☐ Other reason, please specify: (6) _____

Page Break

Situation 5

Situation 5:

You are invited to a barbecue with your new work colleagues and they are only serving meat dishes. If you want to eat something vegetarian/vegan you would need to prepare and bring your own vegetarian dish.

How easy is it for you to put yourself in this situation? (1)	Very difficult (1)	Difficult (2)	Neutral (3)	Easy (4)	Very easy (5)
How likely is it that you would eat meat at this bbq? (2)	Very unlikely (1)	Unlikely (2)	Neutral (3)	Likely (4)	Very likely (5)
Would it feel like a sacrifice if you did not eat meat at the bbq? (3)	Not at all (1)	Rather not (2)	Neutral (3)	Rather yes (4)	Very much (5)

Display This Question:

*If Situation 5: You are invited to a barbecue with your new work colleagues and they are only servin... != Would it feel like a sacrifice if you did **not** eat meat at the bbq? [Answer 1]*

Sacrifice 5

Why would it feel like a sacrifice? *(**multiple** answers are possible)*

☐ Because I would feel uncomfortable and different if I was the only one who did not eat meat. (1)

☐ Because it is inconvenient and requires extra effort (time) to bring my own food. (3)

☐ Other reason, please specify: (6)

_____

Page Break

Situation 6

Situation 6:

You want to achieve fitness goals for which you need protein. You are grocery shopping and you want to cook a particular high protein vegetarian recipe. The store only caries vegetarian meat substitutes that are more expensive and have less protein than their meat counterparts. You could go to another store to find your preferred alternative.

How easy is it for you to put yourself in this situation? (1)	Very difficult (1)	Difficult (2)	Neutral (3)	Easy (4)	Very easy (5)
How likely is it that you would buy meat in this situation? (2)	Very unlikely (1)	Unlikely (2)	Neutral (3)	Likely (4)	Very likely (5)
Would it feel like a sacrifice if you did not buy meat in this situation? (3)	Not at all (1)	Rather not (2)	Neutral (3)	Rather yes (4)	Very much (5)

Display This Question:

*If Situation 6:You want to achieve fitness goals for which you need protein. You are grocery shoppin... = Would it feel like a sacrifice if you did **not** buy meat in this situation? [Answer 3]*

Sacrifice 6

Why would it feel like a sacrifice? *(**multiple** answers are possible)*

- ☐ Because of financial reasons as the meat options are cheaper. (1)
- ☐ Because of the lower protein content of vegetarian options. (3)
- ☐ Because of the extra effort of going to another store. (7)
- ☐ Other reason, please specify: (6)

_____

End of Block: Situational context

Start of Block: Personal norm

Responsibility

Multiple *answers are possible to this statement:*

I feel personally responsible to reduce my meat consumption.

- ☐ I do not feel responsible. (1)
- ☐ I feel responsible because it harms the environment. (2)
- ☐ I feel responsible because it harms animals. (3)
- ☐ I feel responsible because it harms my own health. (4)
- ☐ Other, specify: (5) _____

Personal norms

Please indicate the extent to which you agree or disagree with each of the following statements:

*Whenever meat *reduction* is mentioned, it also means *avoiding* meat.

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)
I think I am aware of the consequences of meat consumption. (1)	○	○	○	○	○
I think it is important to reduce meat consumption. (2)	○	○	○	○	○
Having an excessive meat consumption is against my moral principles. (3)	○	○	○	○	○
I feel pressure from others to reduce my meat consumption. (4)	○	○	○	○	○
I feel pressured by others to reduce my meat consumption, even though I am not completely committed to it myself. (5)	○	○	○	○	○
I would feel guilty and get a bad conscience if I would not (have had) reduce(d) my meat consumption. (6)	○	○	○	○	○
It feels meaningful to reduce my meat consumption. (7)	○	○	○	○	○

End of Block: Personal norm

Start of Block: Feeling of making a sacrifice when reducing meat consumption

Sacrifice feelings

Please indicate the extent to which you agree or disagree with each of the following statements:

*Whenever meat *reduction* is mentioned, it also means *avoiding* meat.

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)
Reducing meat would feel/feels/felt like a sacrifice. (1)	○	○	○	○	○
A vegetarian/plant-based diet is more expensive. (2)	○	○	○	○	○
Reducing my meat consumption would mean to give up foods that I enjoy. (3)	○	○	○	○	○
Reducing meat means less variety on the plate in terms of nutrition like protein and iron. (4)	○	○	○	○	○
Reducing meat has a negative impact on my social life such as feeling excluded or feeling different. (5)	○	○	○	○	○
Reducing meat is inconvenient as it needs more effort, time and there is often a limited availability of vegetarian options. (6)	○	○	○	○	○
Meat reduction is emotionally frustrating and draining. (7)	○	○	○	○	○
The more reducing meat feels like a sacrifice, the less I am willing to actually reduce meat. (8)	○	○	○	○	○
I would say that the feeling of making a sacrifice when reducing meat decreases over time. (9)	○	○	○	○	○

Additionals

Is there anything else you would like to share on this topic, such as personal experience or thoughts?

_____

End of Block: Feeling of making a sacrifice when reducing meat consumption

Start of Block: E-mail

E-mail results

If you would like to receive the results of this research, please enter your email address below, and I will promptly send them to you once the study is complete:

_____

E-mail participation

Are you interested in participating in the raffle for a chance to win the voucher? (if yes, please enter your e-mail address if you have not already done so above)

- ○ Yes, I am! (4) _____
- ○ No, I am not. (5)

End of Block: E-mail

Appendix B. Syntax SPSS: Main and exploratory analyses

```
COMPUTE SituationEasiness=(S1_easyness + S2_easyness+ S3_easyness+ S4_easyness+ S5_easyness + S6_easyness)/6.

EXECUTE.


COMPUTE SituationDependentSacrifice=(S1_sacrifice + S2_sacrifice + S3_sacrifice + S4_sacrifice + S5_sacrifice +S6_sacrifice)/6.

EXECUTE.


RECODE Aware_conseq PN_1 PN_2 PN_3 PN_4 PN_5 PN_6 Sacr_feel_1 Sacr_feel_2 Sacr_feel_3 Sacr_feel_4 Sacr_feel_5 Sacr_feel_6 Sacr_feel_7 Sacr_feel_8 Sacr_feel_9 (1=5) (2=4) (3=3) (4=2) (5=1) INTO Aware_conseqr PN_1r PN_2r PN_3r PN_4r PN_5r PN_6r Sacr_feel_1r Sacr_feel_2r Sacr_feel_3r Sacr_feel_4r Sacr_feel_5r Sacr_feel_6r Sacr_feel_7r Sacr_feel_8r Sacr_feel_9r.

EXECUTE.


COMPUTE IntegratedNorm=(PN_1r + PN_2r + PN_6r) / 3.

EXECUTE.


COMPUTE IntrojectedNorm=(PN_3r + PN_4r + PN_5r) / 3.

EXECUTE.


COMPUTE PerceivedSacrifice=(Sacr_feel_1r + Sacr_feel_2r + Sacr_feel_3r + Sacr_feel_4r + Sacr_feel_5r + Sacr_feel_6r + Sacr_feel_7r) / 7.

EXECUTE.


COMPUTE Fluctuation=(
  ((SituationDependentSacrifice-S1_sacrifice)*(SituationDependentSacrifice-S1_sacrifice))+
  ((SituationDependentSacrifice-S2_sacrifice)*(SituationDependentSacrifice-S2_sacrifice))+
  ((SituationDependentSacrifice-S3_sacrifice)*(SituationDependentSacrifice-S3_sacrifice))+
  ((SituationDependentSacrifice-S4_sacrifice)*(SituationDependentSacrifice-S4_sacrifice))+
  ((SituationDependentSacrifice-S5_sacrifice)*(SituationDependentSacrifice-S5_sacrifice))+
  ((SituationDependentSacrifice-S6_sacrifice)*(SituationDependentSacrifice-S6_sacrifice))
  /6).

EXECUTE.


RECODE Gender (1=1) (2=0) INTO Female_dummy.

VARIABLE LABELS  Female_dummy 'Female_dummy'.
```

EXECUTE.

RECODE Gender (2=1) (1=0) INTO Male_dummy.
VARIABLE LABELS Male_dummy 'Male_dummy'.
EXECUTE.

RECODE Education (1=1) (ELSE=0) INTO Highschool_dummy.
VARIABLE LABELS Highschool_dummy 'Highschool_dummy'.
EXECUTE.

RECODE Education (2=1) (ELSE=0) INTO Apprenticeship_dummy.
VARIABLE LABELS Apprenticeship_dummy 'Apprenticeship_dummy'.
EXECUTE.

RECODE Education (3=1) (ELSE=0) INTO Bachelor_dummy.
VARIABLE LABELS Bachelor_dummy 'Bachelor_dummy'.
EXECUTE.

RECODE Education (4=1) (ELSE=0) INTO Master_dummy.
VARIABLE LABELS Master_dummy 'Master_dummy'.
EXECUTE.

RECODE Education (5=1) (ELSE=0) INTO Ph.D_dummy.
VARIABLE LABELS Ph.D_dummy 'Ph.D_dummy'.
EXECUTE.

RECODE Living (1=1) (ELSE=0) INTO RuralDE_dummy.
VARIABLE LABELS RuralDE_dummy 'RuralDE_dummy'.
EXECUTE.

RECODE Living (2=1) (ELSE=0) INTO UrbanDE_dummy.
VARIABLE LABELS RuralDE_dummy 'UrbanDE_dummy'.
EXECUTE.

RECODE Living (3=1) (ELSE=0) INTO RuralNL_dummy.

```
VARIABLE LABELS  RuralDE_dummy 'RuralNL_dummy'.
EXECUTE.

RECODE Living (4=1) (ELSE=0) INTO UrbanNL_dummy.
VARIABLE LABELS  RuralDE_dummy 'UrbanNL_dummy'.
EXECUTE.

RECODE Income (1=1) (ELSE=0) INTO Income1_dummy.
VARIABLE LABELS  Income1_dummy 'Income1_dummy'.
EXECUTE.

RECODE Income (2=1) (ELSE=0) INTO Income2_dummy.
VARIABLE LABELS  Income2_dummy 'Income2_dummy'.
EXECUTE.

RECODE Income (3=1) (ELSE=0) INTO Income3_dummy.
VARIABLE LABELS  Income3_dummy 'Income3_dummy'.
EXECUTE.

RECODE Income (4=1) (ELSE=0) INTO Income4_dummy.
VARIABLE LABELS  Income4_dummy 'Income4_dummy'.
EXECUTE.

RECODE Income (5=1) (ELSE=0) INTO Income5_dummy.
VARIABLE LABELS  Income5_dummy 'Income5_dummy'.
EXECUTE.

RECODE Dietary_habits (1=1) (ELSE=0) INTO Omnivore_dummy.
VARIABLE LABELS  Omnivore_dummy 'Omnivore_dummy'.
EXECUTE.

RECODE Dietary_habits (2=1) (ELSE=0) INTO Flexitarian_dummy.
VARIABLE LABELS  Flexitarian_dummy 'Flexitarian_dummy'.
EXECUTE.
```

RECODE Dietary_habits (3=1) (ELSE=0) INTO Vegetarian_dummy.

VARIABLE LABELS Vegetarian_dummy 'Vegetarian_dummy'.

EXECUTE.

RECODE Dietary_habits (4=1) (ELSE=0) INTO Vegan_dummy.

VARIABLE LABELS Vegan_dummy 'Vegan_dummy'.

EXECUTE.

RECODE Diet_years (1=1) (ELSE=0) INTO Diet_yearslife.

VARIABLE LABELS Diet_yearslife 'Diet_yearslife'.

EXECUTE.

RECODE Diet_years (2=1) (ELSE=0) INTO Diet_years1.

VARIABLE LABELS Diet_years1 'Diet_years1'.

EXECUTE.

RECODE Diet_years (3=1) (ELSE=0) INTO Diet_years1to5.

VARIABLE LABELS Diet_years1to5 'Diet_years1to5'.

EXECUTE.

RECODE Diet_years (4=1) (ELSE=0) INTO Diet_years6to10.

VARIABLE LABELS Diet_years6to10 'Diet_years6to10'.

EXECUTE.

RECODE Diet_years (5=1) (ELSE=0) INTO Diet_yearsother.

VARIABLE LABELS Diet_yearsother 'Diet_yearsother'.

EXECUTE.

EXAMINE VARIABLES=IntegratedNorm IntrojectedNorm PerceivedSacrifice Female_dummy Male_dummy

  RuralDE_dummy UrbanDE_dummy RuralNL_dummy UrbanNL_dummy Income1_dummy Income2_dummy Income3_dummy

  Income4_dummy Income5_dummy Omnivore_dummy Flexitarian_dummy Vegetarian_dummy Vegan_dummy

  Diet_years6to10 Diet_yearslife Diet_years1 Diet_years1to5 Diet_yearsother

 /PLOT BOXPLOT STEMLEAF

 /COMPARE GROUPS

```
  /STATISTICS DESCRIPTIVES EXTREME
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

EXAMINE VARIABLES=PerceivedSacrifice
  /PLOT BOXPLOT HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES EXTREME
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

EXAMINE VARIABLES=IntegratedNorm
  /PLOT BOXPLOT HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES EXTREME
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.
```

Analyses for H1:

```
PARTIAL CORR
  /VARIABLES=IntegratedNorm PerceivedSacrifice BY Age
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm PerceivedSacrifice BY Gender
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
```

/VARIABLES=IntegratedNorm PerceivedSacrifice BY Education

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntegratedNorm PerceivedSacrifice BY Living

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntegratedNorm PerceivedSacrifice BY Income

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntegratedNorm PerceivedSacrifice BY Dietary_habits

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntegratedNorm PerceivedSacrifice BY Diet_years

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntegratedNorm PerceivedSacrifice BY Meat_consumption

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

```
NONPAR CORR
  /VARIABLES=Age PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Gender PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Education PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Living PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Income PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Dietary_habits PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Diet_years PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.
```

```
NONPAR CORR
  /VARIABLES=Meat_consumption PerceivedSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Age
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Gender
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Education
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Living
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Income
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.
```

```
PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Dietary_habits
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Diet_years
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntrojectedNorm PerceivedSacrifice BY Meat_consumption
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

NONPAR CORR
  /VARIABLES=Age PerceivedSacrifice IntrojectedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Gender PerceivedSacrifice IntrojectedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Education PerceivedSacrifice IntrojectedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Income PerceivedSacrifice IntrojectedNorm
```

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Living PerceivedSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Dietary_habits PerceivedSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Diet_years PerceivedSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Meat_consumption PerceivedSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

REGRESSION

/DESCRIPTIVES MEAN STDDEV CORR SIG N

/MISSING LISTWISE

/STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP

/CRITERIA=PIN(.05) POUT(.10)

/NOORIGIN

/DEPENDENT PerceivedSacrifice

/METHOD=ENTER IntegratedNorm IntrojectedNorm Age Female_dummy Male_dummy Omnivore_dummy Flexitarian_dummy Vegetarian_dummy Vegan_dummy Diet_years6to10 Diet_yearslife Diet_years1 Diet_years1to5 Diet_yearsother

/SCATTERPLOT=(*ZRESID ,*ZPRED)

/RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)

/CASEWISE PLOT(ZRESID) OUTLIERS(3).

Analyses for H2:

```
PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Age
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Gender
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Education
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Living
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Income
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Dietary_habits
  /SIGNIFICANCE=TWOTAIL
```

```
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Diet_years
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

PARTIAL CORR
  /VARIABLES=IntegratedNorm SituationDependentSacrifice BY Meat_consumption
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

NONPAR CORR
  /VARIABLES=Age SituationDependentSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Gender SituationDependentSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Education SituationDependentSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=Living SituationDependentSacrifice IntegratedNorm
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.
```

NONPAR CORR

/VARIABLES=Income SituationDependentSacrifice IntegratedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Dietary_habits SituationDependentSacrifice IntegratedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Diet_years SituationDependentSacrifice IntegratedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Meat_consumption SituationDependentSacrifice IntegratedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Age

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Gender

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Education

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Living

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Income

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Dietary_habits

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Diet_years

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

PARTIAL CORR

/VARIABLES=IntrojectedNorm SituationDependentSacrifice BY Meat_consumption

/SIGNIFICANCE=TWOTAIL

/STATISTICS=DESCRIPTIVES CORR

/MISSING=LISTWISE.

NONPAR CORR

/VARIABLES=Age SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Gender SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Education SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Income SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Living SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Dietary_habits SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Diet_years SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

NONPAR CORR

/VARIABLES=Meat_consumption SituationDependentSacrifice IntrojectedNorm

/PRINT=SPEARMAN TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

H2: Sensitivity analysis: Including outliers:

REGRESSION

/DESCRIPTIVES MEAN STDDEV CORR SIG N

/MISSING LISTWISE

/STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP

/CRITERIA=PIN(.05) POUT(.10)

/NOORIGIN

/DEPENDENT SituationDependentSacrifice

/METHOD=ENTER IntegratedNorm IntrojectedNorm Age Female_dummy Male_dummy Omnivore_dummy

Flexitarian_dummy Vegetarian_dummy Vegan_dummy Diet_years6to10 Diet_yearslife Diet_years1

Diet_years1to5 Diet_yearsother

/SCATTERPLOT=(*ZRESID ,*ZPRED)

/RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)

/CASEWISE PLOT(ZRESID) OUTLIERS(3).

H2: Sensitivity analysis: After excluding outliers:

DATASET ACTIVATE DataSet2.

REGRESSION

/DESCRIPTIVES MEAN STDDEV CORR SIG N

/MISSING LISTWISE

/STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL CHANGE ZPP

/CRITERIA=PIN(.05) POUT(.10)

/NOORIGIN

/DEPENDENT SituationDependentSacrifice

/METHOD=ENTER IntegratedNorm IntrojectedNorm Age Female_dummy Male_dummy Omnivore_dummy Flexitarian_dummy Vegetarian_dummy Vegan_dummy Diet_years6to10 Diet_yearslife Diet_years1 Diet_years1to5 Diet_yearsother

/SCATTERPLOT=(*ZRESID ,*ZPRED)

/RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)

/CASEWISE PLOT(ZRESID) OUTLIERS(3).

Analyses for H3:

IF (IntegratedNorm > IntrojectedNorm) Norm_type = 1.00.

```
IF (IntegratedNorm < IntrojectedNorm) Norm_type = -1.00.
IF (IntegratedNorm = IntrojectedNorm) Norm_type = 0.00.
EXECUTE.

EXAMINE VARIABLES=Fluctuation
  /PLOT BOXPLOT HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

NONPAR CORR
  /VARIABLES=Fluctuation Norm_type
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /CI METHOD(FHP)  CILEVEL(95)
  /MISSING=PAIRWISE.

ONEWAY Fluctuation BY Norm_type
  /ES=OVERALL
  /STATISTICS DESCRIPTIVES EFFECTS HOMOGENEITY BROWNFORSYTHE WELCH
  /MISSING ANALYSIS
  /CRITERIA=CILEVEL(0.95)
  /POSTHOC=BONFERRONI ALPHA(0.05).

NPAR TESTS
  /K-W=Fluctuation BY Norm_type(-1 1)
  /STATISTICS DESCRIPTIVES
  /MISSING ANALYSIS.
```

Explanatory analyses:

1)

```
EXAMINE VARIABLES=IntegratedNorm
  /PLOT BOXPLOT HISTOGRAM NPPLOT
  /COMPARE GROUPS
```

```
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

ONEWAY IntegratedNorm BY Dietary_habits
  /ES=OVERALL
  /STATISTICS DESCRIPTIVES EFFECTS HOMOGENEITY BROWNFORSYTHE WELCH
  /PLOT MEANS
  /MISSING ANALYSIS
  /CRITERIA=CILEVEL(0.95)
  /POSTHOC=TUKEY BTUKEY SCHEFFE ALPHA(0.05).

NPAR TESTS
  /K-W=IntegratedNorm BY Dietary_habits(1 4)
  /STATISTICS DESCRIPTIVES QUARTILES
  /MISSING ANALYSIS.

EXAMINE VARIABLES=IntrojectedNorm
  /PLOT BOXPLOT HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

ONEWAY IntrojectedNorm BY Dietary_habits
  /ES=OVERALL
  /STATISTICS DESCRIPTIVES EFFECTS HOMOGENEITY BROWNFORSYTHE WELCH
  /PLOT MEANS
  /MISSING ANALYSIS
  /CRITERIA=CILEVEL(0.95)
  /POSTHOC=TUKEY BTUKEY SCHEFFE ALPHA(0.05).

NPAR TESTS
```

/K-W=IntrojectedNorm BY Dietary_habits(1 4)

/STATISTICS DESCRIPTIVES QUARTILES

/MISSING ANALYSIS.

2)

EXAMINE VARIABLES=PerceivedSacrifice

/PLOT BOXPLOT HISTOGRAM NPPLOT

/COMPARE GROUPS

/STATISTICS DESCRIPTIVES

/CINTERVAL 95

/MISSING LISTWISE

/NOTOTAL.

ONEWAY PerceivedSacrifice BY Dietary_habits

/ES=OVERALL

/STATISTICS DESCRIPTIVES

/MISSING ANALYSIS

/CRITERIA=CILEVEL(0.95)

/POSTHOC=TUKEY BTUKEY SCHEFFE ALPHA(0.05).

EXAMINE VARIABLES=SituationDependentSacrifice

/PLOT BOXPLOT HISTOGRAM NPPLOT

/COMPARE GROUPS

/STATISTICS DESCRIPTIVES

/CINTERVAL 95

/MISSING LISTWISE

/NOTOTAL.

ONEWAY SituationDependentSacrifice BY Dietary_habits

/ES=OVERALL

/STATISTICS DESCRIPTIVES

/MISSING ANALYSIS

/CRITERIA=CILEVEL(0.95)

/POSTHOC=TUKEY BTUKEY SCHEFFE ALPHA(0.05).

3)

```
EXAMINE VARIABLES=SituationDependentSacrifice PerceivedSacrifice
  /PLOT BOXPLOT HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES EXTREME
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

NONPAR CORR
  /VARIABLES=PerceivedSacrifice S1_sacrifice S2_sacrifice S3_sacrifice S4_sacrifice S5_sacrifice S6_sacrifice
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /CI METHOD(FHP)  CILEVEL(95)
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=PerceivedSacrifice Sacr_feel_2r Sacr_feel_3r Sacr_feel_4r Sacr_feel_5r Sacr_feel_6r Sacr_feel_7r
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /CI METHOD(FHP)  CILEVEL(95)
  /MISSING=PAIRWISE.

NONPAR CORR
  /VARIABLES=S1_sacrifice S2_sacrifice S3_sacrifice S4_sacrifice S5_sacrifice S6_sacrifice Sacr_feel_2r
Sacr_feel_3r Sacr_feel_4r Sacr_feel_5r Sacr_feel_6r Sacr_feel_7r
  /PRINT=SPEARMAN TWOTAIL NOSIG FULL
  /CI METHOD(FHP)  CILEVEL(95)
  /MISSING=PAIRWISE.
```

Appendix C. Comprehensive exploratory analyses

C1 Personal norms and dietary types

The first one-way ANOVA was conducted to assess the impact of dietary type on Integrated Norm. The assumptions for normality and independence are met, however homogeneity of variances is violated as the Levene statistics are significant (p = .006). The results of the one-way ANOVA revealed a statistically significant difference in Integrated Norm scores among the four dietary types (F(3,463) = 98.998, p < .001). Omnivores had the lowest Integrated Norm towards reducing meat consumption with a mean score of 2.82 (SD = .91), while vegetarians had the highest Integrated Norm with a mean score of 4.42 (SD = .81), followed by vegans (M = 4.28, SD = .15) and flexitarians (M = 4.00, SD = .74). Subsequent Tukey's Honestly Significant Difference (HSD) Test for multiple comparisons indicated significant mean differences in Integrated Norm scores between all pairs of dietary types. For instance, there was a significant difference in Integrated Norm scores between omnivores and flexitarians (mean difference = -1.18, p < .001) omnivores and vegetarians (mean difference = -1.60, p < .001), and omnivores and vegans (mean difference = -1.46, p < .001). However, as the assumption for homogeneity of variances was not met for this ANOVA, a Kruskal-Wallis test was conducted as a sensitivity analysis. The Kruskal-Wallis test confirmed the findings of the one-way ANOVA, also showing significant differences among the dietary types. Vegetarians had the highest mean rank, followed by vegans, then flexitarians, with omnivores exhibiting the lowest mean rank.

The second one-way ANOVA was conducted to evaluate the relationship between dietary type and Introjected Norm. All assumptions, i.e., normality, independence, and homogeneity of variances, regarding the one-way ANOVA are met. The results revealed a statistically significant difference in Introjected Norm scores among the four dietary types (F(3,463) = 3.833, p = .010). Omnivores exhibited the lowest Introjected Norm towards reducing meat consumption with a mean score of 2.56 (SD = .85). In contrast, flexitarians had the highest mean score of 2.85 (SD = .89). Vegetarians had a mean of 2.77 (SD = .80), and vegans scored similarly with a mean of 2.77 (SD = .75). Since all four diet types have a mean score of less than 3, they all exhibit a rather low Introjected Norm regarding reducing meat consumption. The subsequent Tukey's Honestly Significant Difference (HSD) Test for multiple comparisons indicated a significant mean difference between omnivores and flexitarians (mean difference = -.29, p = .006). However, there were no significant differences found between the other pairs of dietary types. Overall, the findings suggest a small but statistically significant difference in Introjected Norms, particularly between omnivores and flexitarians.

C2 Sacrifice and dietary types

First, a one-way ANOVA was conducted to assess the impact of dietary type on Perceived Sacrifice. All assumptions, i.e., normality, independence, and homogeneity of variances, regarding the one-way ANOVA are met. The results revealed a substantial and statistically significant difference in Perceived Sacrifice scores across the four dietary groups ($F(3,462) = 77.854$, $p < .001$). Omnivores reported the highest mean Perceived Sacrifice score ($M = 3.37$, $SD = .63$), followed by flexitarians with a mean of 2.68 ($SD = .66$), vegans with a mean of 2.30 ($SD = 0.74$), and vegetarians with a mean of 2.15 ($SD = .65$). The multiple comparisons using Tukey's HSD and Scheffe's methods identified significant differences between all pairs of dietary types. For instance, omnivores reported significantly higher Perceived Sacrifice than flexitarians (mean difference = .68, $p < .001$), vegetarians (mean difference = 1.21, $p < .001$), and vegans (mean difference = 1.06, $p < .001$). Flexitarians, in turn, reported significantly higher Perceived Sacrifice than vegetarians (mean difference = 0.52, $p < .001$) and vegans (mean difference = .38, $p = .012$). Vegetarians and vegans did not differ significantly in Perceived Sacrifice (mean difference = .14, $p = .71$). Furthermore, approximately 33.6% of the variance in Perceived Sacrifice can be attributed to dietary type. Welch and Brown-Forsythe tests also confirm significant group differences (both $p < .001$).

Second, a one-way ANOVA was conducted to assess the impact of dietary type on Situation-dependent Sacrifice. All assumptions, i.e., normality, independence, and homogeneity of variances, regarding the one-way ANOVA are met. The results demonstrated a substantial and statistically significant difference in Situation-dependent Sacrifice scores among the four dietary groups ($F(3,462) = 80.681$, $p < .001$). Descriptive statistics revealed that omnivores exhibited the highest mean Situation-dependent Sacrifice score ($M = 3.39$, $SD = .97$), followed by flexitarians with a mean of 2.54 ($SD = .79$), vegans with a mean of 1.83 ($SD = .80$), and vegetarians with a mean of 1.75 ($SD = .76$). Multiple comparisons using Tukey's HSD and Scheffe's methods indicated significant differences between all pairs of dietary types. For example, omnivores reported significantly higher Situation-dependent Sacrifice than flexitarians (mean difference = .84, $p < .001$), vegetarians (mean difference = 1.63, $p < .001$), and vegans (mean difference = 1.56, $p < .001$). Flexitarians, in turn, reported significantly higher Situation-dependent Sacrifice than vegetarians (mean difference = 0.79, $p < .001$) and vegans (mean difference = 0.71230, $p < .001$). Interestingly, there was no significant difference in Situation-dependent Sacrifice between vegetarians and vegans (mean difference = .07, $p = .973$).

C3 Perceived sacrifice, situation-dependent sacrifice, and sacrifice types

First, a bivariate spearman correlation was conducted to assess the strength of the correlation between each specific sacrifice types and individuals' general sacrifice feelings, shedding light on the representativeness of these sacrifice types in shaping people's overall sacrifice feelings.

Financial Sacrifice: The correlation coefficient with Perceived Sacrifice is .557 ($p < .001$). This indicates a moderate positive correlation, suggesting that financial sacrifice, such as the cost of meat substitutes compared to meat, contributes moderately to individuals' overall sense of sacrifice regarding meat reduction.

Taste Sacrifice: For the taste-related sacrifice, the correlation coefficient is .558 ($p < .001$). This represents a moderate positive correlation, implying that sacrificing the taste associated with meat plays a moderately important role in individuals' overall perception of sacrifice.

Functional Sacrifice: In the context of functional sacrifice, the correlation coefficient is .740 ($p < .001$). This indicates a strong positive correlation, suggesting that functional aspects, such as the inconvenience of preparing vegetarian meals, significantly shape individuals' overall sense of sacrifice.

Social Sacrifice: The correlation coefficient with Perceived Sacrifice is .669 ($p < .001$). This demonstrates a strong positive correlation, signifying that social sacrifice, such as feeling left out at social events due to dietary choices, strongly influences individuals' overall perception of sacrifice.

Conditional Sacrifice: For conditional sacrifice, the correlation coefficient is .726 ($p < .001$). This reflects a strong positive correlation, indicating that conditional factors, like the availability of suitable vegetarian options, significantly contribute to individuals' overall perception of sacrifice.

Emotional Sacrifice: In the context of emotional sacrifice, the correlation coefficient is .785 ($p < .001$). This signifies a strong positive correlation, suggesting that emotional factors, such as feelings of guilt or missing out, strongly shape individuals' overall sense of sacrifice.

In conclusion, while some sacrifice types exhibit moderate correlations, such as financial and taste sacrifice, others, particularly functional, social, conditional, and emotional sacrifice, demonstrate strong correlations and thus seem to be deciding factors.

Second, another bivariate spearman correlation analysis was conducted to determine the strength of the correlation between the situational sacrifice feelings (Situation-dependent Sacrifice)

and individuals' general sacrifice feelings (Perceived Sacrifice), providing insights into how representative each situation is for shaping people's overall perception of sacrifice.

Situation 1 (Family Gathering): In the scenario of a family gathering where a beloved family member serves their famous meatball soup, the correlation coefficient with Perceived Sacrifice is .502 ($p < .001$). This suggests a moderate positive correlation, indicating that this family gathering contributes to participants' overall sense of sacrifice to some extent.

Situation 2 (Restaurant with meat-eating friends): When dining at a restaurant with friends, where only one vegetarian/vegan option is available and more expensive than meat dishes, the correlation coefficient is .564 ($p < .001$). This signifies a moderate positive correlation, implying that this dining situation has a notable influence on individuals' overall perception of sacrifice.

Situation 3 (Restaurant with vegetarian friends): In the scenario where friends opt for vegetarian options, but these choices include disliked ingredients, the correlation coefficient is .479 ($p < .001$). This indicates a moderate positive correlation, suggesting that such social dining situations contribute to the overall perception of sacrifice, albeit not as strongly.

Situation 4 (Dining alone): When traveling alone in Europe and encountering restaurants with limited vegetarian/vegan options, each with disliked ingredients, the correlation coefficient is .437 ($p < .001$). This demonstrates a moderate positive correlation, indicating that this travel-related scenario plays a role in shaping individuals' overall sense of sacrifice, albeit not as strongly.

Situation 5 (Work bbq): In the context of a barbecue with work colleagues serving exclusively meat dishes, the correlation coefficient is .521 ($p < .001$). This suggests a moderate positive correlation, signifying that this workplace-related situation contributes to participants' overall perception of sacrifice to a notable degree.

Situation 6 (Fitness goal and grocery shopping): When grocery shopping for fitness goals, where preferred high-protein vegetarian options are more expensive and have less protein than meat counterparts, the correlation coefficient is .605 ($p < .001$). This reflects a strong positive correlation, indicating that this fitness-related scenario significantly influences individuals' overall perception of sacrifice.

Appendix D. Correlation tables

D1 Partial correlation: personal norms and perceived sacrifice

Control variables			Integrated Norm	Perceived Sacrifice	Age	Gender	Education	Living	Income	Diet type	Diet Duration	Weekly consumption
Zero order correlation	Integrated Norm	Correlation	1.000	-.598	-.031	-.323	-.002	.141	-.126	.558	.397	-.010
		Significance	.	<.001	.508	<.001	.963	.002	.007	<.001	<.001	.849
		df	0	464	464	464	464	464	464	464	464	360
	Perceived Sacrifice	Correlation	-.598	1.000	-.118	.293	.042	-.105	.053	-.541	-.397	.071
		Significance	<.001	.	.011	<.001	.368	.024	.257	<.001	<.001	.177
		df	464	0	464	464	464	464	464	464	464	360
Partial correlation												
Age	Integrated Norm	Correlation	1.000	-.606								
		Significance	.	<.001								
		df	0	463								
	Perceived Sacrifice	Correlation	-.606	1.000								
		Significance	<.001	.								
		df	463	0								
Gender	Integrated Norm	Correlation	1.000	-.556								
		Significance	.	<.001								
		df	0	463								
	Perceived Sacrifice	Correlation	-.556	1.000								
		Significance	<.001	.								
		df	463	0								
Education	Integrated Norm	Correlation	1.000	-.598								
		Significance	.	<.001								
		df	0	463								
	Perceived Sacrifice	Correlation	-.598	1.000								
		Significance	<.001	.								
		df	463	0								
Living	Integrated Norm	Correlation	1.000	-.529								
		Significance	.	<.001								
		df	0	463								
	Perceived Sacrifice	Correlation	-.529	1.000								
		Significance	<.001	.								
		df	463	0								
Income	Integrated Norm	Correlation	1.000	-.597								
		Significance	.	<.001								
		df	0	463								
	Perceived Sacrifice	Correlation	-.597	1.000								
		Significance	<.001	.								
		df	463	0								
Diet type	Integrated Norm	Correlation	1.000	-.424								
		Significance	.	<.001								
		df	0	463								
	Perceived Sacrifice	Correlation	-.424	1.000								
		Significance	<.001	.								
		df	463	0								
Diet duration	Integrated Norm	Correlation	1.000	-.523								
		Significance	.	<.001								
		df	0	463								
	Perceived Sacrifice	Correlation	-.523	1.000								
		Significance	<.001	.								
		df	463	0								
Weekly Consumption	Integrated Norm	Correlation	1.000	-.526								
		Significance	.	<.001								
		df	0	359								
	Perceived Sacrifice	Correlation	-.526	1.0000								
		Significance	<.001	.								
		df	359	0								

Control variables			Introjected Norm	Perceived Sacrifice	Age	Gender	Education	Living	Income	Diet type	Diet Duration	Weekly consumption
Zero order correlation	Introjected Norm	Correlation	1.000	.027	-.138	.006	.099	.143	-.082	.104	.142	.144
		Significance	.	.556	.003	.894	.032	.002	.076	.025	.002	.006
		df	0	464	464	464	464	464	464	464	464	360
	Perceived Sacrifice	Correlation	.027	1.000	-.118	.293	.042	-.105	.053	-.541	-.397	.071
		Significance	.556	.	.011	<.001	.368	.024	.257	<.001	<.001	.177
		df	464	0	464	464	464	464	464	464	464	360

Partial correlation

Age	Introjected Norm	Correlation	1.000	.011
		Significance	.	.809
		df	0	463
	Perceived Sacrifice	Correlation	.011	1.000
		Significance	.809	.
		df	463	0
Gender	Introjected Norm	Correlation	1.000	.027
		Significance	.	.566
		df	0	463
	Perceived Sacrifice	Correlation	.027	1.000
		Significance	.566	.
		df	463	0
Education	Introjected Norm	Correlation	1.000	.023
		Significance	.	.616
		df	0	463
	Perceived Sacrifice	Correlation	0.23	1.000
		Significance	.616	.
		df	463	0
Living	Introjected Norm	Correlation	1.000	.043
		Significance	.	.355
		df	0	463
	Perceived Sacrifice	Correlation	.043	1.000
		Significance	.355	.
		df	463	0
Income	Introjected Norm	Correlation	1.000	.032
		Significance	.	.494
		df	0	463
	Perceived Sacrifice	Correlation	.032	1.000
		Significance	.494	.
		df	463	0
Diet type	Introjected Norm	Correlation	1.000	.100
		Significance	.	.031
		df	0	463
	Perceived Sacrifice	Correlation	.100	1.000
		Significance	.031	.
		df	463	0
Diet duration	Introjected Norm	Correlation	1.000	.092
		Significance	.	.047
		df	0	463
	Perceived Sacrifice	Correlation	.092	1.000
		Significance	.047	.
		df	463	0
Weekly Consumption	Introjected Norm	Correlation	1.000	-.020
		Significance	.	.707
		df	0	359
	Perceived Sacrifice	Correlation	-.020	1.000
		Significance	.707	.
		df	359	0

D2 Partial correlation: personal norms and situation-dependent sacrifice

Control variables			Integrated Norm	Situation-dependent Sacrifice	Age	Gender	Education	Living	Income	Diet type	Diet Duration	Weekly consumption
Zero order correlation	Integrated Norm	Correlation	1.000	-.615	-.031	-.323	-.002	.141	-.126	.558	.397	.010
		Significance	.	<.001	.508	<.001	.963	.002	.007	<.001	<.001	.849
		df	0	464	464	464	464	464	464	464	464	360
	Situation-dependent Sacrifice	Correlation	-.615	1.000	-.122	.328	.119	-.023	.083	-.561	-.332	-.039
		Significance	<.001	.	.009	<.001	.010	.625	.073	<.001	<.001	.464
		df	464	0	464	464	464	464	464	464	464	360
Partial correlation												
Age	Integrated Norm	Correlation	1.000	-.624								
		Significance	.	<.001								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.624	1.000								
		Significance	<.001	.								
		df	463	0								
Gender	Integrated Norm	Correlation	1.000	-.570								
		Significance	.	<.001								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.570	1.000								
		Significance	<.001	.								
		df	463	0								
Education	Integrated Norm	Correlation	1.000	-.620								
		Significance	.	<.001								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.620	1.000								
		Significance	<.001	.								
		df	463	0								
Living	Integrated Norm	Correlation	1.000	-.619								
		Significance	.	<.001								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.619	1.000								
		Significance	<.001	.								
		df	463	0								
Income	Integrated Norm	Correlation	1.000	-.612								
		Significance	.	<.001								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.612	1.000								
		Significance	<.001	.								
		df	463	0								
Diet type	Integrated Norm	Correlation	1.000	-.440								
		Significance	.	<.001								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.440	1.000								
		Significance	<.001	.								
		df	463	0								
Diet duration	Integrated Norm	Correlation	1.000	-.559								
		Significance	.	<.001								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.559	1.000								
		Significance	<.001	.								
		df	463	0								
Weekly Consumption	Integrated Norm	Correlation	1.000	-.510								
		Significance	.	<.001								
		df	0	359								
	Situation-dependent	Correlation	-.510	1.0000								
		Significance	<.001	.								

	Sacrifice	df	359	0

Control variables			Introjected Norm	Situation-dependent Sacrifice	Age	Gender	Education	Living	Income	Diet type	Diet Duration	Weekly consumption
Zero order correlation	Introjected Norm	Correlation	1.000	-.059	-.138	.006	.099	.143	-.082	.104	.142	.144
		Significance	.	.200	.003	.894	.032	.002	.076	.025	.002	.006
		df	0	464	464	464	464	464	464	464	464	360
	Situation-dependent Sacrifice	Correlation	-.059	1.000	-.122	.328	.119	-.023	.083	-.561	-.332	-.039
		Significance	.200	.	.009	<.001	.010	.625	.073	<.001	<.001	.464
		df	464	0	464	464	464	464	464	464	464	360
Partial correlation												
Age	Introjected Norm	Correlation	1.000	-.078								
		Significance	.	.095								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.078	1.000								
		Significance	.095	.								
		df	463	0								
Gender	Introjected Norm	Correlation	1.000	-.065								
		Significance	.	.161								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.065	1.000								
		Significance	.161	.								
		df	463	0								
Education	Introjected Norm	Correlation	1.000	-.072								
		Significance	.	.120								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.072	1.000								
		Significance	.120	.								
		df	463	0								
Living	Introjected Norm	Correlation	1.000	-.057								
		Significance	.	.222								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.057	1.000								
		Significance	.222	.								
		df	463	0								
Income	Introjected Norm	Correlation	1.000	-.053								
		Significance	.	.255								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.053	1.000								
		Significance	.255	.								
		df	463	0								
Diet type	Introjected Norm	Correlation	1.000	-.001								
		Significance	.	.974								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.001	1.000								
		Significance	.974	.								
		df	463	0								
Diet duration	Introjected Norm	Correlation	1.000	-.013								
		Significance	.	.778								
		df	0	463								
	Situation-dependent Sacrifice	Correlation	-.013	1.000								
		Significance	.778	.								
		df	463	0								
Weekly Consumption	Introjected Norm	Correlation	1.000	-.087								
		Significance	.	.100								
		df	0	359								
	Situation-	Correlation	-.087	1.0000								

	dependent Sacrifice	Significance	.100	.
		df	359	0