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Correlates of Goal Setting for the Reduction of Meat Consumption

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Correlates of Goal Setting for the Reduction of Meat Consumption

The leading cause of poor health is malnutrition, including obesity and undernutrition. Climate change will worsen all of these conditions and systemic changes will be needed to improve these threats to human health and the environment (Swinburn et al., 2019). Worldwide, food production is responsible for a big part of all human-made greenhouse gas emissions, with meat products having the highest emission rates per kilogram of food (Poore & Nemecek, 2018). The necessity of cultivating crops for feeding the current livestock population (Mottet et al., 2017), drives agricultural expansion into natural ecosystems, resulting in the loss of critical carbon storage, water regulation, and biodiversity (Houghton & Nassikas, 2017). Although meat offers substantial nutritional value (Laskowski et al., 2018; Pereira & Vicente, 2013), overconsumption of red and processed meat leads to an increased risk of coronary heart disease, colorectal cancer and type 2 diabetes (Fanzo & Davis, 2021; Micha et al., 2012; M. C. Stern et al., 2024; World Health Organization, 2015). To avoid these health risks, sustainably feed the growing global population and slow climate change, reducing meat consumption is essential. This is particularly important in high- and middle-income countries where alternatives are available and meat intake is high (Adesogan et al., 2020; Willett et al., 2019).

Nevertheless, achieving population-wide reductions in meat consumption is not straightforward, being fundamentally an individual decision (Stephens et al., 2014). While health, economic, and environmental reasons are the main described motivators for individuals to decrease their meat intake (Graça et al., 2015; Whitton et al., 2021), numerous other factors have also been identified as predictors of intention to reduce meat consumption. For instance, studies have shown that women are more inclined to reduce meat consumption compared to men (e.g., Greenwell et al., 2024; Hielkema & Lund, 2021; Reist et al., 2023). Personal, descriptive, and injunctive norms (e.g., Carfora et al., 2017, 2020; Chen, 2022; Çoker & Van der Linden, 2022; Krispenz & Bertrams, 2020) and the HEXACO personality traits of openness to experience and conscientiousness (e.g., Hopwood et al., 2024; Reist et al., 2023; Soutter et al., 2020) have demonstrated consistent positive relationships with a higher intention to reduce meat consumption. In contrast, an individual's current level of meat consumption has been shown to have a negative association with their intention to reduce it (e.g., Carfora et al., 2017, 2020; Çoker & Van der Linden, 2022; Krispenz & Bertrams, 2020).

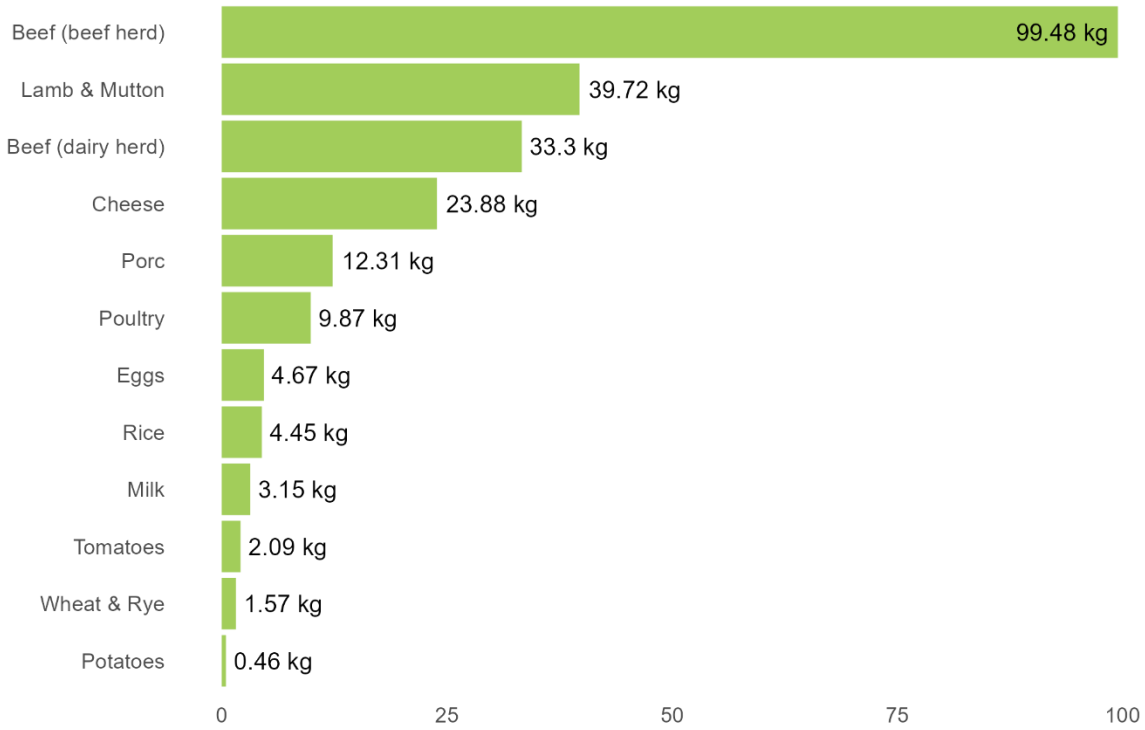
While numerous studies have investigated factors related to intended meat reduction, research exploring the extent to which individuals are willing to reduce their consumption is limited (Cheah et al., 2020). Examining these factors using meat reduction goal setting allows for a measurement of the level of participants' willingness to reduce meat intake. Goal setting may also serve as a crucial mechanism for translating meat reduction intention or willingness into actual behavior (Epton et al., 2017) and adheres to the individual nature of dietary decision taking (Stephens et al., 2014). This thesis aims to address the existing research gap about the level to which individuals are willing to reduce meat consumption, by exploring the relationship between several predictors and the extent of meat reduction willingness through participants setting a specific reduction goal.

Meat Production and the Environment

The environmental consequences of high meat production and overconsumption are well established. During the 2018–2020 period, greenhouse gas emissions from meat production accounted for approximately 54% of total agricultural emissions in the world (Food and Agriculture Organization of the United Nations, 2021). In the meta-analysis by Poore & Nemecek (2018) greenhouse gas emissions across the entire supply chain (including e.g., land use, farming, transportation and losses) were examined and revealed that compared to most other foods, meat products have the highest greenhouse gas emissions per kilogram of food (see Figure 1). Particularly beef from livestock production has very high emissions, which generates approximately 99.5 kg of carbon dioxide-equivalents per kilogram of meat (including non-CO_2 gases weighted by their warming potential over a 100-year time scale). This is 22 times higher than the emissions from rice (~4.5 kg). For better visibility, Figure 1 represents all meat products and a selection of other commonly consumed products rather than the full dataset of 43 food types. Among the food types analyzed by Poore & Nemecek (2018), seven of the 10 highest-emission foods were meat or fish products.

Figure 1

Greenhouse Gas Emissions per Kilogram of Food Product



Note. Data adapted from Poore & Nemecek (2018). Greenhouse gas emissions are measured in kilograms of carbon dioxide equivalents (kg CO_2-eq), meaning that non-CO_2 gases are weighted based on their warming potential over a 100-year timescale. The graph includes emissions across the supply chain.

An aspect to consider when discussing livestock emissions is the significant amount of land required for their production. The expansion of agriculture into natural ecosystems has contributed to the loss of environmental benefits such as carbon storage, water regulation and biodiversity (Houghton & Nassikas, 2017). It is uncertain how global agricultural land will adapt to the rising demand for crops and pasture as the population and incomes continue to grow (Bahar et al., 2020). From 1850 to 2015, global cropland and pasture have already increased by 110% and 59% respectively while global forest expansion decreased by 17% (Houghton & Nassikas, 2017).

To ensure global food security for the growing population while limiting land use, agricultural land should be used as efficiently as possible. Ruminants (such as cattle and sheep) have the ability to convert grass, which can grow in poor soil conditions, into food such as meat and milk (Szczebyło et al., 2022). According to a

study from Mottet et al. (2017), 65% of grasslands dedicated to livestock cannot be converted into cropland due to unsuitable soil and environmental conditions. This means that a certain level of livestock is important to use available land efficiently, especially in regions with unfavorable soil and climatic conditions for crops.

However, this does not imply that the current scale of global livestock is sustainable, because existing pastureland alone cannot feed the animals. To produce 1 kg of meat, ruminants (such as cattle and sheep) require 2.8 kg of human-edible crops (Mottet et al., 2017). If no additional crops were introduced and the United States exclusively raised grass-fed beef, the existing grasslands could sustain only 27% of the current beef supply (Hayek & Garrett, 2018). Poultry and pigs cannot be fed on grassland and therefore rely even more heavily on cropland. Producing 1 kg of meat from non-ruminant animals (such as poultry and pigs) requires 3.2 kg of human-edible crops (Mottet et al., 2017). For example soybeans, whose production has been linked to deforestation in Brazil's Amazon (Delaroche et al., 2023), are mostly used to feed the large pig and poultry populations (Fraanje & Garnett, 2020).

Meat Consumption and Health

Meat is a nutrient and energy dense food and a source of protein as well as other nutrients that are easily absorbed from it, such as vitamin B12, iron and zinc (Laskowski et al., 2018; Pereira & Vicente, 2013). These nutrients are especially important for young children, pregnant women and elderly people (Wyness, 2016). However, meat is not essential for a sufficient intake of these nutrients, provided that a diverse range of other foods is available and incorporated into the diet (Godfray et al., 2018). This means that meat remains a crucial source of nutrition in low-income countries where meat substitutes are rare and meat consumption is already significantly lower than the global average (Afshin et al., 2019; Fanzo & Davis, 2021), but reducing meat consumption specifically in high- and middle-income countries could offer substantial benefits (Adesogan et al., 2020; Stoll-Kleemann & Schmidt, 2017).

Several studies have established a connection between the consumption of red and especially processed meat (processed meat refers to meat that has been salted, cured, smoked or undergone other processes to enhance flavor or improve preservation) and an increased risk of coronary heart disease, colorectal cancer and type 2 diabetes (Fanzo & Davis, 2021; Micha et al., 2012; M. C. Stern et al., 2024;

World Health Organization, 2015). Coronary heart diseases, the leading cause of death worldwide, account for 45% of adult fatalities in high-income countries and around 25% in developing nations (Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz, 2021). The International Agency for Research on Cancer classified red meat as „probably carcinogenic to humans" and processed meat as „carcinogenic to humans" based on the evidence of 2015. Their analysis concluded that each 50 g of daily eaten processed meat increases the risk of colorectal cancer by 18% (World Health Organization, 2015).

Combining Sustainability and Health

To address global nutrition, the EAT-Lancet Report, developed by a multidisciplinary team of experts (such as in nutrition, health, political science, and environmental sustainability), analyzed dietary patterns promoting both human health and environmental sustainability (Willett et al., 2019). The proposed diet included a high intake of vegetables, fruits, and whole grains, moderate intake of seafood and poultry and minimal consumption of red and processed meat. The report recommends approximately 7 g of beef/lamb, 7 g of pork, and 29 g of poultry per day for a balanced diet based on a 2,500 kcal/day intake. No exact numbers have been given for processed meat. Global meat intake far exceeds these recommendations, with an average daily intake of around 27 g of red meat and 4 g of processed meat, though there are significant regional differences (Afshin et al., 2019). For example, in high-income North America, red meat intake is around 50 g/day, while in South Asia, it remains below 5 g/day. The United States Department of Agriculture (USDA) estimates the daily meat intake for citizens of the United States to be around 166.5 g across all types of meat (United States Department of Agriculture (USDA), 2025).

Afshin et al. (2019) calculated in their meta-analysis the optimal meat intake as the level that minimizes the risk of mortality from disease. Following these calculations, global consumption of processed meat is 90% higher than the optimal amount of consumption and the consumption of red meat is 18% higher than the optimal intake. In their meta-analysis, high-income countries in North America have the highest consumption of processed meat, followed by high-income Pacific Asia and Western Europe.

Between 1961 and 2011, global meat consumption rose from 23.1 kg[1] to 42.20 kg per person and year, especially due to countries with high purchasing power, such as Australia, Canada or countries of the European Union (Sans & Combris, 2015). While the general trend continued until 2020, some countries such as New Zealand, Switzerland, Paraguay, Nigeria and Ethiopia, demonstrated a decline in meat consumption between 2000 and 2020 (Whitton et al., 2021). In Paraguay, Nigeria, and Ethiopia this is traced to the reduced affordability of meat for the population (Whitton et al., 2021), while in New Zealand and Switzerland, the decrease was attributed to the growing popularity of vegetarianism (Greenwell et al., 2024; Schüpbach et al., 2017). It has been shown that the relationship between meat consumption and income follows an inverted “U-shape”, at a certain level of income meat consumption stagnates or even declines (Vranken et al., 2014).

Austria is another country showing a decline in meat consumption. In 2023, the per capita meat consumption was 86.6 kg, marking a reduction of 1.7 kg compared to 2022 and of 10.9 kg since 2013 (Statistik Austria, 2024). Austrian inhabitants have also shown increasing interest in becoming vegetarian or vegan (Ploll et al., 2020). While there is a growing willingness to reduce meat consumption, it is still approximately double the 2011 global average of around 42 kg (Sans & Combris, 2015), indicating that there is considerable room for further improvement.

All these findings highlight the urgent need to reduce meat consumption as well as production - for the sake of public health, environmental sustainability, and future food security.

Factors Influencing Meat Consumption

Meat consumption is deeply ingrained in many societies and individuals’ daily lives and not everyone is willing to reduce their intake (Szczebyło et al., 2022). Decreasing meat consumption can be difficult due to the daily need of eating, which leads to a strong habit and requires effort to modify (Rees et al., 2018; Zur & Klöckner, 2014). This decision is primarily driven by environmental and health reasons (Cheah et al., 2020; Turnes et al., 2023). The willingness and intention of

[1] These numbers are not comparable to the daily meat intake above, as they are based on retail weight per capita and do not account for consumer waste, including losses from food service, home preparation (such as trimming and cooking) and spoilage (Fehrenbach et al., 2016; Godfray et al., 2018; McMichael et al., 2007).

meat reduction is correlated with various factors including gender identity, norms, personality and current meat consumption (Carfora et al., 2020; Çoker & Van der Linden, 2022; Reist et al., 2023; Zur & Klöckner, 2014).

Gender Identity

Gender identity plays a significant role in the amount of meat consumption. Studies show consistently higher intake among men compared with women (Çoker & Van der Linden, 2022; Latvala et al., 2012; Lea et al., 2006; Oliveira & Calheiros, 2015; Szczebyło et al., 2022; Turnes et al., 2023) and male study participants show greater meat attachment (Graça et al., 2015). Women are more likely to change their consumption patterns (Kemper, 2020) choose vegetarian or vegan diets (Greenwell et al., 2024; Hielkema & Lund, 2021; Reist et al., 2023; Verain & Dagevos, 2022) and adhere to their vegetarian diets more strictly (Rosenfeld, 2020). They also show higher levels of intention and willingness to reduce meat consumption than men (Seffen & Dohle, 2023). A reason for this discrepancy might be that eating meat is associated with masculinity (Rosenfeld, 2020; Rothgerber, 2013) and that men tend to engage in more health-related risky behaviors compared to women, such as smoking, physical inactivity, low fruit and vegetable intake, and higher consumption of fatty meat (Barreto & Figueiredo, 2009).

Norms

Reducing meat consumption may be perceived as an inconvenience and as a behavior that does not just align with individual self-interest, as it is a common component of many dishes and is good tasting to a lot of people (Cheah et al., 2020; Zur & Klöckner, 2014). Such behaviors can be explained by personal and social norms, which act as further motivational factors from other people or someone's own belief system (P. C. Stern et al., 1999; Thøgersen, 2008).

Personal Norms. Personal norms refer to an individual's moral beliefs and the self-imposed rules or standards that guide their behavior and therefore act as an internal compass (De Groot et al., 2021). Personal norms influence pro-environmental intentions such as reduced consumption of clothes, buying environmentally friendly products and travelling in environmentally friendly ways (Joanes, 2019; Onwezen et al., 2013). Research has shown that personal norms can mediate the relationship between social norms and pro-environmental behavior

(Doran & Larsen, 2016; Han et al., 2018; Schultz et al., 2016). De Groot et al. (2021) found out that participants with stronger personal norms are more likely to reduce their meat consumption, regardless of their perceptions of social norms towards meat consumption. A significant correlation between moral beliefs and the intention to reduce meat consumption has been established (Zur & Klöckner, 2014) and several studies correlated personal norms and intention to reduce meat consumption and reported significant correlations ranging from r = .36 to .59 (Carfora et al., 2020; Onwezen et al., 2013; Wang & Scrimgeour, 2021)

Social Norms. Social norms are another important part of the influence of behavior and intentions (De Groot et al., 2021). Social norms are „rules and standards that are understood by members of a group, and that guide and/or constrain social behavior" (Cialdini & Trost, 1998, p. 152). They are propagated through informal communication (Kincaid, 2004) and can be codified through rules and laws, though often they are not and remain implicit (Pristl et al., 2021). Social norm interventions often rely on making salient two specific types of social norms, injunctive and descriptive social norms (De Groot et al., 2021). Injunctive social norms are „the expectation or subjective probability that a given referent individual or group (e.g., friends, family, spouse, coworkers, one's physician or supervisor) approves or disapproves of performing the behavior under consideration." (Ajzen & Schmidt, 2020, p. 20). Descriptive norms, on the other hand, refer to beliefs about what is actually done by others (Lapinski & Rimal, 2005). For example, in the context of meat consumption, descriptive social norms reflect beliefs about how many people in one's environment are reducing their meat intake, while injunctive social norms refer to one's perception of how meat reduction is viewed or approved of within their social environment.

Studies have found that both descriptive and injunctive social norms are relevant to a variety of pro-environmental behaviors such as the use of plastic bags, organic food purchase, energy conservation, recycling and acceptance of environmental policies (Bertoldo & Castro, 2016; Cialdini & Jacobson, 2021; De Groot et al., 2013; De Groot & Schuitema, 2012) as well as having an influence on the reduction of meat consumption (Cialdini & Jacobson, 2021). In an experiment of Sparkmann & Walton (2017), individuals chose more meatless lunch options at the Stanford university cafe when they were informed that other US citizens and members of the university make an effort to limit their meat consumption.

Zur & Klöckner (2014) found no correlation between injunctive social norms and the intention to reduce meat consumption, however, they did identify a correlation with descriptive social norms. Several other studies linked meat reduction and descriptive social norms, such as a study on meat reduction in Denmark, which found that knowing three or more people who had recently reduced or stopped their meat consumption, increased the likelihood of becoming a meat reducer. Most participants with no intention to reduce meat intake did not know anyone in their social environment who had done so (Hielkema & Lund, 2021). When people at the front of a queue choose a vegetarian dish, it increases the likelihood that others will also choose a vegetarian main course in a workplace restaurant, especially when the participant had high intentions to follow a vegetarian diet beforehand (Hammami et al., 2023).

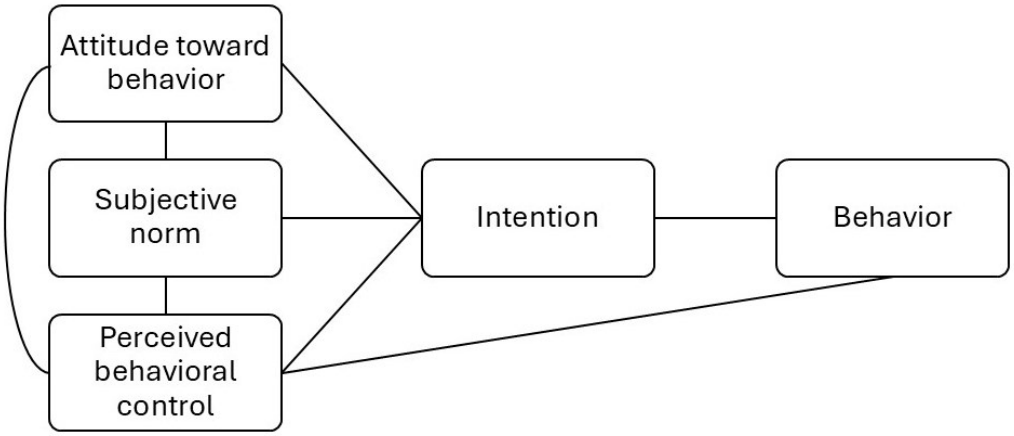
Theory of Planned Behavior as Model to Explain Norms in Meat Reduction. Social norms in relation to meat reduction have been mostly researched within other models. Multiple studies analyzing the intention or willingness to reduce meat consumption are using the Theory of Reasoned Action (TRA) from Fishbein & Ajzen (1975) (Chen, 2022; Kamal & Leby, 2023), but especially the Theory of Planned Behavior (TPB) from Ajzen (1991) (Carfora et al., 2017, 2020; Chen, 2022; Çoker & Van der Linden, 2022; Krispenz & Bertrams, 2020; Onwezen et al., 2013; Rees et al., 2018, 2018; Severijns et al., 2023; Wang & Scrimgeour, 2021). The TRA explains intention and subsequent behavior through two components: attitude toward the behavior and subjective norm. Attitude is shaped by beliefs about the anticipated outcomes of an individual's behavior and their evaluation, while the subjective norm is formed by beliefs about others' expectations (Fishbein & Ajzen, 1975). The TPB, illustrated in Figure 2, extends the TRA by incorporating perceived behavioral control, which is influenced by beliefs regarding factors that can either facilitate or act as barriers to the performance of the behavior (Ajzen, 1991).

Subjective norms can be seen as very similar, but not equal to injunctive and descriptive social norms and are a construct specifically used in the TRA and TPB (Cialdini & Jacobson, 2021). They are defined as „the belief that a significant person or group of people will approve and support a specific behaviour" (Kamal & Leby, 2023, p. 236). Subjective norms can be understood as norms that are influenced by an individual's immediate social environment in comparison to the general social

environment's influence of social norms (Ajzen & Schmidt, 2020; Cialdini & Jacobson, 2021).

Figure 1

Theory of Planned Behavior (TPB)



Note. Theory from Ajzen (1991)

The TPB has been demonstrated to be a useful model for examining the attitudes of various dietary groups, including meat eaters, meat avoiders, vegetarians, and vegans (Povey et al., 2001). Most studies found significant correlations between subjective norms and the intention or willingness to reduce meat consumption, ranging from r = .18 to r = .57 (Carfora et al., 2017, 2020; Chen, 2022; Çoker & Van der Linden, 2022; Kamal & Leby, 2023; Krispenz & Bertrams, 2020). The studies by Rees et al. (2018) and Wang & Scrimgeour (2021) found no significant correlation between subjective norms and meat reduction intention.

Personality

Research frequently assesses personality using two models: the Big Five and the HEXACO model. The Big Five model is typically measured by the Big Five Inventory (Costa & MacCrae, 1992), which consists of the dimensions neuroticism, agreeableness, conscientiousness, openness to experience and extraversion. The HEXACO model is assessed via the HEXACO Inventory (De Vries, 2013), and consists of emotionality, agreeableness, conscientiousness, openness to experience, extraversion and the new dimension honesty-humility. Several studies have used the Big Five or HEXACO model to test environmental attitudes (Hirsh, 2010; Hopwood et

al., 2024; Milfont & Sibley, 2012; Reist et al., 2023; Tai-Yi & Yu, 2017). A meta-analysis by Soutter et al. (2020) combined data from 38 sources to examine the relationship of Big Five and HEXACO personality traits to pro-environmental attitudes and behaviors. Among the traits studied, openness to experience and honesty-humility showed the strongest correlations with pro-environmental attitudes (r = .22 and .20, respectively) and behaviors (r = .21 and .25, respectively). Agreeableness, conscientiousness and extraversion have also shown correlations, but to a much lesser extent. In a separate meta-analysis, Reist et al. (2023) have been differentiating the Big Five personality traits between omnivores, vegetarians, and vegans. Based on 15 studies, the results indicated that vegans were significantly higher in openness to experience (d = .40) and agreeableness (d = .17) than omnivores and significantly higher in openness to experience (d = .14) than vegetarians. Honesty-humility was not examined, as it is not part of the Big Five model.

Hopwood et al. (2024) examined the relationship between the HEXACO model and the intention to eat less meat among omnivore participants. Those who scored higher in honesty-humility and openness to experience demonstrated a small but significant association with a greater intention to reduce meat consumption (openness to experience, r = .18; honesty-humility, r = .1).

Meat Consumption

Both health and environmental research recommend including past behavior in robust models assessing food choice intention and behavior (Carfora et al., 2020). Several studies have found that the frequency of meat consumption negatively predicts the intention to eat less meat. Higher meat consumption was linked to a lower intention to reduce it, showing significant correlations ranging from r = -.11 to r = -.52 (Carfora et al., 2017, 2020; Çoker & Van der Linden, 2022; Krispenz & Bertrams, 2020; Seffen & Dohle, 2023; Turnes et al., 2023; Zur & Klöckner, 2014). While Hielkema & Lund (2021) found no significant association between meat reduction intention and current level of consumption across three meat eating groups (meat reducers, those intending to reduce, and those with no intention), Turnes et al. (2023) identified a different pattern. Their study showed that individuals who consume meat less frequently are significantly more willing to reduce their intake for environmental reasons (81.6%), compared to only 18.4% of those who consume

meat daily. In fact, consuming meat less frequently than every day was associated with a four times greater likelihood of intending to cut meat intake.

A reason for the negative correlation might be because people who eat less meat already have a lower attachment to it and are therefore more willing to reduce the consumption (Szczebyło et al., 2022). Another factor could be that meat eating behavior is strongly correlated with meat eating habits, because eating patterns are highly repetitive and thus most likely a routine, which are harder to change (Zur & Klöckner, 2014).

Goal Setting, Intention and Dietary Behavior Change

Behavioral intention has been extensively studied in the context of reducing meat intake (e.g., Hammami et al., 2023; Harland et al., 1999; Hopwood et al., 2024; Hunter & Röös, 2016; Zur & Klöckner, 2014). Intentions, which can be seen as „one's motivation or decision to try to perform a focal behaviour" (Prestwich et al., 2008, p. 49), have shown to play an important role in behavior (Ajzen, 1991). Intentions encompass both the individual's level of commitment (determination to reduce meat consumption) and the level of set goal (the amount of reduction individuals are willing to undertake) (Sheeran & Webb, 2016). However, intention does not always translate into action, and there is often a gap between the desire to reduce meat consumption and actual behavioral change, called the intention-behavior gap (Hassan et al., 2016; Sheeran & Webb, 2016).

Setting a goal might be an important mechanism to close this intention-behavior gap, as goal setting has shown to be a small but consistent predictor of successful changes across a large range of behaviors in the meta-analysis by Epton et al. (2017), which examined 384 effect sizes from 141 studies. Setting a goal might therefore serve as an important mechanism for translating intention or willingness into action such as meat reduction behavior. Furthermore, goal desire has been shown to positively moderate the intention-behavior relationship in the context of fruit intake, alcohol consumption, and snacking (Prestwich et al., 2008). Supporting this, the literature review by Shilts et al. (2004) which analyzed 28 studies using goal setting to modify dietary or physical activity behaviors, indicates that goal setting is an effective strategy for promoting dietary behavior changes.

Behavioral intention and willingness have been extensively studied in the context of reducing meat intake (Hammami et al., 2023; Harland et al., 1999; Hopwood et al., 2024; Hunter & Röös, 2016; Zur & Klöckner, 2014) and goals and behavioral intentions are strongly linked (Prestwich et al., 2008; Sheeran & Webb, 2016). However, no study has analyzed potential factors explicitly linked with the level of goal for pro-environmental behavior or dietary change, especially regarding meat consumption. The lack of research exists despite setting goals having shown a positive impact in changing behavior.

This thesis addresses this research gap by analyzing several potential factors influencing goal setting for meat reduction.

Present Study

Reducing meat consumption offers significant health and environmental benefits (Poore & Nemecek, 2018; World Health Organization, 2015). The importance and relevance of this topic are reflected in the extent of the recent research analyzing potential influences on meat reduction. Studies have looked into willingness to reduce meat (Kamal & Leby, 2023; Wang & Scrimgeour, 2021), meat attachment (Graça et al., 2015) and especially meat reduction intention (e.g., Hopwood et al., 2024; Krispenz & Bertrams, 2020). However, the primary focus of these studies has been on whether individuals are willing, attached to, or intend to reduce meat consumption, rather than on the amount of reduction meat eaters are willing to undertake. The strength of using goal setting as the meat reduction construct lies in the potential to compare individuals with different levels of meat reduction intentions, from individuals wanting to make small reductions to more substantial ones.

This research gap of understanding the factors influencing the quantity of meat reduced by meat eaters has also been pointed out by Cheah et al. (2020). Notably, the study by Zur & Klöckner (2014) stands out as one of the few assessing meat reduction intention by considering the extent of reduction (ranging from no intention to reduce, to reducing consumption to special occasions only, avoiding specific types of meat, intending to become vegetarian and intending to become vegan). Setting a meat reduction goal might be an effective way to analyze the amount people are willing to reduce.

The main goal of this thesis is to contribute to a better understanding of which factors shape the amount to reduce meat consumption using a sample of Austrian students. The recent decline in meat consumption in Austria indicates a growing willingness to reduce intake (Statistik Austria, 2024). Therefore, it is a good sample to analyze potential factors influencing goal-setting behavior by asking the research question: Which variables have an impact in setting a goal for meat reduction?

Potential Predictor Variables

This thesis examines multiple variables which have shown significant links in past research with the intention or willingness to reduce meat consumption. The aim is to explore their relationship with setting a specific meat reduction goal. Because of the large number of hypotheses, they are summarized in Table 1. The variables including these hypotheses will be described as „main variables" in this thesis.

Table 1

Hypotheses of the Thesis

	Variable	Hypothesis
H1	Gender identity	Women set significantly *higher* goals for meat reduction than men.
H2	Personal norms	*Higher* scores in personal norms correlate with setting *higher* goals for meat reduction.
H3	Descriptive social norms	*Higher* scores in descriptive social norms correlate with setting *higher* goals for meat reduction.
H4	Injunctive social norms	*Higher* scores in injunctive social norms correlate with setting *higher* goals for meat reduction.
H5	Honesty-Humility	*Higher* scores in honesty-humility correlate with setting *higher* goals for meat reduction.
H6	Openness to Experience	*Higher* scores in openness to experience correlate with setting *higher* goals for meat reduction.
H7	Meat consumption	A *higher* meat consumption correlates with setting *lower* goals for meat reduction.

Gender Identity. Research consistently shows a gender gap in meat consumption and attitudes. Men tend to exhibit greater meat attachment (Graça et al., 2015) and are less willing to reduce their meat intake (Seffen & Dohle, 2023). Conversely, women consume less meat and are more likely to adopt vegetarian diets (Çoker & Van der Linden, 2022; Greenwell et al., 2024; Hielkema & Lund, 2021;

Latvala et al., 2012; Lea et al., 2006; Oliveira & Calheiros, 2015; Reist et al., 2023; Szczebyło et al., 2022; Turnes et al., 2023; Verain & Dagevos, 2022). Based on this data, the first hypothesis (H1) is that female participants will set higher goals for meat reduction than male participants.

Norms. Both personal and social norms play a significant role in influencing meat consumption and reduction. Personal norms, reflecting internalized moral beliefs, have been linked to increased intention and willingness to reduce meat intake (Carfora et al., 2020; De Groot et al., 2013; Onwezen et al., 2013; Wang & Scrimgeour, 2021; Zur & Klöckner, 2014). Similarly, descriptive and injunctive social norms have been shown to promote pro-environmental behaviors, including meat reduction behavior, willingness and intention (Bertoldo & Castro, 2016; Carfora et al., 2017, 2020; Chen, 2022; Cialdini & Jacobson, 2021; Çoker & Van der Linden, 2022; De Groot et al., 2013; De Groot & Schuitema, 2012; Hammami et al., 2023; Hielkema & Lund, 2021; Kamal & Leby, 2023; Krispenz & Bertrams, 2020; Sparkman & Walton, 2017; Zur & Klöckner, 2014). Based on these findings, this thesis expects that higher scores in personal norms, descriptive social norms, and injunctive social norms correlate with setting higher goals for meat reduction (H2, H3, H4).

Personality. Of the HEXACO and Big Five personality traits, particularly openness to experience and honesty-humility, have been linked to pro-environmental attitudes and behaviors (Hirsh, 2010; Hopwood et al., 2024; Milfont & Sibley, 2012; Reist et al., 2023; Soutter et al., 2020; Tai-Yi & Yu, 2017) Individuals with higher honesty-humility and openness to experience also show a greater intention to reduce meat consumption (Hopwood et al., 2024). Therefore, this study hypothesizes that honesty-humility (H5) and openness to experience (H6) will correlate with setting higher goals for meat reduction. To establish better consistency, the hypothesis labels for the HEXACO model were changed from H5a and H5b to H5 and H6, deviating from the pre-registered report. The other personality dimensions will be included as exploratory variables.

Meat Consumption. The current level of meat consumption of an individual significantly influences future intentions and behavior. Higher meat consumption is generally associated with a lower intention to reduce intake (Carfora et al., 2017, 2020; Çoker & Van der Linden, 2022; Krispenz & Bertrams, 2020; Seffen & Dohle, 2023; Turnes et al., 2023; Zur & Klöckner, 2014). This may be due to lower meat

attachment and the habitual nature of eating patterns (Szczebyło et al., 2022; Zur & Klöckner, 2014). Therefore, this study expects a negative correlation between meat consumption and goal setting, meaning that higher meat consumption will be associated with setting lower goals for meat reduction (H7).

Exploratory Variables

This thesis includes several variables that have shown contradictory results in previous research or have had little research done on in the context of meat reduction. These variables will be analyzed without a hypothesis to provide further insights into their potential role in influencing meat consumption goals.

Self-Efficacy. Self-efficacy, defined as the „belief in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3), has been a widespread variable in psychology. It has been proposed that individuals' efficacy expectations are the major determinant of goal setting, willingness to expend effort, and goal persistence (Eccles & Wigfield, 2002). However, comparing findings across studies has sometimes been challenging due to varying conceptualizations and operationalizations of self-efficacy (Hamann et al., 2024).

In the context of meat reduction, some studies applying the Theory of Planned Behavior (TPB) to analyze meat reduction intention have used self-efficacy questionnaires to operationalize perceived behavioral control (Chen, 2022; Çoker & Van der Linden, 2022), most did not (Carfora et al., 2017, 2020; Kamal & Leby, 2023; Krispenz & Bertrams, 2020; Onwezen et al., 2013; Rees et al., 2018, 2018; Wang & Scrimgeour, 2021). While in the study of Chen (2022) self-efficacy correlated the strongest with intention to reduce meat (r = .57), compared to the other TPB constructs. Çoker & Van der Linden (2022) found self-efficacy to be the weakest contributor for intentions and it did not significantly predict behavior. Hopwood et al. (2024), who analyzed self-efficacy outside of the TPB model, found no correlation between generalized self-efficacy and intention to eat less meat.

Self-Control. Self-control, which is essential for regulating one's behavior in order to achieve specific goals (Diamond, 2013), may play a key role in pro-environmental behaviors. These behaviors, including meat reduction, often necessitate overcoming immediate gratification and investing greater effort compared

to conventional, non-environmental choices (Jankowski et al., 2024). A systematic review by Colombo et al. (2023) found a positive link between self-regulation processes with pro-environmental behavior. Moreover, self-control has been suggested as a crucial trait for maintaining long-term environmental goals (Wyss et al., 2022). While research indicates a connection between self-control and broader pro-environmental behaviors, empirical studies specifically examining its role in meat reduction intentions remain limited (Wehbe et al., 2022).

Non-Zero-Sum Beliefs. A zero-sum game is a mathematical model in game- and economic theory that represents a situation involving two competing entities, where one party's gain is exactly balanced by the other party's loss, with the result that the net benefit of the game is zero (Moulin & Vial, 1978). Examples include games like poker or chess. Zero-sum beliefs are the psychological perspective referring to the assumption that one person's gain must come at the expense of another's loss (Andrews-Fearon & Davidai, 2023). Zero-sum-beliefs lead to beliefs of resource scarcity and encourage less cooperative behavior, even in contexts where gains are not necessarily mutually exclusive, and therefore non-zero-sum (Meegan, 2010).

Burgstaller & Florack (2025) demonstrated that non-zero-sum beliefs predicted individuals' willingness to make sacrifices for the environment, even after accounting for social trust, belief in a just world, and social dominance orientation. Drawing on the ego-/ecosystem theory (Crocker & Canevello, 2015), they argued that individuals believing that all parties are able to profit from a situation, tend to adopt an ecosystem perspective, characterized by interconnected thinking and consideration of others. This perspective, in turn, fosters a greater willingness to make sacrifices for collective benefits, such as environmental protection, compared to individuals with a self-centered egosystem perspective. Therefore, a potential link may exist between non-zero-sum beliefs and individuals' intentions to reduce their meat consumption.

Willpower Beliefs. Lay theories about willpower, the belief that willpower is either a limited or nonlimited resource, affect self-control and goal striving in everyday life (Francis & Job, 2018). Individuals who perceive themselves as having limited willpower often struggle with effective goal pursuit, facing difficulties in both initiating and maintaining their goals (Bernecker et al., 2017; Gollwitzer, 2014). In contrast, individuals who believe willpower is non-limited, demonstrate higher engagement in

daily pro-environmental behaviors (Jankowski & Job, 2023) and increased effort on environmental tasks (though a causal relationship has not been established) (Jankowski et al., 2024).

Method

The thesis has been preregistered on the Open Science Framework, where the code of the analysis can be found as well (https://osf.io/g4zv5/). The ethics Committee of the Departmental Review Board of the Institute of Work, Economic, and Social Psychology at the University of Vienna approved this study, as part of the long-term study in which this present work is embedded (approval code = 2023/W/023).

Procedure and Study Design

This thesis uses data from a larger two-month longitudinal daily experience sampling study focused on the willingness to reduce consumption of animal products. The variables analyzed were collected within that broader study, but are examined as independent analysis in this thesis, drawing specifically from the pretest, the baseline and the first day of intervention data of the two intervention groups. This thesis is only focusing on data regarding meat products and not the other animal products tested in the original study.

Data collection for this thesis occurred in October and November 2024 and consisted of three phases. Initially, participants completed a pre-study questionnaire via an online survey using the Qualtrics Survey Software, this survey included all variables besides the meat consumption and meat reduction goal setting variables. This was followed by 14 days of daily meat consumption assessments using SEMA3 (O'Brien et al., 2024), a platform for designing and administering longitudinal daily life surveys on smartphones. Each day, participants were assigned a random two-hour window between 09:00 and 22:00 to complete the questionnaire. Push notifications were sent at the beginning and five minutes before the end of this window as reminders. On the 15th day, the participants established a personal meat reduction goal for the following four weeks. While data collection continued after the goal setting survey, only the pre-study, the meat consumption assessment and the goal-setting data are relevant to this thesis.

Sample

The sample was recruited in October 2024 through an introductory class of the psychology bachelor's program of the University of Vienna. Participants were able to be compensated with laboratory credits (required for completion of psychology bachelor's program) and monetary payment for completing a minimum number of surveys of the study.

Participants with reported eating disorders were excluded from the original study to avoid potential triggering effects of monitoring and restricting food intake. Other exclusion criteria were self-diagnosed meat product allergies and vegetarians/vegans, as they are unable to reduce meat consumption, participants who completed fewer than seven of the 14 meat consumption survey questionnaires and participants with missing data on other variables of the pre-survey or a missing meat reduction goal. Participants identifying with a gender other than „male“ or „female“ will be reported, but due to the expected low sample size, they could not be included in the analysis of H1.

Of the 129 participants who completed the survey, 65 were excluded for the following reasons, with some participants meeting multiple criteria: due to a vegetarian/vegan diet (46), filling out less than seven meat consumption survey questionnaires (11), missing the goal setting variable (25), or because of missing pre-survey data (1). The missing data is assumed to be missing completely at random (MCAR), maybe due to time constraints during the two-hour survey window or technical factors, but possible implications for removing the missing data will be discussed in the limitations section. After removing these participants, no meat-related allergies or gender other than „male" or „female" have been reported. The final sample consists of 64 participants.

Of the 64 participants included in the study, 48 identified as women (75%) and 16 as men (25%). Their age ranged between 18 and 43, with an average of 21 years (*SD* = 4.2). All participants were in their first semester of psychology bachelor's program.

Power Analysis

As this thesis analyzes data from a preexisting, larger study, the sample size was not under the researcher's control. To assess the adequacy of the sample size, post hoc power analyses were conducted using G*Power (Faul et al., 2007). The

thresholds have been chosen after Funder & Ozer (2019) and reveal that the available sample size of 64 participants provides sufficient power (of at least .80) to detect very large ($f^2 \geq .44$) and large effects ($f^2 \geq .31$), which requires a minimum of 41 participants for very large effects and 54 participants for large effects. For medium effects ($f^2 \geq .20$), a minimum of 78 participants would have been necessary, while for small effects ($f^2 \geq .10$), 151 participants would have been needed to achieve the same level of power. Very small effects ($f^2 \geq .05$) could only have been detected with a total sample size of $N \geq 295$. Past research suggests mostly small effects between the tested variables and meat reduction intention (Carfora et al., 2020; Hopwood et al., 2024; Rhodes et al., 2020; Zur & Klöckner, 2014). These findings are consistent with the small and medium effect sizes found in the correlation analysis of the main variables (the variables with hypothesis) in this thesis.

Measures

The study was conducted in German, which is why the example items are not originally in English but have been translated in this thesis for better understanding. All latent variables are calculated as the sum of their item score divided by number of items.

Goal Setting

After the two-week meat consumption assessment, the participants were given the opportunity to set a personal goal for reducing their meat consumption over the next four weeks. They could specify a percentage between 0% and 100%, with 0% indicating no intention to reduce consumption and 100% representing a motivation to completely abstain from meat during the following weeks.

Gender Identity

Participants had the option to identify as male, female, choose not to answer, or specify their preferred label in an open-ended question.

Descriptive / Injunctive Social Norms and Personal Norms

The items assessing the social and personal norms have been newly constructed but based on Severijns et al. (2023) and Seffen & Dohle (2023). A single item assessed perceived descriptive norms regarding animal product consumption („How many of the people important to you are reducing their consumption of animal

products (e.g., meat, dairy, eggs) or follow a vegan diet?”), using a seven-point scale with a verbal anchor at 1 („nobody”) and 7 („everyone”). Injunctive and personal norms were measured on seven-point scales, with every odd number verbally anchored („strongly disagree”, „disagree”, „agree”, „strongly agree”). Injunctive norms were measured using two items („People who are important to me expect me to reduce my consumption of animal products in the future or maintain a vegan diet.”) with a Cronbach’s α of .64. The personal norms factor was assessed with four items (e.g., „It goes against my principles to consume animal products.”) and had a Cronbach’s α of .90.

Personality

To measure personality along the dimensions of openness to experience, emotionality, honesty-humility, extraversion, agreeableness, and conscientiousness, the HEXACO-60 personality inventory has been used (Moshagen et al., 2014). Every dimension has been assessed with 10 items, with a seven-point scale and every odd number verbally anchored („strongly disagree”, „disagree”, „agree”, „strongly agree”). For example, the openness to experience dimension (α = .72) has items such as „I am interested in learning about the history and politics of other countries.”; emotionality (α = .82) was assessed with items like „I would be afraid if I had to travel in bad weather conditions.“; honesty-humility (α = .63) items are for example „Having a lot of money is not particularly important to me.”; extraversion (α = .84) was measured with „In general, I am quite satisfied with myself.”; agreeableness (α = .81) has items such as „I tend to be lenient when judging others.” and conscientiousness (α = .82) includes items like „Others often call me a perfectionist.”.

Actual Meat Consumption

Actual meat consumption was assessed for two weeks, using a daily questionnaire via the SEMA application (O’Brien et al., 2024). Participants were asked to identify their most recent meal (breakfast, lunch, or dinner) and indicate whether it contained meat. If they answered affirmatively, they selected the type of meat from a predefined list (e.g., „beef”, „fish”, or „mixed products of unclear origin, such as certain sausages”). Participants’ meat consumption was quantified as the average meat intake reported per meal during the assessment period. Because just one single daily survey regarding the last meal was given, this measure reflects the mean meat consumption per meal, rather than daily consumption.

Self-Efficacy

Self-efficacy was assessed using an adapted version of the political self-efficacy questionnaire from the European Social Survey (ESS) core catalogue (Bischof & Müller, 2020). The adapted version included four items (α = .74) specifically addressing aspects of animal product consumption (e.g., „From your perspective: To what extent do people like you have the ability to influence the food industry through their consumer choices?"; „How capable do you feel to take on an active role in a group that is engaged in climate policy issues?"). Items were rated on a seven-point scale, with verbal anchors on the first and last response option („not at all", „very strongly").

Self-Control

The German short-scale adaptation of the Self-Control Scale (BSCS) (Bertrams & Dickhäuser, 2009) was used to measure self-control. The scale consists of 13 items (α = .85), including four reverse-coded items for example „I am good at resisting temptations.". A seven-point scale, featuring verbal anchors for odd-numbered points („strongly disagree", „disagree", „agree", „strongly agree"), was used to measure the items.

Non-Zero-Sum Beliefs

General and environmental non-zero-sum beliefs were assessed using separate scales, both adapted from Burgstaller and Florack (2025). General non-zero-sum beliefs were measured with an eight-item scale (α = .87), including statements such as, „Normally, it is possible to resolve disagreements in a mutually beneficial way.". Environmental non-zero-sum beliefs were assessed using a three-item reverse-coded scale (α = .98) with items like „If vegan diets become more popular in society, non-vegan people will eat more meat.". The items of both scales were measured on seven-point scales, with every odd number verbally anchored („strongly disagree", „disagree", „agree", „strongly agree").

Willpower Beliefs

The willpower beliefs scale (Jankowski et al., 2024) consists of 12 items (α = .82), six of them reverse-coded, including statements like, „After a challenging mental activity, my energy is depleted, and I need to recover to recharge it.". Items were rated on a six-point scale, with verbal anchors at every response option („fully

disagree", „mostly disagree", „rather disagree", „somewhat agree", „mostly agree", „fully agree").

Analysis

The analysis was performed using RStudio 2024.09.1 based on R version 4.3.1. As specified in the preregistration, the hypotheses were first tested using a zero-order correlation analysis and then with a multiple regression analysis.

The relationships between variables and goal setting were assessed using Pearson product-moment correlation coefficients. Although the use of Pearson's *r* for Likert-scale data is subject to discussion, it was deemed appropriate for this analysis (Choi et al., 2010; Harpe, 2015; Keown & Hakstian, 1973; Wu & and Leung, 2017). Pearson correlation coefficients were interpreted using the thresholds suggested by Funder & Ozer (2019) which are proposing the thresholds especially for the context of psychological research: $|r| \geq .05$ for very small correlations, $|r| \geq .10$ for small correlations, $|r| \geq .20$ for medium correlations, $|r| \geq .30$ for large and $|r| \geq .40$ for very large correlations.

The main multiple regression model included the main variables and the goal setting variable. Subsequently, an exploratory model was calculated, incorporating all main and exploratory variables. The assumptions for the multiple regressions were checked with several methods. The normality of residuals was assessed using the Shapiro-Wilk test ($p > .05$) and homoscedasticity was assessed with residual plots and the Breusch Pagan test ($p > .05$). Multicollinearity was evaluated using Variance Inflation Factors (*VIF*'s) with a cutoff *VIF* $(\hat{\alpha}_i) > 5$. The Durbin-Watson test was used to test for the independence of residuals ($p > .05$).

Finally, an exploratory stepwise forward regression was performed, using all variables. The resulting model was then tested using multiple linear regression analysis.

Results

Descriptive statistics and exploratory analysis were conducted on all variables. The main analysis just examined the main variables with Pearson correlation and a multiple regression to test the hypotheses.

Descriptive Statistics

The 64 participants included in this study planned to reduce their meat intake on average by 36% (*M* = .36, *SD* = .20) with individual reduction goals spanning from 0% to 90%. Most participants chose to reduce meat intake by 20% (*Mode* = .20, *n* = 12), despite having a one point 0% - 100% range. The mean meat consumption frequency was *M* = .36 (*SD* = .22), meaning that participants consumed meat slightly more than once every three meals. The mean and standard deviation data of the latent variables are summarized in Table 2. The mean value of the latent variables demonstrates that, on average, participants' responses leaned slightly towards the higher end of the scale, exceeding the middle value of 4 for the seven-point scales. Participants reported particularly high levels in injunctive norms (*M* = 5.88, *SD* = 1.51), environmental non-zero-sum beliefs (*M* = 5.95, *SD* = 1.24), and general non-zero-sum beliefs (*M* = 5.03, *SD* = 0.82). The willpower beliefs mean value (*M* = 3.00, *SD* = 0.68) is slightly under the middle value of 3.5 of the six-point scale.

Table 2

Descriptive Statistics for Latent Model Constructs

	M	*SD*	Number of Items
Main Variables			
Personal Norms	4.04	1.45	4
Descriptive Norms	3.34	1.41	1
Injunctive Norms	5.88	1.51	2
Openness to Experience	4.97	0.89	10
Honesty-Humility	4.59	0.68	10
Exploratory Variables			
Willpower Beliefs[a]	3.00	0.68	12
Self-Control	4.08	0.85	13
Self-Efficacy	4.11	1.24	4
Environmental Non-Zero-Sum Beliefs	5.95	1.24	3
General Non-Zero-Sum Beliefs	5.03	0.82	8
Agreeableness	4.37	1.00	10
Conscientiousness	4.87	0.85	10
Extraversion	4.19	1.08	10
Emotionality	4.51	0.85	10

Note. $N = 64$

[a] Willpower beliefs are on a 6-point scale, all other variables on a 7-point scale.

Main Analysis

In the correlation matrix presented in Table 3, a statistically significant medium positive correlation was found between personal norms and goal setting ($r = .29$, $p < .05$), meaning that participants with higher values of personal norms set a higher goal for the reduction of their meat consumption.

Although the other variables did not correlate significantly with goal setting, the study's limited power to detect medium and small effects suggests that other relations may be present but statistically non-significant due to the limited sample size. For instance, descriptive and injunctive norms showed moderate positive correlations with meat reduction goal setting (respectively $r = .20$, $r = .22$).

Table 3 reveals other noteworthy correlations that, while not directly related to meat reduction goal setting, offer valuable insights into the data. Notably, very large and large and significant negative correlations have been shown of the three norm types with the current meat consumption (personal norms r = -.44, descriptive norms r = -.33, injunctive norms r = -.31) indicating that norms are strongly linked to meat consumption. The table shows a very large significant indication that the women in the sample have higher personal norm values than men (r = -.45).

Table 3

Correlation Matrix of the Main Variables

	Goal Setting	Gender Identity[a]	Personal Norms	Descriptive Norms	Injunctive Norms	Openness to Experience	Honesty-Humility	Meat Consumption
Goal Setting	1.00							
Gender Identity[a]	-.10	1.00						
Personal Norms	.29*	-.45***	1.00					
Descriptive Norms	.20	-.01	.32**	1.00				
Injunctive Norms	.22	-.02	.34**	.70***	1.00			
Openness to Experience	.06	-.02	.01	.01	.13	1.00		
Honesty-Humility	-.02	.15	.02	.01	.00	.08	1.00	
Meat Consumption	.01	.22	-.44***	-.33**	-.31*	-.13	.17	1.00

Note. $N = 64$, *$p < .05$; **$p < .01$; ***$p < .001$

[a] 0 = female, 1 = male

Prior to the interpretation of the multiple linear regression model, diagnostic analyses were conducted to verify the fulfillment of the assumptions for the model. The residual plot clearly exhibited a cone shape, strongly suggesting heteroskedasticity (see Appendix B, Figure B1), which was confirmed by a significant Breusch-Pagan test (p = .02). To address this heteroskedasticity, a Weighted Least Squares (WLS) model was performed. The residual plot revealed increasing residual variance with higher predictor values. Therefore, two weighting schemes were tested: weighting by the inverse of predicted values and weighting by the inverse of the squared predicted values. Both models improved the residual plots (see Appendix B, Figures B2 and B3) and the Breusch-Pagan p-values (respective p = .22 and p = .57). The model weighing by the inverse of the squared predicted values, having the higher p-value and seemingly stronger randomness of the residual plots, was selected. Following the weighting, diagnostic tests indicated that residuals were normally distributed (Shapiro-Wilk, p = .12) and independent (Durbin-Watson, p = .35). All Variance Inflation Factors (*VIF*s) were below the multicollinearity threshold of *VIF* < 5, although personal norms and gender identity showed moderately elevated *VIF* values of 3.52 each.

The resulting WLS model, presented in Table 4, was statistically significant (p < .001) and explained 34% of the variance in the goal setting variable (R^2 = .34, adjusted R^2 = .26, $F(7, 56) = 4.17$). The personal norms variable was a significant positive predictor (p = .01, β = .34) of goal setting. The *estimate* of 5.14 signifies that when all other predictor variables in the WLS model are held constant, a one-point increase in an participants' personal norms score is associated with an estimated increase of 5.14 percentage points in their goal setting level (for an observation with a weight of 1). The remaining variables did not show statistically significant results.

Table 4

Weighted Least Squares Regression Results for Main Variables

Predictor Variable	*Estimate*	*SE*	β	95% *CI*		*p*
				LL	*UL*	
Intercept	2.37	22.12	—	-41.95	46.68	.92
Gender Identity[a]	0.67	6.31	.01	-11.98	13.32	.92
Personal Norms	5.14	1.89	.34	1.36	8.93	.01**
Descriptive Norms	3.91	2.39	.25	-0.88	8.71	.11
Injunctive Norms	-1.02	1.91	-.07	-4.86	2.81	.60
Openness to Experience	-1.12	2.74	-.04	-6.62	4.37	.68
Honesty-Humility	-1.09	3.73	-.03	-8.57	6.38	.77
Meat Consumption	16.13	10.36	.16	-4.64	36.89	.13

Note. $N = 64$; CI = confidence interval; LL = lower limit; UL = upper limit; $^{**}p < .01$

This table presents results from a Weighted Least Squares regression analysis.

[a] 0 = female, 1 = male

Explorative Analysis

Table 5 describes the correlation matrix of goal setting and the exploratory variables. Higher values of environmental non-zero-sum beliefs correlate with higher meat reduction goals ($p < .05$), this correlation has a medium effect size ($r = .25$). Between the goal setting variable and the other exploratory variables, no correlations do have a significant link to goal setting. The medium correlation observed between general non-zero-sum beliefs and goal setting ($r = .23$) suggests a potential relationship that may have been statistically significant had the study greater statistical power with a larger sample.

Table 5

Correlation Matrix of the Explorative Variables

	Goal Setting	Willpower Beliefs	Self-Control	Self-Efficacy	Environmental non-zsb[a]	General non-zsb[b]	Agreeableness	Consc.[c]	Extraversion	Emotionality
Goal Setting	1.00									
Willpower Beliefs	-.12	1.00								
Self-Control	-.17	.42***	1.00							
Self-Efficacy	.05	-.05	-.09	1.00						
Environmental non-zsb[a]	.25*	-.03	-.24	.07	1.00					
General non-zsb[b]	.23	.21	.12	.05	.36**	1.00				
Agreeableness	-.02	.17	.11	.11	.24	.39**	1.00			
Conscientiousness	-.16	.25*	.55***	-.09	-.13	.06	-.18	1.00		
Extraversion	.06	.35**	.33**	.14	.00	.18	.41***	-.09	1.00	
Emotionality	.12	-.33**	-.12	.21	.08	-.20	-.32**	.04	-.23	1.00

Note. $N = 64$, $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

[a] Environmental non-zsb = Environmental non-zero-sum beliefs

[b] General non-zsb = General non-zero-sum beliefs

[c] Consc. = Conscientiousness

A multiple linear regression was conducted to assess the influence of all variables on goal setting. While the residual plot did not look cone-shaped (see Appendix B, Figure B4) and the Breusch-Pagan test was non-significant (p = .35), diagnostic tests revealed a significant deviation from residual normality according to the Shapiro-Wilk test (p = .004) and required a transformation of the goal setting variable to meet all the requirements of multiple linear regression. Three transformations were tested: cube root (p = .69), logarithmic (p = .35) and square root (p = .87). While all transformations improved residual normality, the square root transformation was chosen because of the highest Shapiro-Wilk p-value. The transformed model checked the remaining assumptions of multiple regression as well. The Variance Inflation Factors (*VIFs*) were below the threshold of 5, the residual plot and new Breusch-Pagan test did not indicate heteroscedasticity (p = .24), and the Durbin-Watson test suggested independence of the residuals (p = .20).

The squared multiple regression analysis including all variables revealed that personal norms (p = .02, *estimate* = 6.16) and general non-zero-sum beliefs (p = .003, *estimate* = 8.6) were positive significant predictors of goal setting. The other variables' p-values were over the significance threshold of $p < .05$ and therefore not significant. The overall model including all variables was not statistically significant ($F(16, 47) = 1.74$, p = .07).

To identify the best predictor variables for goal setting of meat reduction, a stepwise forward regression was performed. The initial intercept-only model had an Akaike Information Criterion (*AIC*) of 397.91. In the first step of the regression, the personal norm variable was added to the model, resulting in a significant improvement in model fit and reduction of the *AIC* to 394.12. The second step involved adding general non-zero-sum beliefs (*AIC* = 390.51), followed by mean meat consumption in the third step (*AIC* = 389.86). The last step resulted in the addition of conscientiousness, reducing the *AIC* to 389.30. No further variables led to a significant reduction of goal setting, resulting in a final model ($F(4, 59) = 4.37$, p = .004) with four variables: personal norms, general non-zero-sum beliefs, meat consumption and conscientiousness.

Selecting the appropriate calculation for this model proved to be a complex process. The Breusch-Pagan test indicated homoskedasticity (p = .15), yet the residual plot displayed a distinct cone shape (see Appendix B, Figure B5). Given the

relatively small sample size (N = 64), the Breusch-Pagan test might not have significant power, therefore a WLS model was calculated to assure homoskedasticity. Weighting by the inverse of predicted values effectively eliminated the cone shape in the residual plot and increased the Breusch-Pagan p-value to .94. However, this WLS model violated the assumption of normality of residuals (Shapiro Wilk; p = .01). A square root transformation was applied to normalize the residuals, but this reintroduced significant heteroskedasticity (Breusch-Pagan; p < .001).

Therefore, to address both assumption violations, a square root transformation model (to address residual normality) was calculated with heteroskedasticity-robust standard errors (to address heteroskedasticity), as proposed by Hayes & Cai (2007). Robust F-statistics for the model, using heteroskedasticity-robust standard errors, were calculated using the Wald statistics. No multicollinearity was present in the square root model, as all *VIF* values were under 5, the Durbin Watson test showed independence between the variables (p = .14). The results of the robust and squared multiple regression analysis including the variables selected by the stepwise forward procedure, are presented in Table 6. The Wald F-statistic indicated a significant model (F(4, 59) = 4.54, p = .003), explaining approximately 27.55% of the variance in the dependent variable (adjusted R^2 = .23). Personal norms (p = .01, β = .45) and general non-zero-sum beliefs (p = .001, β = .40) were both statistically significant positive predictors. In contrast, meat consumption and conscientiousness did not significantly predict the dependent variable in this model.

Table 6

Multiple Regression Results for Stepwise Regression Variables

Predictor Variable	*Estimate*[a]	*SE*[b]	β[a]	95% *CI*[b]		*p*
				LL	*UL*	
Intercept	-3.91	3.14	—	-10.20	2.37	.22
Personal Norms	0.79	0.27	.45	0.24	1.34	.01**
General non-zsb[c]	1.23	0.37	.40	0.49	1.97	.001**
Meat Consumption	2.79	1.59	.24	-0.38	5.97	.08
Conscientiousness	-0.04	0.38	-.14	-1.18	0.35	.28

Note. *N* = 64, CI = confidence interval; LL = lower limit; UL = upper limit. ***p* < .01.

[a] A square root transformation has been conducted with the goal setting variable.

[b] Standard errors and confidence intervals are calculated using heteroskedasticity-robust methods.

[c] General non-zsb = General non-zero-sum beliefs

Discussion

The transition towards sustainable food production and healthy global food consumption necessitates a considerable reduction in meat intake for a large portion of the world's population (Swinburn et al., 2019). Some countries such as Austria have shown a decline of meat consumption in recent years (Statistik Austria, 2024), which points towards rising willingness among its inhabitants to reduce their meat intake. The intention to reduce meat intake can be influenced by a variety of factors. Multiple studies indicated links between meat reduction intention or willingness and descriptive, injunctive and personal norms (e.g., Carfora et al., 2017; Chen, 2022; Onwezen et al., 2013; Wang & Scrimgeour, 2021), gender identity (Seffen & Dohle, 2023), personality (Hopwood et al., 2024; Reist et al., 2023; Soutter et al., 2020) and actual meat consumption (Carfora et al., 2017; Çoker & Van der Linden, 2022; Krispenz & Bertrams, 2020). The purpose of this thesis was to not only examine the associations between established constructs and the formation of a meat reduction goal but also explore the role of less researched constructs in this context by including self-efficacy, self-control, willpower beliefs, environmental non-zero-sum beliefs and general non-zero-sum beliefs.

Having higher personal norms, an individuals' moral belief and internal compass (De Groot et al., 2021), has shown consistently to have a correlation with setting higher goals for meat reduction. These findings align with prior research correlating personal norms with the intention to reduce meat intake (Carfora et al., 2020; Onwezen et al., 2013; Wang & Scrimgeour, 2021). Personal norms significantly predicted goal setting for meat reduction in the multiple regression model containing the hypothesized variables and displayed a significant zero-order correlation with a medium effect. Therefore, hypothesis 2, regarding personal norms having a positive correlation with setting a goal for meat reduction, is supported. This relationship was also consistent in the exploratory analysis, with both the multiple regression model with all predictors and the stepwise forward regression model confirming its significance.

No significant association was found between descriptive or injunctive norms and setting a goal for meat reduction, contrary to suggestions from prior research (Carfora et al., 2020; Hielkema & Lund, 2021). However, the medium-sized correlations observed in the zero-order correlation matrix (see Table 3) suggest that the non-significant results may be due to the study's limited statistical power. The high *p*-values in the multiple regression analysis could be explained by the strong correlations with the personal norms variable (see Table 3 and 4). These results align with the meta-analysis by Rhodes et al. (2020), which reported consistent but small effects of norms on behavior change. Consequently, hypotheses H3 and H4, predicting positive relationships between descriptive and injunctive norms and meat reduction goal setting, are not supported by this study. However, a potential link may still be present, implying that the extent of animal product reduction behaviors in one's social circle and the perceived attitudes of others might influence a person's willingness to reduce their meat consumption. Alternative factors, such as the operationalization of these constructs, may also account for these non-significant results. Descriptive and injunctive norms were measured with a low number of items, which complicates the assumption of an interval scale necessary for Pearson correlation analysis (Choi et al., 2010). Descriptive norms, measured with only one item, are especially susceptible to this limitation, potentially hindering the interpretability of findings related to this construct. The low item count likely also contributed to the relatively weak internal consistency observed for injunctive norms ($\alpha = .64$). This low reliability coefficient suggests weak internal consistency, indicating

that the items within the scale may not be strongly related. As a result, the measurements are more prone to random error, reducing statistical power and making it more difficult to detect true effects, thereby limiting the interpretability of the variables. This limitation also applies to the measurement of honesty-humility with a Cronbach's α of .64 as well.

Gender identity, honesty-humility, openness to experience and actual meat consumption have also emerged to not be significant predictors or correlates of meat reduction goal setting in this study. The absence of significant associations was consistent across the zero-order correlation and the main multiple regression analysis, leading to the rejection of hypotheses H1, H5, H6, which described positive relationships between meat reduction goal setting and honesty-humility (H1), openness to experience (H5) and gender identity (H6), as well as hypothesis 7, which suggested a negative correlation between actual meat consumption and goal setting. The exploratory analysis had similar non-significant results for these variables.

The observed discrepancies between these results and prior research, which has indicated correlations between meat reduction intention and the tested variables (e.g., Hopwood et al., 2024; Seffen & Dohle, 2023; Zur & Klöckner, 2014), may stem from several factors. These could include limitations of the current study, such as its small and non-representative sample size, publication bias (Guyatt et al., 2011) or other effects that will be addressed in the following section. However, these findings might also suggest that the construct measured in previous studies (such as intention or willingness) differs fundamentally from setting a meat reduction goal. The assumption that high willingness or intention to reduce meat consumption directly translates to setting higher meat reduction goals may not be correct. Instead, a distinct set of factors, besides personal norms, might primarily influence the goal-setting decision.

The explorative analysis revealed notable associations between both non-zero-sum beliefs and setting a meat reduction goal. Specifically, the correlation matrix indicated a significant correlation between environmental non-zero-sum beliefs and a non-significant but medium correlation between general non-zero-sum beliefs and the goal setting variable. Furthermore, the multiple regression analysis of all variables as well as stepwise forward regression model indicated that general non-zero-sum beliefs significantly predicted goal setting. This suggests a potential link between

believing that all parties can profit in a situation and setting a goal for meat reduction. These results may strengthen the arguments presented by Burgstaller & Florack (2025), who propose that believing in mutual benefit enhances individuals' willingness to make sacrifices for benefiting the environment.

Limitations

A significant limitation of this study is its sample, which does not accurately represent the Austrian population. The participants were exclusively first-semester psychology students, with a mean age of 21 years and a predominantly female composition (75%). Moreover, the participants' anticipation of the study's focus on eating habits may have led to a selection bias, potentially overrepresenting individuals with a heightened interest in food-related subjects compared to the broader population (even though the exact research question was not disclosed at the beginning of the study). This can be seen by the significantly higher proportion of vegetarians and vegans in this study sample (35.66%) compared to the general Austrian population. While no official numbers are available, 11% of Austrians reported to be vegetarian or vegan in a 2021 Statista online survey (Ahrens, 2024). This suggests that the given sample may be more inclined toward reducing their meat consumption compared to the general population.

The high number of vegetarians and vegans also contributed to the limitation regarding the sample size. Of the 129 participants who filled out the survey, 65 had to be excluded due to missing data and being vegetarian or vegan, as setting a goal for meat reduction would not be relevant for individuals who do not consume meat. As a result, the final sample size was reduced to 64 participants, which was not sufficient to detect the medium and small effects examined in this study. This lack of statistical power may have contributed to non-significant results in the analysis of related variables. However, the effects of personal norms and non-zero-sum beliefs have been large enough to lead to significant results.

Missing data could have had an impact as well. Although the missing data is presumed to be missing completely at random (MCAR), a potential source of bias lies in the possibility of non-random missing. If, for example, individuals with busier schedules (who might be more prone to missing surveys) also systematically differ in their meat reduction goal setting, the exclusion of their data would have skewed the results.

Due to the analysis of data from a larger, preexisting study, the researcher lacked control over the sample size and composition. This leads to the limiting factor of variable selection. The variables analyzed in relation to goal setting for meat reduction were not specifically chosen for the purposes of this thesis and it is possible that other, unexamined, factors may have a link with goal setting, enhancing the exploratory nature of this thesis. However, the use of a larger dataset offers benefits as well. It allows access to a broader range of variables and a longitudinal assessment of current meat consumption that might not have been feasible to collect independently due to resource constraints. Moreover, making use of big, already existing, data sets is a more economical approach and helps to maximize the value of participants' contributions by using as much of the available data as possible.

Implications

The findings of this thesis reveal a significant association between personal norms and the extent to which participants aimed to reduce their meat consumption. Specifically, individuals who reported stronger moral beliefs about the consumption of animal products showed a desire for a greater percentage reduction in their meat intake. Following these results, it is important to consider the impact of personal norms for interventions that want to promote higher meat reduction goals. Fostering pro-environmental and health-conscious values could be effective strategies for encouraging more ambitious reduction goals.

In general, the results imply that internal beliefs are the strongest predictors to want to reduce meat intake, compared to gender identity, social norms, personality or actual meat consumption, which this thesis did not show any link. This raises the question about the potential influence of other factors on the formulation of meat reduction goals. Environmental and general non-zero-sum beliefs may be additional factors impacting the goal setting process, as suggested by the significant correlations observed in this study. Non-zero-sum beliefs were added as exploratory factors due to the limited prior research within the specific context of meat reduction. However, the study showed that environmental and general non-zero-sum beliefs are positively related to the goal setting behavior. These findings suggest that the relationship between non-zero-sum beliefs and goal setting deserves further investigation in the context of environmental and health-conscious behavior.

The deviating results from this study compared to previous findings, may indicate that setting a meat reduction goal represents a distinct construct from meat reduction willingness, intention, or similar constructs explored in prior research. Different constructs may have an impact in influencing whether an individual is willing to reduce meat or not, compared to the question of how much a person wants to reduce their meat consumption. Therefore, further research into the relationship and differences among the measurements related to meat intake reduction might lead to valuable knowledge into the general topic of reducing meat consumption and contribute to promoting a healthier and more sustainable lifestyle.

Conclusion

This study, conducted with Austrian psychology students, provided valuable insights into the factors influencing the establishment of meat reduction goals. The results indicated a positive relationship between personal norms and the setting of such goals, with personal norms emerging as a significant predictor in regression analysis. A potential relation of non-zero-sum beliefs has been explored as well. These findings highlight the importance of personal beliefs in the process of adopting a more plant-based diet and contribute to further understanding of the determinants of dietary change towards sustainability and health.

References

Adesogan, A. T., Havelaar, A. H., McKune, S. L., Eilittä, M., & Dahl, G. E. (2020). Animal source foods: Sustainability problem or malnutrition and sustainability solution? Perspective matters. *Global Food Security*, *25*(100325). https://doi.org/10.1016/j.gfs.2019.100325

Afshin, A., Sur, P. J., Fay, K. A., Cornaby, L., Ferrara, G., Salama, J. S., Mullany, E. C., Abate, K. H., Abbafati, C., Abebe, Z., Afarideh, M., Aggarwal, A., Agrawal, S., Akinyemiju, T., Alahdab, F., Bacha, U., Bachman, V. F., Badali, H., Badawi, A., … Murray, C. J. L. (2019). Health effects of dietary risks in 195 countries, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, *393*(10184), 1958–1972. https://doi.org/10.1016/S0140-6736(19)30041-8

Ahrens, S. (2024). *Umfrage zu Essgewohnheiten in Österreich bis 2021*. Statista. https://de.statista.com/statistik/daten/studie/503929/umfrage/umfrage-zu-essgewohnheiten-in-oesterreich/

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I., & Schmidt, P. (2020). Changing Behavior Using the Theory of Planned Behavior. In M. S. Hagger, L. D. Cameron, K. Hamilton, N. Hankonen, & T. Litunen, *The Handbook of Behavior Change* (Cambridge University Press., pp. 17–31).

Andrews-Fearon, P., & Davidai, S. (2023). Is status a zero-sum game? Zero-sum beliefs increase people's preference for dominance but not prestige. *Journal of Experimental Psychology: General*, *152*(2), 389–409. https://doi.org/10.1037/xge0001282

Bahar, N. H. A., Lo, M., Sanjaya, M., Van Vianen, J., Alexander, P., Ickowitz, A., & Sunderland, T. (2020). Meeting the food security challenge for nine billion people in 2050: What impact on forests? *Global Environmental Change*, *62* (102056). https://doi.org/10.1016/j.gloenvcha.2020.102056

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman and Company.

Barreto, S. M., & Figueiredo, R. C. de. (2009). Doença crônica, auto-avaliação de saúde e comportamento de risco: Diferença de gênero. *Revista de Saúde Pública*, *43*, 38–47. https://doi.org/10.1590/S0034-89102009000900006

Bernecker, K., Herrmann, M., Brandstätter, V., & Job, V. (2017). Implicit Theories About Willpower Predict Subjective Well-Being. *Journal of Personality*, *85*(2), 136–150. https://doi.org/10.1111/jopy.12225

Bertoldo, R., & Castro, P. (2016). The outer influence inside us: Exploring the relation between social and personal norms. *Resources, Conservation and Recycling*, *112*, 45–53. https://doi.org/10.1016/j.resconrec.2016.03.020

Bertrams, A., & Dickhäuser, O. (2009). Messung dispositioneller Selbstkontroll-Kapazität: Eine deutsche Adaptation der Kurzform der Self-Control Scale (SCS-K-D). *Diagnostica*, *55*(1). https://doi-org.uaccess.univie.ac.at/10.1026/0012-1924.55.1.2

Bischof, C., & Müller, K. (2020). *European Social Survey 2008-Austria*. AUSSDA. https://doi.org/10.11587/YMKDPI

Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz. (2021, December 13). *Herz-Kreislauf-Krankheiten*. [Press release]. https://www.sozialministerium.at/Themen/Gesundheit/Nicht-uebertragbare-Krankheiten/Herz-Kreislauf-Krankheiten.html

Burgstaller, L., & Florack, A. (2025). Sacrificing for the environment: The role of nonzero-sum beliefs. *Journal of Environmental Psychology*, *103*, 102577. https://doi.org/10.1016/j.jenvp.2025.102577

Carfora, V., Caso, D., & Conner, M. (2017). Correlational study and randomised controlled trial for understanding and changing red meat consumption: The role of eating identities. *Social Science & Medicine*, *175*, 244–252. https://doi.org/10.1016/j.socscimed.2017.01.005

Carfora, V., Conner, M., Caso, D., & Catellani, P. (2020). Rational and moral motives to reduce red and processed meat consumption. *Journal of Applied Social Psychology*, *50*(12), 744–755. https://doi.org/10.1111/jasp.12710

Cheah, I., Sadat Shimul, A., Liang, J., & Phau, I. (2020). Drivers and barriers toward reducing meat consumption. *Appetite*, *149*, 104636. https://doi.org/10.1016/j.appet.2020.104636

Chen, M.-F. (2022). To combine or not to combine? Applying protection motivation theory and the theory of reasoned action to explain and predict intention to

reduce meat consumption. *Journal of Applied Social Psychology*, *52*(2), 115–130. https://doi.org/10.1111/jasp.12842

Choi, J., Peters, M., & Mueller, R. O. (2010). Correlational analysis of ordinal data: From Pearson's r to Bayesian polychoric correlation. *Asia Pacific Education Review*, *11*(4), 459–466. https://doi.org/10.1007/s12564-010-9096-y

Cialdini, R. B., & Jacobson, R. P. (2021). Influences of social norms on climate change-related behaviors. *Current Opinion in Behavioral Sciences*, *42*, 1–8. https://doi.org/10.1016/j.cobeha.2021.01.005

Cialdini, R. B., & Trost, M. R. (1998). Social Influence: Social Norms, Conformity and Compliance. In D. T. Gilbert, S. T. Fiske, & L. Gardner, *Handbook of Social Psychology* (pp. 151–192). McGraw-Hill.

Çoker, E. N., & Van der Linden, S. (2022). Fleshing out the theory of planned of behavior: Meat consumption as an environmentally significant behavior. *Current Psychology*, *41*(2), 681–690. https://doi.org/10.1007/s12144-019-00593-3

Colombo, S. L., Chiarella, S. G., Lefrançois, C., Fradin, J., Simione, L., & Raffone, A. (2023). Probing pro-environmental behaviour: A systematic review on its relationship with executive functions and self-regulation processes. *Journal of Environmental Psychology*, *92*, 102153. https://doi.org/10.1016/j.jenvp.2023.102153

Costa, P. T., & MacCrae, R. R. (1992). *Revised NEO personality inventory (NEO PI-R) and NEO five-factor inventory (NEO-FFI): Professional manual (Rev.)*. Psychological Assessment Resources, Inc.

Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F. N., & Leip, A. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, *2*(3), 198–209. https://doi.org/10.1038/s43016-021-00225-9

Crocker, J., & Canevello, A. (2015). Relationships and the self: Egosystem and ecosystem. In J. Simpson, J. Dovido, P. R. Shaver, & M. Mikulincer (Eds.), *APA handbook of personality and social psychology* (American Psychological Association, *3*, pp. 93–116). https://doi.org/10.1037/14344-004

De Groot, J. I. M., Abrahamse, W., & Jones, K. (2013). Persuasive Normative Messages: The Influence of Injunctive and Personal Norms on Using Free

Plastic Bags. *Sustainability*, *5*(5), 1829–1844. https://doi.org/10.3390/su5051829

De Groot, J. I. M., Bondy, K., & Schuitema, G. (2021). Listen to others or yourself? The role of personal norms on the effectiveness of social norm interventions to change pro-environmental behavior. *Journal of Environmental Psychology*, *78*, 101688. https://doi.org/10.1016/j.jenvp.2021.101688

De Groot, J. I. M., & Schuitema, G. (2012). How to make the unpopular popular? Policy characteristics, social norms and the acceptability of environmental policies. *Environmental Science & Policy*, *19–20*, 100–107. https://doi.org/10.1016/j.envsci.2012.03.004

De Vries, R. E. (2013). The 24-item Brief HEXACO Inventory (BHI). *Journal of Research in Personality*, *47*(6), 871–880. https://doi.org/10.1016/j.jrp.2013.09.003

Delaroche, M., Dias, V. M., & Massoca, P. E. (2023). The intertemporal governance challenges of Brazil's Amazon: Managing soybean expansion, deforestation rates, and urban floods. *Sustainability Science*, *18*(1), 43–58. https://doi.org/10.1007/s11625-022-01149-4

Diamond, A. (2013). Executive Functions. *Annual Review of Psychology*, *1*(64), 135–168. https://doi.org/10.1146/annurev-psych-113011-143750

Doran, R., & Larsen, S. (2016). The Relative Importance of Social and Personal Norms in Explaining Intentions to Choose Eco-Friendly Travel Options. *International Journal of Tourism Research*, *18*(2), 159–166. https://doi.org/10.1002/jtr.2042

Eccles, J. S., & Wigfield, A. (2002). Motivational Beliefs, Values, and Goals. *Annual Review of Psychology*, *53*(1), 109–132. https://doi.org/10.1146/annurev.psych.53.100901.135153

Epton, T., Currie, S., & Armitage, C. J. (2017). Unique effects of setting goals on behavior change: Systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology*, *85*(12), 1182–1198. https://doi.org/10.1037/ccp0000260

Fanzo, J., & Davis, C. (2021). *Global food systems, diets, and nutrition: Linking Science, Economics, and Policy* (1st ed.). Springer International Publishing AG. https://doi.org/10.1007/978-3-030-72763-5

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191. https://doi.org/10.3758/bf03193146

Fehrenbach, K. S., Righter, A. C., & Santo, R. E. (2016). A critical examination of the available data sources for estimating meat and protein consumption in the USA. *Public Health Nutrition*, *19*(8), 1358–1367. https://doi.org/10.1017/S1368980015003055

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Addison-Wesley.

Food Agriculture Organization of the United Nations. (2021). *OECD-FAO Agricultural Outlook 2021-2030*. OECD Publishing. https://doi.org/10.1787/19428846-en

Fraanje, W., & Garnett, T. (2020). *Soy: Food, feed, and land use change.* Food Climate Research Network. https://www.doi.org/10.56661/47e58c32

Francis, Z., & Job, V. (2018). Lay theories of willpower. *Social and Personality Psychology Compass*, *12*(4), e12381. https://doi.org/10.1111/spc3.12381

Funder, D. C., & Ozer, D. J. (2019). Evaluating Effect Size in Psychological Research: Sense and Nonsense. *Advances in Methods and Practices in Psychological Science*, *2*(2), 156–168. https://doi.org/10.1177/2515245919847202

Godfray, H. C. J., Aveyard, P., Garnett, T., Hall, J. W., Key, T. J., Lorimer, J., Pierrehumbert, R. T., Scarborough, P., Springmann, M., & Jebb, S. A. (2018). Meat consumption, health, and the environment. *Science*, *361*(6399). https://doi.org/10.1126/science.aam5324

Gollwitzer, P. M. (2014). Weakness of the will: Is a quick fix possible? *Motivation and Emotion*, *38*(3), 305–322. https://doi.org/10.1007/s11031-014-9416-3

Graça, J., Calheiros, M. M., & Oliveira, A. (2015). Attached to meat? (Un)Willingness and intentions to adopt a more plant-based diet. *Appetite*, *95*, 113–125. https://doi.org/10.1016/j.appet.2015.06.024

Greenwell, J., Grant, M., Young, L., Mackay, S., & Bradbury, K. E. (2024). The prevalence of vegetarians, vegans and other dietary patterns that exclude some animal-source foods in a representative sample of New Zealand adults. *Public Health Nutrition*, *27*(1), e5. https://doi.org/10.1017/S1368980023002677

Guyatt, G. H., Oxman, A. D., Montori, V., Vist, G., Kunz, R., Brozek, J., Alonso-Coello, P., Djulbegovic, B., Atkins, D., Falck-Ytter, Y., Williams, J. W., Meerpohl, J., Norris, S. L., Akl, E. A., & Schünemann, H. J. (2011). GRADE guidelines: 5. Rating the quality of evidence—publication bias. *Journal of Clinical Epidemiology*, *64*(12), 1277–1282. https://doi.org/10.1016/j.jclinepi.2011.01.011

Hamann, K. R. S., Wullenkord, M. C., Reese, G., & van Zomeren, M. (2024). Believing That We Can Change Our World for the Better: A Triple-A (Agent-Action-Aim) Framework of Self-Efficacy Beliefs in the Context of Collective Social and Ecological Aims. *Personality and Social Psychology Review*, *28*(1), 11–53. https://doi.org/10.1177/10888683231178056

Hammami, A., Garcia, A., Darcel, N., Higgs, S., & Davidenko, O. (2023). The effect of social norms on vegetarian choices is moderated by intentions to follow a vegetarian diet in the future: Evidence from a laboratory and field study. *Frontiers in Psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1081700

Han, H., Lee, M. J., & Kim, W. (2018). Promoting towel reuse behaviour in guests: A water conservation management and environmental policy in the hotel industry. *Business Strategy and the Environment*, *27*(8), 1302–1312. https://doi.org/10.1002/bse.2179

Harland, P., Staats, H., & Wilke, H. A. M. (1999). Explaining Proenvironmental Intention and Behavior by Personal Norms and the Theory of Planned Behavior. *Journal of Applied Social Psychology*, *29*(12), 2505–2528. https://doi.org/10.1111/j.1559-1816.1999.tb00123.x

Harpe, S. E. (2015). How to analyze Likert and other rating scale data. *Currents in Pharmacy Teaching and Learning*, *7*(6), 836–850. https://doi.org/10.1016/j.cptl.2015.08.001

Hassan, L. M., Shiu, E., & Shaw, D. (2016). Who Says There is an Intention–Behaviour Gap? Assessing the Empirical Evidence of an Intention–Behaviour Gap in Ethical Consumption. *Journal of Business Ethics*, *136*(2), 219–236.

Hayek, M. N., & Garrett, R. D. (2018). Nationwide shift to grass-fed beef requires larger cattle population. *Environmental Research Letters*, *13*(8), 084005. https://doi.org/10.1088/1748-9326/aad401

Hayes, A. F., & Cai, L. (2007). Using heteroskedasticity-consistent standard error estimators in OLS regression: An introduction and software implementation.

Behavior Research Methods, *39*(4), 709–722. https://doi.org/10.3758/bf03192961

Hielkema, M. H., & Lund, T. B. (2021). Reducing meat consumption in meat-loving Denmark: Exploring willingness, behavior, barriers and drivers. *Food Quality and Preference*, *93*, 104257. https://doi.org/10.1016/j.foodqual.2021.104257

Hirsh, J. B. (2010). Personality and environmental concern. *Journal of Environmental Psychology*, *30*(2), 245–248. https://doi.org/10.1016/j.jenvp.2010.01.004

Hopwood, C. J., Stahlmann, A. G., Bleidorn, W., & Thielmann, I. (2024). Personality, self-knowledge, and meat reduction intentions. *Journal of Personality*, *92*(4), 1006–1023. https://doi.org/10.1111/jopy.12864

Houghton, R. A., & Nassikas, A. A. (2017). Global and regional fluxes of carbon from land use and land cover change 1850–2015. *Global Biogeochemical Cycles*, *31*(3), 456–472. https://doi.org/10.1002/2016GB005546

Hunter, E., & Röös, E. (2016). Fear of climate change consequences and predictors of intentions to alter meat consumption. *Food Policy*, *62*, 151–160. https://doi.org/10.1016/j.foodpol.2016.06.004

Jankowski, J. M., & Job, V. (2023). The role of lay beliefs about willpower and daily demands in day-to-day pro-environmental behavior. *Journal of Environmental Psychology*, *88*, 102024. https://doi.org/10.1016/j.jenvp.2023.102024

Jankowski, J. M., Mlynski, C., Prinz, T., & Job, V. (2024). Saving the environment? That is beyond my (will)power! *Motivation Science*. https://doi.org/10.1037/mot0000379

Joanes, T. (2019). Personal norms in a globalized world: Norm-activation processes and reduced clothing consumption. *Journal of Cleaner Production*, *212*, 941–949. https://doi.org/10.1016/j.jclepro.2018.11.191

Kamal, N. A., & Leby, J. L. (2023). Factors Influencing Willingness to Reduce Meat Consumption among Students in Universiti Putra Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *13*(18), 232-248. https://doi.org/10.6007/IJARBSS/v13-i18/19962

Kemper, J. A. (2020). Motivations, barriers, and strategies for meat reduction at different family lifecycle stages. *Appetite*, *150*, 104644. https://doi.org/10.1016/j.appet.2020.104644

Keown, L. L., & Hakstian, A. R. (1973). Measures of Association for the Component Analysis of Likert Scale Data. *The Journal of Experimental Education*, *41*(3), 22–27. https://doi.org/10.1080/00220973.1973.11011405

Kincaid, D. L. (2004). From Innovation to Social Norm: Bounded Normative Influence. *Journal of Health Communication*, *9*(sup1), 37–57. https://doi.org/10.1080/10810730490271511

Krispenz, A., & Bertrams, A. (2020). Correlates of the Intention to Reduce Meat Consumption. *Sustainability*, *12*(11), 4774. https://doi.org/10.3390/su12114774

Lapinski, M. K., & Rimal, R. N. (2005). An Explication of Social Norms. *Communication Theory*, *15*(2), 127–147. https://doi.org/10.1111/j.1468-2885.2005.tb00329.x

Laskowski, W., Górska-Warsewicz, H., & Kulykovets, O. (2018). Meat, Meat Products and Seafood as Sources of Energy and Nutrients in the Average Polish Diet. *Nutrients*, *10*(10). https://doi.org/10.3390/nu10101412

Latvala, T., Niva, M., Mäkelä, J., Pouta, E., Heikkilä, J., Kotro, J., & Forsman-Hugg, S. (2012). Diversifying meat consumption patterns: Consumers' self-reported past behaviour and intentions for change. *Meat Science*, *92*(1), 71–77. https://doi.org/10.1016/j.meatsci.2012.04.014

Lea, E. J., Crawford, D., & Worsley, A. (2006). Consumers' readiness to eat a plant-based diet. *European Journal of Clinical Nutrition*, *60*(3), 342–351. https://doi.org/10.1038/sj.ejcn.1602320

McMichael, A. J., Powles, J. W., Butler, C. D., & Uauy, R. (2007). Energy and Health 5: Food, livestock production, energy, climate change, and health. *The Lancet (British Edition)*, *370*(9594), 1253–1263. https://doi.org/10.1016/S0140-6736(07)61256-2

Meegan, D. V. (2010). Zero-Sum Bias: Perceived Competition Despite Unlimited Resources. *Frontiers in Psychology*, *1,* 191. https://doi.org/10.3389/fpsyg.2010.00191

Micha, R., Michas, G., & Mozaffarian, D. (2012). Unprocessed Red and Processed Meats and Risk of Coronary Artery Disease and Type 2 Diabetes – An Updated Review of the Evidence. *Current Atherosclerosis Reports*, *14*(6), 515–524. https://doi.org/10.1007/s11883-012-0282-8

Milfont, T. L., & Sibley, C. G. (2012). The big five personality traits and environmental engagement: Associations at the individual and societal level. *Journal of*

Environmental Psychology, *32*(2), 187–195. https://doi.org/10.1016/j.jenvp.2011.12.006

Moshagen, M., Hilbig, B. E., & Zettler, I. (2014). Faktorenstruktur, psychometrische Eigenschaften und Messinvarianz der deutschsprachigen Version des 60-Item HEXACO Persönlichkeitsinventars. *Diagnostica*, *60*(2), 86–97. https://doi-org.uaccess.univie.ac.at/10.1026/0012-1924/a000112

Mottet, A., de Haan, C., Falcucci, A., Tempio, G., Opio, C., & Gerber, P. (2017). Livestock: On our plates or eating at our table? A new analysis of the feed/food debate. *Global Food Security*, *14*, 1–8. https://doi.org/10.1016/j.gfs.2017.01.001

Moulin, H., & Vial, J.-P. (1978). Strategically zero-sum games: The class of games whose completely mixed equilibria cannot be improved upon. *International Journal of Game Theory*, *7*(3), 201–221. https://doi.org/10.1007/BF01769190

O'Brien, S. T., Dozo, N., Hinton, J. D. X., Moeck, E. K., Susanto, R., Jayaputera, G. T., Sinnott, R. O., Vu, D., Alvarez-Jimenez, M., Gleeson, J., & Koval, P. (2024). SEMA3: A free smartphone platform for daily life surveys. *Behavior Research Methods*, *56*(7), 7691–7706. https://doi.org/10.3758/s13428-024-02445-w

Oliveira, A., & Calheiros, M. M. (2015). Meat, beyond the plate. Data-driven hypotheses for understanding consumer willingness to adopt a more plant-based diet. *Appetite*, *90*, 80–90. https://doi.org/10.1016/j.appet.2015.02.037

Onwezen, M. C., Antonides, G., & Bartels, J. (2013). The Norm Activation Model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour. *Journal of Economic Psychology*, *39*, 141–153. https://doi.org/10.1016/j.joep.2013.07.005

Pereira, P. M. de C. C., & Vicente, A. F. dos R. B. (2013). Meat nutritional composition and nutritive role in the human diet. *Meat Science*, *93*(3), 586–592. https://doi.org/10.1016/j.meatsci.2012.09.018

Ploll, U., Petritz, H., & Stern, T. (2020). A social innovation perspective on dietary transitions: Diffusion of vegetarianism and veganism in Austria. *Environmental Innovation and Societal Transitions*, *36*, 164–176. https://doi.org/10.1016/j.eist.2020.07.001

Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. *Science*, *360*(6392), 987–992. https://doi.org/10.1126/science.aaq0216

Povey, R., Wellens, B., & Conner, M. (2001). Attitudes towards following meat, vegetarian and vegan diets: An examination of the role of ambivalence. *Appetite*, *37*(1), 15–26. https://doi.org/10.1006/appe.2001.0406

Prestwich, A., Perugini, M., & Hurling, R. (2008). Goal desires moderate intention-behaviour relations. *British Journal of Social Psychology*, *47*(1), 49–71. https://doi.org/10.1348/014466607X218221

Pristl, A.-C., Kilian, S., & Mann, A. (2021). When does a social norm catch the worm? Disentangling social normative influences on sustainable consumption behaviour. *Journal of Consumer Behaviour*, *20*(3), 635–654. https://doi.org/10.1002/cb.1890

Rees, J. H., Bamberg, S., Jäger, A., Victor, L., Bergmeyer, M., & Friese, M. (2018). Breaking the Habit: On the Highly Habitualized Nature of Meat Consumption and Implementation Intentions as One Effective Way of Reducing It. *Basic and Applied Social Psychology*, *40*(3), 136–147. https://doi.org/10.1080/01973533.2018.1449111

Reist, M. E., Bleidorn, W., Milfont, T. L., & Hopwood, C. J. (2023). Meta-analysis of personality trait differences between omnivores, vegetarians, and vegans. *Appetite*, *191*, 107085. https://doi.org/10.1016/j.appet.2023.107085

Rhodes, N., Shulman, H. C., & McClaran, N. (2020). Changing Norms: A Meta-Analytic Integration of Research on Social Norms Appeals. *Human Communication Research*, *46*(2/3), 161–191. https://doi.org/10.1093/hcr/hqz023

Rosenfeld, D. L. (2020). Gender differences in vegetarian identity: How men and women construe meatless dieting. *Food Quality and Preference*, *81*, 103859. https://doi.org/10.1016/j.foodqual.2019.103859

Rothgerber, H. (2013). Real men don’t eat (vegetable) quiche: Masculinity and the justification of meat consumption. *Psychology of Men & Masculinity*, *14*(4), 363–375. https://doi.org/10.1037/a0030379

Sans, P., & Combris, P. (2015). World meat consumption patterns: An overview of the last fifty years (1961–2011). *Meat Science*, *109*, 106–111. https://doi.org/10.1016/j.meatsci.2015.05.012

Schultz, P. W., Messina, A., Tronu, G., Limas, E. F., Gupta, R., & Estrada, M. (2016). Personalized Normative Feedback and the Moderating Role of Personal Norms: A Field Experiment to Reduce Residential Water Consumption.

Environment and Behavior, *48*(5), 686–710. https://doi.org/10.1177/0013916514553835

Schüpbach, R., Wegmüller, R., Berguerand, C., Bui, M., & Herter-Aeberli, I. (2017). Micronutrient status and intake in omnivores, vegetarians and vegans in Switzerland. *European Journal of Nutrition*, *56*(1), 283–293. https://doi.org/10.1007/s00394-015-1079-7

Seffen, A. E., & Dohle, S. (2023). What motivates German consumers to reduce their meat consumption? Identifying relevant beliefs. *Appetite*, *187*, 106593. https://doi.org/10.1016/j.appet.2023.106593

Severijns, R., Streukens, S., Brouwer, J., & Lizin, S. (2023). Social influence and reduction of animal protein consumption among young adults: Insights from a socio-psychological model. *Journal of Environmental Psychology*, *90*, 102094. https://doi.org/10.1016/j.jenvp.2023.102094

Sheeran, P., & Webb, T. L. (2016). The Intention–Behavior Gap. *Social and Personality Psychology Compass*, *10*(9), 503–518. https://doi.org/10.1111/spc3.12265

Shilts, M. K., Horowitz, M., & Townsend, M. S. (2004). Goal Setting as a Strategy for Dietary and Physical Activity Behavior Change: A Review of the Literature. *American Journal of Health Promotion*, *19*(2), 81–93. https://doi.org/10.4278/0890-1171-19.2.81

Soutter, A. R. B., Bates, T. C., & Mõttus, R. (2020). Big Five and HEXACO Personality Traits, Proenvironmental Attitudes, and Behaviors: A Meta-Analysis. *Perspectives on Psychological Science*, *15*(4), 913–941. https://doi.org/10.1177/1745691620903019

Sparkman, G., & Walton, G. M. (2017). Dynamic Norms Promote Sustainable Behavior, Even if It Is Counternormative. *Psychological Science*, *28*(11), 1663–1674. https://doi.org/10.1177/0956797617719950

Statistik Austria. (2024). *Pro-Kopf-Verbrauch von Fleisch 2023 weiter rückläufig*. [Press release] https://www.statistik.at/fileadmin/announcement/2024/08/20240902VersorgungsbilanzentierischeProdukte2023.pdf

Stephens, S., Cobiac, L., & Veerman, J. L. (2014). Improving diet and physical activity to reduce population prevalence of overweight and obesity: An

overview of current evidence. *Preventive Medicine*, *62*, 167–178. https://doi.org/10.1016/j.ypmed.2014.02.008

Stern, M. C., Mendez, J. S., Kim, A. E., Obón-Santacana, M., Moratalla-Navarro, F., Martín, V., Moreno, V., Lin, Y., Bien, S. A., Qu, C., Su, Y.-R., White, E., Harrison, T. A., Huyghe, J. R., Tangen, C. M., Newcomb, P. A., Phipps, A. I., Thomas, C. E., Kawaguchi, E. S., … Gauderman, W. J. (2024). Genome-wide gene-environment interaction analyses to understand the relationship between red meat and processed meat intake and colorectal cancer risk. *Cancer Epidemiology, Biomarkers & Prevention : A Publication of the American Association for Cancer Research, Cosponsored by the American Society of Preventive Oncology*, *33*(3), 400–410. https://doi.org/10.1158/1055-9965.EPI-23-0717

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism. *Human Ecology Review*, *6*(2), 81–97.

Stoll-Kleemann, S., & Schmidt, U. J. (2017). Reducing meat consumption in developed and transition countries to counter climate change and biodiversity loss: A review of influence factors. *Regional Environmental Change*, *17*(5), 1261–1277. https://doi.org/10.1007/s10113-016-1057-5

Swinburn, B. A., Kraak, V. I., Allender, S., Atkins, V. J., Baker, P. I., Bogard, J. R., Brinsden, H., Calvillo, A., Schutter, O. D., Devarajan, R., Ezzati, M., Friel, S., Goenka, S., Hammond, R. A., Hastings, G., Hawkes, C., Herrero, M., Hovmand, P. S., Howden, M., … Dietz, W. H. (2019). The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. *The Lancet*, *393*(10173), 791–846. https://doi.org/10.1016/S0140-6736(18)32822-8

Szczebyło, A., Halicka, E., Rejman, K., & Kaczorowska, J. (2022). Is Eating Less Meat Possible? Exploring the Willingness to Reduce Meat Consumption among Millennials Working in Polish Cities. *Foods*, *11*(3), 358. https://doi.org/10.3390/foods11030358

Tai-Yi, Y., & Yu, T.-K. (2017). The Moderating Effects of Students' Personality Traits on Pro-Environmental Behavioral Intentions in Response to Climate Change. *International Journal of Environmental Research and Public Health*, *14*(12), 1472. https://doi.org/10.3390/ijerph14121472

Thøgersen, J. (2008). Social norms and cooperation in real-life social dilemmas. *Journal of Economic Psychology*, *29*(4), 458–472. https://doi.org/10.1016/j.joep.2007.12.004

Turnes, A., Pereira, P., Cid, H., & Valente, A. (2023). Meat Consumption and Availability for Its Reduction by Health and Environmental Concerns: A Pilot Study. *Nutrients*, *15*(14), 3080. https://doi.org/10.3390/nu15143080

United States Department of Agriculture (USDA). (2025). *Food Consumption, Nutrient Intakes, and Diet Quality | Economic Research Service*. Economic Research Service. https://www.ers.usda.gov/data-products/food-consumption-nutrient-intakes-and-diet-quality

Verain, M. C. D., & Dagevos, H. (2022). Comparing meat abstainers with avid meat eaters and committed meat reducers. *Frontiers in Nutrition*, *9*. https://doi.org/10.3389/fnut.2022.1016858

Vranken, L., Avermaete, T., Petalios, D., & Mathijs, E. (2014). Curbing global meat consumption: Emerging evidence of a second nutrition transition. *Environmental Science & Policy*, *39*, 95–106. https://doi.org/10.1016/j.envsci.2014.02.009

Wang, O., & Scrimgeour, F. (2021). Willingness to adopt a more plant-based diet in China and New Zealand: Applying the theories of planned behaviour, meat attachment and food choice motives. *Food Quality and Preference*, *93*, 104294. https://doi.org/10.1016/j.foodqual.2021.104294

Wehbe, L. H., Kasia, B., & Papies, E. K. (2022). It's Easy to Maintain When the Changes Are Small: Exploring Environmentally Motivated Dietary Changes From a Self-control Perspective. *Collabra : Psychology*, *8*(1). https://doi.org/10.1525/collabra.38823

Whitton, C., Bogueva, D., Marinova, D., & Phillips, C. J. C. (2021). Are We Approaching Peak Meat Consumption? Analysis of Meat Consumption from 2000 to 2019 in 35 Countries and Its Relationship to Gross Domestic Product. *Animals*, *11*(12), 3466. https://doi.org/10.3390/ani11123466

Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., Garnett, T., Tilman, D., DeClerck, F., Wood, A., Jonell, M., Clark, M., Gordon, L. J., Fanzo, J., Hawkes, C., Zurayk, R., Rivera, J. A., De Vries, W., Sibanda, L. M., … Murray, C. J. L. (2019). Food in the Anthropocene: The EAT– Lancet

Commission on healthy diets from sustainable food systems. *The Lancet*, *393*(10170), 447–492. https://doi.org/10.1016/S0140-6736(18)31788-4

World Health Organization. (2015). IARC Monographs Evaluate Consumption of Red and Processed Meat. *World Food Regulation Review*, *25*(6), 30.

Wu, H., & and Leung, S.-O. (2017). Can Likert Scales be Treated as Interval Scales?—A Simulation Study. *Journal of Social Service Research*, *43*(4), 527–532. https://doi.org/10.1080/01488376.2017.1329775

Wyness, L. (2016). The role of red meat in the diet: Nutrition and health benefits. *Proceedings of the Nutrition Society*, *75*(3), 227–232. https://doi.org/10.1017/S0029665115004267

Wyss, A. M., Knoch, D., & Berger, S. (2022). When and how pro-environmental attitudes turn into behavior: The role of costs, benefits, and self-control. *Journal of Environmental Psychology*, *79*, 101748. https://doi.org/10.1016/j.jenvp.2021.101748

Zur, I., & Klöckner, C. A. (2014). Individual motivations for limiting meat consumption. *British Food Journal*, *116*(4), 629–642. https://doi.org/10.1108/BFJ-08-2012-0193

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Appendix A

Abstracts in English and German

Abstract – English Version

Meat is a widely consumed and nutritious food, but high levels of consumption are associated with negative environmental and health outcomes, emphasizing the need for reduction. This thesis investigates which factors are associated with the extent of intended meat consumption reduction by having participants set a reduction goal between 0% and 100%. The examined variables include gender identity, personal norms, descriptive social norms, injunctive social norms, current meat consumption and the HEXACO personality factors of honesty-humility and openness to experience, along with exploratory variables with less prior research. Data was collected from a sample of 64 psychology students at the University of Vienna. The collection process involved a pretest, daily assessments of meat consumption and a follow-up goal-setting questionnaire. The results of the analysis show that personal norms significantly predict the amount participants planned to reduce their meat consumption ($r = .29$, $p < .01$, $\beta = .34$). The explorative analysis suggests a potential relation between general and environmental non-zero-sum beliefs and meat consumption goal setting. No significant associations were found for the other factors, indicating a need for further research in this area. These results primarily demonstrate the importance of felt moral obligation when aiming to encourage more substantial reductions in meat consumption.

Abstract – German Version

Fleisch ist ein weit verbreitetes und nahrhaftes Lebensmittel. Allerdings ist ein hoher Konsum mit negativen Auswirkungen auf Umwelt und Gesundheit verbunden, weshalb eine Reduktion des Fleischkonsums notwendig ist. Diese Arbeit untersucht, welche Faktoren mit dem Ausmaß der beabsichtigten Verringerung des Fleischkonsums zusammenhängen, indem sich die Teilnehmenden ein Reduktionsziel zwischen 0% und 100% setzten. Untersucht wurden die Geschlechtsidentität, persönliche Normen, deskriptive und injunktive soziale Normen, der aktuelle Fleischkonsum sowie die HEXACO-Persönlichkeitsfaktoren Ehrlichkeit-Bescheidenheit und Offenheit für Erfahrungen. Zusätzlich wurden explorative Variablen analysiert, zu denen eine schwächere Studienlage vorlag. Die Daten stammen von 64 Psychologie Student*innen der Universität Wien und wurden in einem Pretest, täglichen Erfassungen des Fleischkonsums und einem abschließenden Fragebogen zur Zielsetzung erhoben. Die Analyse ergab, dass persönliche Normen die geplante Reduktion des Fleischkonsums signifikant vorhersagten ($r = .29$, $p < .01$, $\beta = .34$). Die explorative Analyse deutete auf einen möglichen Zusammenhang zwischen allgemeinen und umweltbezogenen Nicht-Nullsummen-Überzeugungen und der geplanten Fleischreduktion. Für die anderen Faktoren zeigten sich keine signifikanten Zusammenhänge, was weiteren Forschungsbedarf in diesem Bereich nahelegt. Die Ergebnisse unterstreichen die Bedeutung von empfundenen moralischen Gefühlen, wenn es darum geht, eine stärkere Reduktion des Fleischkonsums zu fördern.

Appendix B

Residual Plots for Testing Homoskedasticity

Figure B1

Residual Plot of the Regression Model of the Main Variables

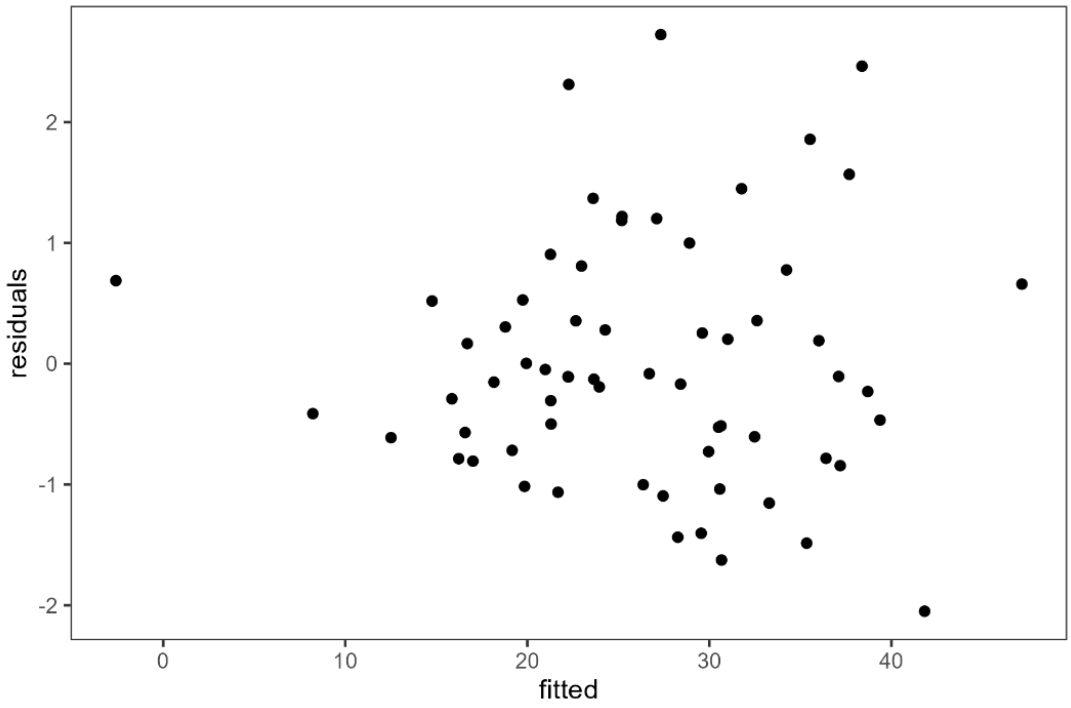
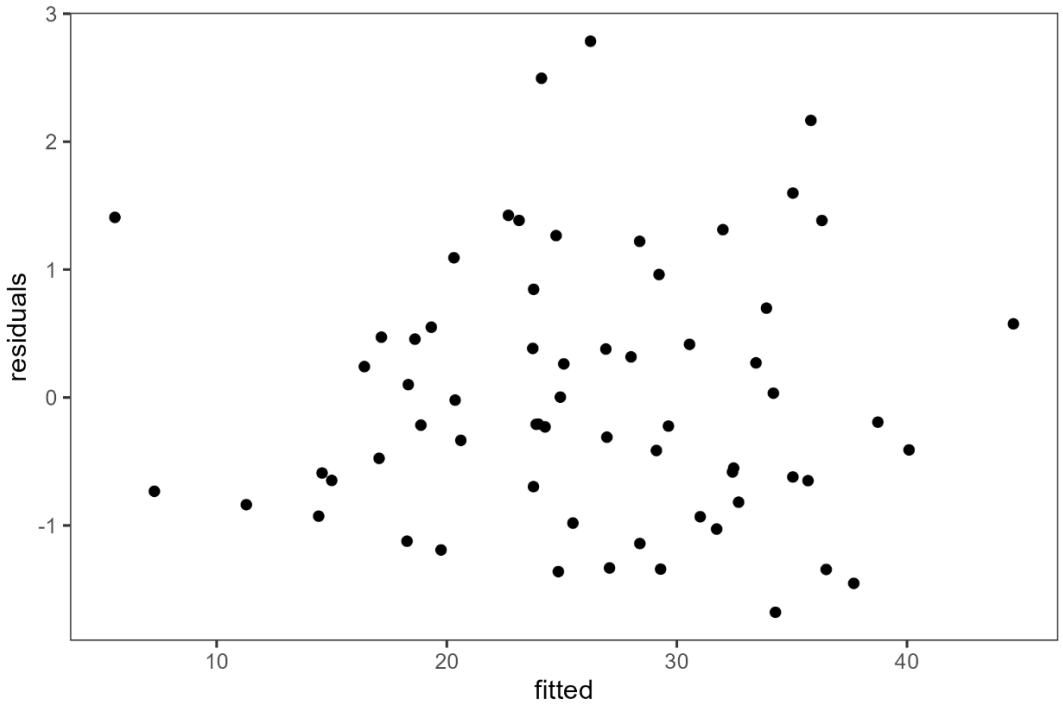


Figure B2

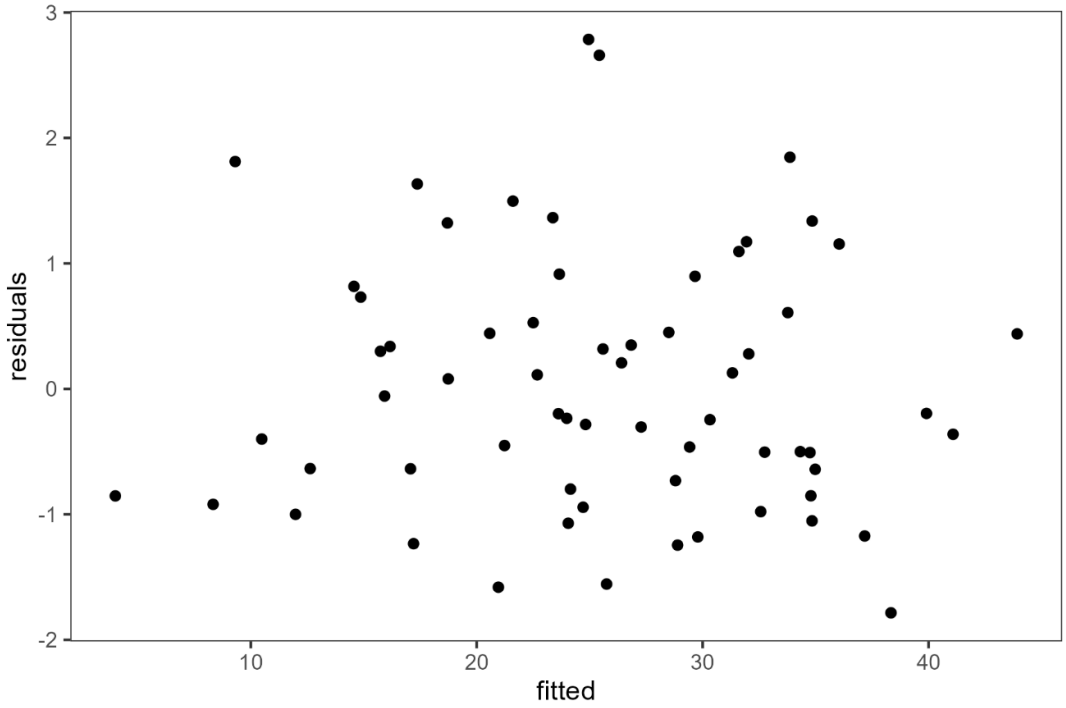
Residual Plot of the Weighted Regression Model of the Main Variables



Note. Weighting by the inverse of predicted values has been performed, this model has not been chosen to be used in the analysis.

Figure B3

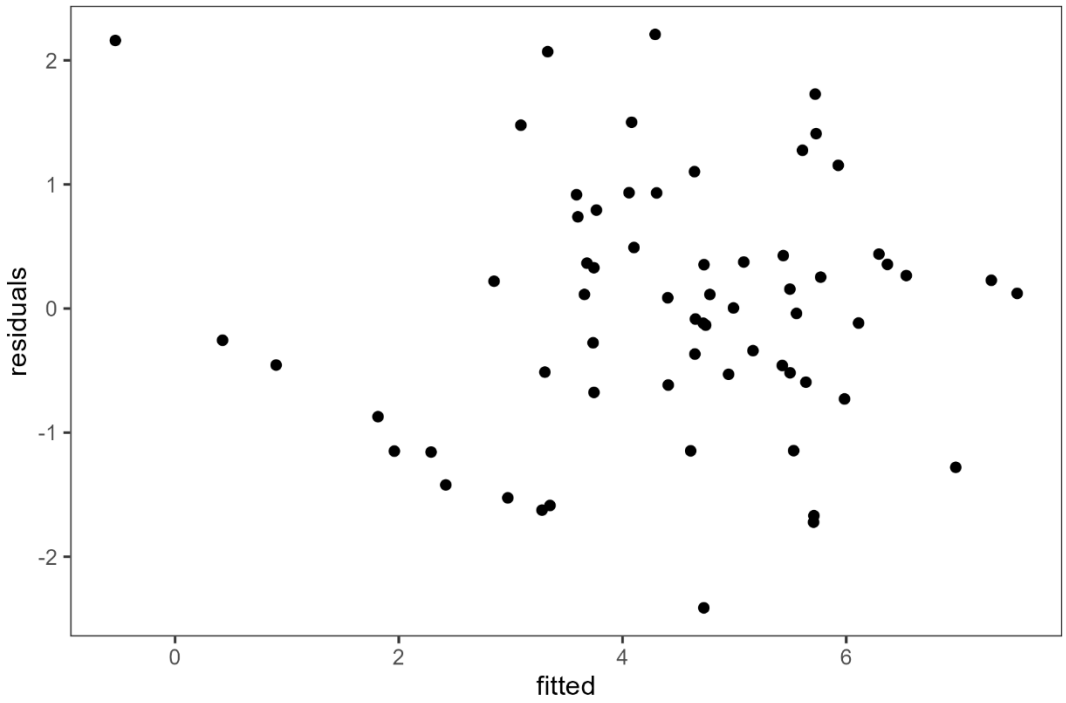
Residual Plot of the Weighted Regression Model of the Main Variables



Note. Weighing by the inverse of the squared predicted values has been performed, this model has been used in the analysis instead of B2.

Figure B4

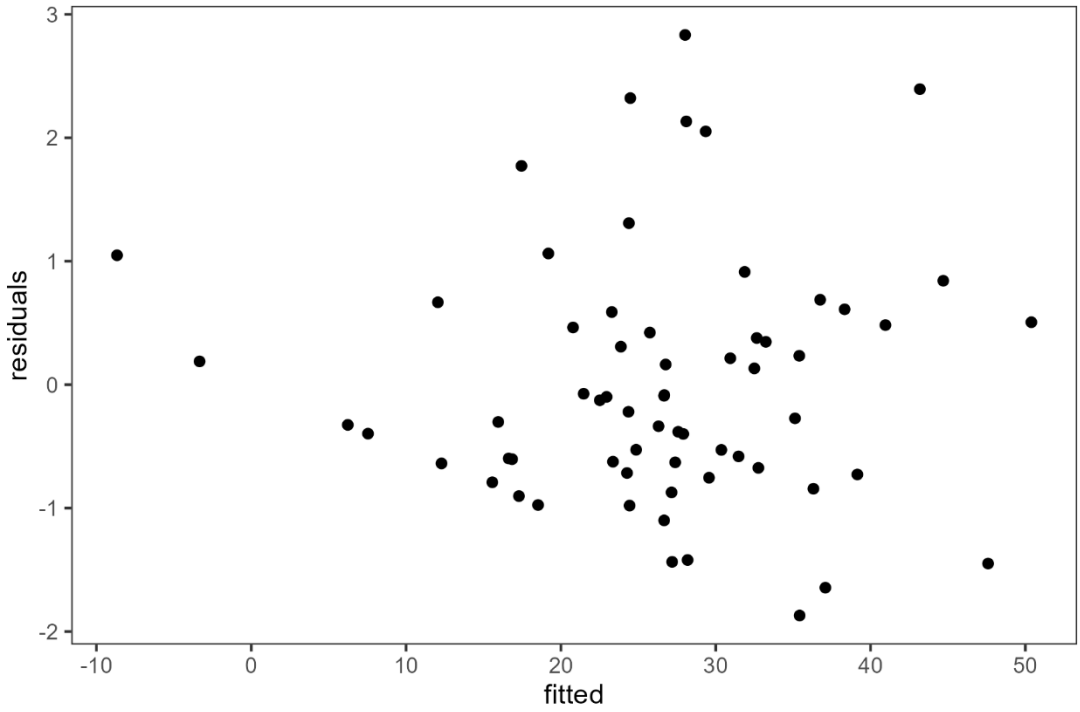
Residual Plot of the Square Root Regression Model of the All Variables



Note. The dependent variable goal setting has been transformed with a square root transformation.

Figure B5

Residual Plot of the Square Root Post Stepwise Regression Model



Note. The predictor variables of this model are the result of a stepwise forward regression. The dependent variable goal setting has been transformed with a square root transformation.

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