Beyond Good Intentions: Exploring the Attitude-Behavior Gap Across Different Generations in the Context of Meat Consumption

Luisa Viktoria Garbers

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Abstract (English)

Title: Beyond Good Intentions: Exploring the Attitude-Behavior Gap Across Different Generations in the Context of Meat Consumption

Author: Luisa Viktoria Garbers

Climate change is one of most significant global challenges, with serious consequences for the environment and public health, and meat consumption is a key factor contributing to this impact. While nearly half of the German population has the intention to reduce their meat consumption, actual consumption rates remain high, which highlights the need to understand the factors preventing people from translating their intentions into actual behavior.

Using the Theory of Planned Behavior as a theoretical framework, this study explores the roles of attitudes, subjective norms and perceived barriers in influencing meat consumption. A particular emphasis is placed on generational differences, as previous research has indicated that younger generations are generally more concerned about climate change yet tend to consume more meat than older generations.

Through a quantitative survey, the hypotheses were tested using Hayes' PROCESS model for SPSS, focusing on a double moderation analysis. The results show that attitudes toward meat consumption significantly predict meat consumption, and may particularly do so in younger generations, while subjective norms did not play a significant role. Moreover, perceived barriers were found to significantly impact meat consumption, as well as moderating the relationship between attitude and behavior.

Understanding generational dynamics is crucial for developing targeted interventions to reduce meat consumption and promote sustainable dietary behaviors. Future research should investigate the role of subjective norms and generational differences to better understand and address the attitude-behavior gap.

Keywords: meat consumption, meat consumption reduction, generational differences, theory of planned behavior, attitude-behavior gap

Resumo (Português)

Título: Além das boas intenções: Explorando a lacuna entre atitude e comportamento no consumo de carne entre diferentes gerações

Autor: Luisa Viktoria Garbers

As alterações climáticas são um dos maiores desafios globais, com sérias consequências para o ambiente e a saúde pública, e o consumo de carne é um fator-chave nesse impacto. Embora quase metade da população alemã tenha a intenção de reduzir o consumo de carne, as taxas reais mantêm-se elevadas, destacando a necessidade de compreender os fatores que impedem as pessoas de traduzirem as suas intenções em comportamentos.

Recorrendo à Teoria do Comportamento Planeado como estrutura teórica, este estudo explora o papel das atitudes, das normas subjetivas e das barreiras percebidas na influência do consumo de carne. Dá-se ênfase às diferenças geracionais, pois pesquisas anteriores indicam que as gerações mais jovens estão mais preocupadas com as alterações climáticas, mas tendem a consumir mais carne do que as gerações mais velhas.

Através de um inquérito quantitativo, as hipóteses foram testadas usando o modelo PROCESS de Hayes para SPSS, focando-se numa análise de moderação dupla. Os resultados mostram que as atitudes face ao consumo de carne são um preditor significativo, especialmente nas gerações mais jovens, enquanto as normas subjetivas não tiveram um papel relevante. Além disso, constatou-se que as barreiras percebidas influenciam significativamente o consumo de carne e moderam a relação entre atitude e comportamento.

Compreender as dinâmicas geracionais é crucial para o desenvolvimento de intervenções que reduzam o consumo de carne e promovam comportamentos alimentares sustentáveis. Futuras investigações devem examinar melhor o papel das normas subjetivas e diferenças geracionais para abordar a lacuna entre atitudes e comportamentos.

Palavras-chave: consumo de carne, redução do consumo de carne, diferenças geracionais, teoria do comportamento planejado, lacuna entre atitudes e comportamentos

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With the completion of this thesis, a chapter of my life is now coming to an end — a chapter that has taught me so much, allowed me to grow, and, despite its challenges, will always remain a fond memory. Thank you to everyone who has accompanied me to this point.

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List of Abbreviations

F	F-statistic
H1	Hypothesis 1 (2-5, respectively)
M	Sample mean
N	Total number of cases
p	p-value
r	Pearson Correlation Coefficient
SD	Standard Deviation
SE	Standard Error

Hayes PROCESS for SPSS (Model 2)

Y	Dependent variable
X	Independent variable
W	Moderator 1
Z	Moderator 2

1 Introduction

1.1 Background

Climate change is one of the biggest and most pressing global challenges of our time, with significant impacts on both the environment and public health (Van Den Berg et al., 2022). One key contributor to climate change is meat consumption (Perino & Schwickert, 2023). In this dissertation, this term refers to the consumption of warm-blooded animals (Parlasca & Qaim, 2022). During the production of meat, significant amounts of greenhouse gases are released, forests are cleared, and excessive water consumption is required (Putman et al., 2023). All these factors highlight the need for critical focus on this area, given its negative impacts and the goal of increasing efforts towards environmental sustainability.

While many people express their willingness to reduce their meat consumption and to adopt more sustainable diets, there is often a gap between this attitude and actual behavior, a phenomenon known as the attitude-behavior gap. Despite these positive trends in attitudes and intention, a significant challenge remains in translating attitudes into behavior (ElHaffar et al., 2020). Consequently, this gap suggests that while the desire to reduce meat consumption is present, there seems to be factors that prevent consumers from changing their actual behavior (Park & Lin, 2020; Schäufele & Janssen, 2021).

This dissertation places particular emphasis on generational differences, as numerous previous studies have demonstrated that the generation to which a person belongs can influence their sustainable consumption behavior (Kamenidou et al., 2020; Yamane & Kaneko, 2021), with younger generations generally expressing greater concern for sustainable consumption than older generations (Yamane & Kaneko, 2021). This is also reflected in opinions on climate protection related to meat consumption, as 83% of 14-29 years-olds reported that reducing meat consumption is necessary for climate protection, compared to only 75% of those over 60 years old (BMEL, 2023). This implies that younger people are more responsive to the environmental impacts of dietary choices, suggesting that age may be an important factor in meat consumption patterns. However, it is noteworthy that younger people tend to consume more meat than older people (BMEL, 2023; Koch et al., 2019), which is contradictory to the opinion they hold about meat consumption. This suggests that other factors may also influence meat consumption and that these factors may operate differently across generations. This interplay between attitudes and behavior, with a focus on generational differences, will be further explored in this work.

By examining how generation affects the attitude and meat consumption in general, the current research can provide valuable insights into developing targeted interventions that promote sustainable dietary behavior and consumption changes across different age groups.

1.2 Topic Relevance

Meat consumption is a highly relevant topic, primarily because high meat consumption is detrimental to the environment, health, and animal welfare (Parlasca & Qaim, 2022). The evidence in this context is extensive and indicates that a transition to a more plant-based diet instead of meat overconsumption is a more sustainable choice (Putman et al., 2023; Trübner et al., 2022) Despite these clear and evident negative effects, reducing meat consumption remains a significant challenge and requires action, especially in consumer behavior . There is still too much meat consumed, especially in Germany, where more than half of the population consumes more meat than is recommended (Koch et al., 2019). However, there is a noticeable effort to reduce meat consumption among the German population: in 2023, nearly 48% of households indicated that they are trying to consciously reduce their meat consumption (Kecskes, 2023).

Recently, a new dietary recommendation for the German population was announced, which emphasized the relevance of meat consumption reduction. Since high meat consumption increases the risk of cardiovascular diseases and colon cancer, as well as having negative environmental impacts, the recommendation has been reduced to no more than 300g of meat per week (DGE, 2024), which is half of the previous year's recommendation (Löwe, 2024). The negative consequences and the explicitness with which this recommendation is given, highlight how crucial it is to understand the challenges in changing consumer behavior.

Despite significant attention to the environmental implications of ethical consumption, a substantial gap remains between individuals' attitudes and their actual behaviors (Park & Lin, 2020). For instance, although 30% of consumers indicate that they are concerned about environmental issues, many do not translate these concerns into behavior (Young et al., 2010), highlighting the attitude-behavior gap (Vermeir & Verbeke, 2006). Understanding the factors that contribute to this gap is crucial for developing strategies that can help bridge it.

There is still a lack of comprehensive studies examining the decision-making processes and behavioral changes specifically across different age groups. Evidence shows that these differences in the context of meat consumption exist. For instance, the highest proportion of high meat consumers are found among the younger (18-34 years) to middle-aged (35-64 years)

groups (Koch et al., 2019). In contrast, there are significantly more vegetarians and vegans in the younger generations compared to older generations (Kecskes, 2023). Another difference between the age groups relates to the motives for reducing meat consumption, with these motives likely influencing meat consumption. While health is the most relevant factor for older people, the motives for younger people are more related to animal welfare and reducing the negative impact on climate change associated with lower meat consumption (Kecskes, 2023). Identifying subgroups in generations can help in developing measures to support dietary changes tailored to the specific age group, ultimately aiming to reduce meat consumption (Sares-Jäske et al., 2022).

The current thesis expands previous research by searching for generational differences in two novel variables associated with meat consumption. First, while it has been found that subjective norms, which refer to the normative pressure one perceives from others and the motivation to comply with these expectations (Ajzen, 1991; Povey et al., 2001), play a crucial role in meat consumption (Povey et al., 2001), further research is needed to understand how these norms operate within different demographic groups. Additionally, perceived barriers to reducing meat consumption have been discussed (Lea & Worsley, 2003) but there is a need for more research on these barriers, especially in relation to different generations. This research is essential to develop effective strategies for promoting more sustainable dietary practices across various population groups, especially given the immense impact of meat consumption on the environment, health, and animal welfare. It is, thus, crucial to convince consumers to reduce this consumption, eventually by analyzing the factors that influence consumption, and based on this analysis, making targeted appeals. This could be a way to counteract this consumption and its negative effects (Strässner & Hartmann, 2023). To better understand the gap between attitudes and behaviors, an integrated approach of both internal psychological factors and external contextual factors into the model may help (ElHaffar et al., 2020). Thus, this highlights the relevance behind the chosen concepts, as both subjective norms and perceived barriers combine external and psychological factors. For example, subjective norms focus on external social influences, while perceived barriers include external factors that people often cannot control. In both cases, psychological processes are involved because of the perception and evaluation of these external factors. The results of this study could make a significant contribution to research by addressing these critical variables. By gaining more understanding in this area, actions could be taken to help people reduce this gap. The age perspective is vital as it can reveal unique motivators and barriers faced by various age groups, allowing for more

targeted and effective interventions. The fact that not much is still known about the decision-making process in the context of meat consumption, as well as the behavioral change of consumers (Strässner & Hartmann, 2023), demonstrates how highly relevant the topic of this thesis is.

1.3 Academic and Managerial Relevance

The primary challenge remains altering consumer behavior in order to reduce the negative effects of excessive meat consumption. Gaining a better understanding why there is a strong will to reduce meat consumption, but still more meat than recommended is consumed in Germany, holds high academic relevance. This study attempts to fill this gap by analyzing this discrepancy, with a focus on different generations. Thus, this research can provide valuable insights into the psychological and sociocultural factors that influence meat consumption. These insights are crucial for developing effective interventions and educational campaigns aimed at promoting more sustainable diets, including meat consumption.

Moreover, from a managerial perspective, understanding the barriers and factors to reduce meat consumption of different generations is particularly relevant for companies operating in the meat alternatives sector. By identifying key segments that are more open to reduce their meat consumption, but also the ones that face stronger barriers, these companies can work on their product offerings and marketing efforts to effectively approaching different consumer segments. This targeted approach not only enhances market penetration, but also is an important step in the direction of more sustainable and environmentally friendly diets.

1.4 Research Objective

Identifying the differences in meat consumption across different generations is of great importance to establish targeted strategies that are tailored to the specific segment. This leads to the following research question:

> **RQ:** *What are the generational differences regarding the gap between the attitude towards meat consumption and the actual behavior of meat consumption, for people who have the intention to reduce their meat consumption?*

To answer this research question, a quantitative survey has been conducted, which aims to cover all age groups equally. Given that the market research company Appinio has the capability to reach these demographic groups, it was decided to distribute the survey through their panel.

Since almost half of the German population has the intention to reduce their meat consumption (Kecskes, 2023), the question arises as to why meat consumption remains so high in Germany (Koch et al., 2019). Therefore, to specifically examine these people to understand why their intentions are not reflected in their actual behavior, the survey began with a screening question to ensure that only respondents who have the intention to reduce their meat consumption were included. Moreover, participants were asked questions about their meat consumption, their attitude towards it, subjective norms and perceived barriers. The target group consisted of people living in Germany, both men and women, aged between 18 and 65 years.

1.5 Structure of the Dissertation

Chapter 1 of this dissertation gives insights into the topic relevance and its contribution to research, as well as an outline of what objective this research has and which gaps it fills. The second chapter focuses on analyzing the existing literature on topics related to meat consumption, attitudes towards it, and the perceived barriers to reducing meat consumption, while addressing generational differences and summarizing the key findings. Additionally, it presents the research gap that this study aims to investigate, as well as presenting the conceptual model underlying this study. Chapter 3 includes the methodology and design of the study, as well as describes the variables and their measurement. Chapter 4 presents the results of this study, and Chapter 5 discusses these in depth and draws important conclusions.

2 Literature Review

The literature review begins with the presentation of all the concepts relevant to the current study. After that, the research gap and conceptual model of this study will be presented.

2.1 Meat Consumption and the Intention to Reduce it

The consumption of meat, particularly processed red meat, is associated with the risk of several negative health effects, such as diabetes, stroke and cancer (Wolk, 2017). Moreover, the environmental impacts of the lowest-impact animal products are still higher than those of vegetable substitutes, highlighting one of several reasons why a dietary change is crucial (Poore & Nemecek, 2018). It is important to understand that the meat industry is one of the main causes of climate change, which makes reducing meat consumption a significant pro-environmental behavior (Çoker & Van Der Linden, 2022). Indeed, a reduction in meat consumption has been highlighted in literature as an important contribution to sustainable development, while it can be assessed across several sustainable dimension (e.g., social, environmental, health and animal

welfare) (Parlasca & Qaim, 2022). Therefore, the focus of the literature review may also extend to references that explore broader aspects of green and sustainable consumption, under which meat consumption is a key component. Sustainable consumption includes not just the consumption of seasonal products for example, but also the avoidance of high meat consumption (Trübner et al., 2022).

Of particular interest for this thesis, the German Nutrition Report highlights generational differences in meat consumption in several instances. For example, 17% of individuals aged 14-29 consume meat (multiple times) daily, compared to 24% of those aged 30-44, 19% of those aged 45-59, and 19% of individuals aged 60 and older. Differences are also evident in dietary habits, with 21% of 14-29-year-olds following a vegetarian or vegan diet, compared to only 8% of those aged 45-59. Besides the differences in meat consumption frequency, there are several dissimilarities in terms of opinions and attitudes people hold in this context. For instance, 77% of the German population agree that is important for climate protection that people eat less meat, with a significant difference between 14-29 years old (83%) and people over 60 years (75%) (BMEL, 2023). Another study showing that younger people take the environmental impacts more seriously is the one by Sanchez-Sabate & Sabaté (2019), who found that those who reduce their meat consumption for environmental reasons are more likely to be young. Moreover, Pribis (2010) investigated the relationship between age and motivations for adopting a vegetarian lifestyle and found that the motivation of younger people is more likely based on moral and environmental reasons, while middle-aged people are more driven by health reasons. Hielkema and Lund (2021) also found generational differences not only in terms of motivation but also in the intention to become vegetarian or vegan. According to their study, younger people are more likely to be in this so-called intention stage and are more likely to be vegetarian or vegan, while older people are less likely to be. This suggests that generational differences in the context of meat consumption deserve closer attention and explains why the current study focuses specifically on these differences in meat consumption and on the factors that influence it, across different generations.

One theory that can be used to analyze meat consumption is the theory of planned behavior by Ajzen (1991). It is a widely used model that addresses the relationship between attitude and behavior, and it has investigated the explanation and possible prediction of human behavior. The result of this investigation was that the three factors - attitude toward the behavior, subjective norms, and perceived control - can very accurately predict behavioral intentions, which in turn influence actual behavior (Ajzen, 1991). Numerous studies have applied this

theory specifically to meat consumption (Ali et al., 2017; Strässner & Hartmann, 2023), or more generally to sustainable consumption (D'Souza et al., 2022; Gabler et al., 2013). According to Vermeir and Verbeke (2020), various studies show that a large proportion of consumers claim that they try to make their consumption more sustainable. However, in reality, it seems that these positive (consumption) attitudes do not translate into actual (consumption) behavior. In the literature, this discrepancy is referred to as the attitude-behavior gap (Young et al., 2010). Since this thesis aims to analyze why people fail to reduce their meat consumption despite seemingly having the intention to do so, this intention term should first be defined. In the context of the theory of planned behavior, Ajzen (1991) describes it as the motivational factors that influence a person's behavior, depending on how strong their willingness to try is, and also how much effort they intend to put into this execution. It is understood as the decision and motivation of a person to perform a specific behavior (Fishman et al., 2020), in this case, meat consumption behavior. Additionally, it seems that the stronger the intention to engage in a behavior, the more likely the performance should be (Ajzen, 1991). Similarly to the case with attitudes, findings indicate that intentions are not always put into action, but only in about half of all cases. However, the correlation is significant and essential for researchers to understand how behavior can be changed (Sheeran & Webb, 2016).

The current study draws on a portion of the concepts and variables from the theory of planned behavior, namely intention, attitude and subjective norms (Ajzen, 1991), which will be further elaborated upon in the course of this study. Instead of the perceived behavioral control variable used in the theory of planned behavior, this thesis focuses on a closely related variable, namely perceived barriers. The reason for this is that perceived barriers provide a deeper understanding of the specific obstacles individuals encounter on the way to behavioral change, such as taste preferences or habits and routines (Lea & Worsley, 2003). In contrast, perceived behavioral control only refers to how difficult an individual perceives the execution of a desired to be (Ajzen, 1991). However, the focus on perceived barriers allows for precise actionable interventions to be derived from analysis, with the objective of reducing meat consumption.

The subsequent sections will look into each of the mentioned concepts (attitude, subjective norms and perceived barriers) with more depth.

2.2 Attitudes towards Meat Eating Behavior

As already mentioned, one of the variables of the theory of planned behavior is attitude. It refers to the extent a person evaluates the behavior in question positively or negatively, and it

significantly influences behavior indirectly through intention (Ajzen, 1991). As the reduction of meat consumption can be seen as environmentally friendly behavior (Ostermann et al., 2024), this section as well as other sections of this paper may take a broader view of the topic, including papers and references that consider pro-environmental behavior in general, since literature specifically focusing on meat consumption in context with the mentioned concepts is limited.

The relationship between attitude and behavior has been analyzed in several studies, and the following section will discuss some of these studies in more detail. According to Vieira et al. (2023), most psychological models agree that a positive attitude toward the environment (in this case, meat consumption) is necessary for environmentally friendly actions. This is because a positive attitude is associated with a sense of moral responsibility to act in favor of the environment. Their study concluded that attitude is a significant positive predictor of environmental behavior (e.g., food, flying, reuse), with less meat consumption being identified as a food factor in the context of environmental behavior. Thus, a positive attitude toward the environment can predict the higher frequency of environmental behavior (Vieira et al., 2023).

According to ElHaffar et al. (2020), who focused on this relationship in the context of environmental behavior as well, there exists a discrepancy between the attitude consumers have towards the environment (e.g., rising concerns) and what they actually do to protect the environment. They used the term “attitude-behavior gap” to describe it. According to them, the gap occurs when there is a discrepancy between what individuals say — specifically, their attitude towards meat consumption — and how they actually behave in this context. In other words, this gap emerges, for instance, when someone expresses a negative attitude towards consuming meat, but consumes meat at a relatively high level (ElHaffar et al., 2020). This illustrates that a relationship between attitude and behavior exists, however, with a discrepancy, which means that many people do not transform their intention and positive attitudes towards pro-environmental actions and corresponding behaviors (de Barcellos et al., 2011).

Turning to generational differences, according to Harris and Blisard (2001), it is likely that attitudes towards diets differ among various generations, which may be due to younger generations being better educated and consequently more aware of health risks (Harris & Blisard, 2001).

Furthermore, there is evidence in the literature that generation could play a role in the relationship between attitude and behavior, as two studies illustrate. In the first study, by

Magnusson et al. (2001), they found that positive attitude does not necessarily lead to corresponding behavior. Moreover, they investigated the attitudes of participants regarding milk, meat, potatoes, and bread, and found that, particularly among young generations, the attitude was positive, but the purchase frequency was low, whereas older generations were more prone to buying these products (Magnusson et al., 2001). Kamenidou et al. (2020) have analyzed the purchasing behavior and attitudes regarding organic food products across different generational cohorts (Generation Z, Generation Y, Generation X, Baby Boomers, and the Silent Generation), where the attitudes of all generations are rather positive. However, they found differences such that GenX shows the most positive attitudes, while GenZ the least positive attitudes. These results partially align with those of Magnusson et al. (2001), because they also found that the purchasing probability of these products is higher for people in the older cohorts.

To summarize, attitude may be strongly correlated with corresponding behavior, which is particularly relevant in order to derive measures to reduce meat consumption through of the attitude's predictable nature. However, there also seems to be a gap between attitude and behavior. Based on the mentioned generational differences in terms of the variables attitude and behavior, and to further analyze the relationship between attitudes towards meat consumption and meat consumption, the first hypothesis of the thesis is:

> **H1:** *Attitudes towards meat consumption have a significant effect on meat consumption behavior for individuals who intend to reduce their meat consumption, and this effect may vary across generations.*

2.3 Subjective Norms

Another variable used within the theory of planned behavior is subjective norms. The term refers to the normative pressure from peers, exerted by specific others (Ajzen, 1991). This pressure arises from what one believes others expect and the motivation to meet those expectations (Povey et al., 2001). It can be so strong that it motivates people to change their behavior and is particularly strong from people in one's immediate environment, such as family and friends (Terry & Hogg, 1996).

There are several studies that have shown the importance of social influence on environmental behavior, on diets in general, but also more specifically on meat consumption. To begin with, Higgs (2015) focused on the influence of social and cultural norms on people shaping their diets. According to the author, these norms are "potent and pervasive" (p. 42) and can have a

significant influence on this consumption behavior. She tries to explain this by positing that people like being approved by others because it feels like a reward, and hence try to avoid disapproval (Higgs, 2015). Another study that underlines the relevance of subjective norm in the context of meat consumption is the one by Povey et al. (2001). They found out that vegans and meat-eaters have difficulties keeping their current diet if they do not receive approval from their significant others, highlighting the importance and influence of social support in terms of diet decisions (Povey et al., 2001). Moreover, Sharps et al. (2021) came to the conclusion that, if people feel or perceive that their friends approve of their meat intake, participants ate meat more frequently. Hielkema and Lund (2021) focused their study more specifically on meat consumption reduction and concluded that the influence of the social environment in this context was significant as well. According to them, if a person has three or more people in their social environment who have recently reduced or stopped their meat consumption, the likelihood that this person is a meat reducer increases (Hielkema & Lund, 2021). Cheah et al. (2020) came to the result that social norms have a positive influence on attitude as well as intention in terms of their meat reduction, and that individuals are influenced interpersonally by friends and family when it comes to reducing meat, both as a barrier and as an opportunity. In a study by Michel et al. (2021), it became apparent that peer pressure influences the decision to eat meat alternatives, specifically that it is more likely that people eat meat alternatives when the peer pressure is low. Reasons for eating meat can also be understood as barriers to reducing meat consumption. These include, for example, the view that meat is part of culture and family tradition (Marinova & Bogueva, 2019). Finally, another study that proves that meat consumption is influenced by subjective norm is the one by Berndsen & Pligt (2004), which shows that meat consumption is predicted by attitude and subjective norm, which also serves as support for Ajzen's (1991) attitude-behavior gap model.

Literature demonstrates that the social environment of a person can influence its meat consumption (Ha et al., 2024; Wolfswinkel et al., 2024). However, since this thesis specifically focuses on generational differences in this context, it would be of great importance to further analyze the generational differences concerning the subjective norm. According to Liang et al. (2024), older generations are more strongly influenced by societal expectations and norms regarding sustainable consumption. In contrast, younger generations feel a perceived social pressure from external sources to engage in more environmentally friendly behavior as well, but in combination with personal values (Liang et al., 2024). Furthermore, Shin et al. (2024) investigated the consumption of plant-based meat alternatives, among other things, by Baby

Boomers, regarding the influence of subjective norm and intention, and show with their study that not only does one's own mindset towards plant-based meat alternatives influence intention, but also what other individuals might think about the consumption (Shin et al., 2024).

As this section has shown the influence of the social environment on behavior, and together with the mentioned generational differences in terms of the variables subjective norms and behavior, the second hypothesis is:

> **H2:** *Subjective norms have a significant effect on meat consumption behavior for individuals who have the intention to reduce their meat consumption, and this effect may vary across generations.*

Moreover, four studies have analyzed the impact subjective norms can have on the situation that attitude does not always result in corresponding behavior, namely the gap between attitude and behavior. First, Gabler et al. (2013) studied the social pressure consumers feel in the context of acting in an environmentally conscious way. They concluded that, if consumers lack subjective norms, they fail to behave according to their attitude and beliefs and fail to live a life that is in line with their environmentally conscious values (Gabler et al., 2013). Second, Vieira et al. (2023) have analyzed interpersonal relations as a psychological barrier for consumers and its influence in the case of a high environmental attitude to take effective action. They say that these barriers (e.g. interpersonal relations) help to explain why this gap between attitudes and behavior exists, as people might be worried that their friends would criticize them if they changed their behavior, for example (Vieira et al., 2023). Another study that highlights the influential factor subjective norms may have is the one by ElHaffar et al. (2020). They say that if interventions reinforce subjective norms, for example, this may help to bridge the gap (ElHaffar et al., 2020). Lastly, Joshi and Rahman (2015) said within their study, that social influences may be a reason why environmental attitudes have a weaker influence on consumers' pro-environmental purchasing behavior. This means that social influences may be a factor influencing the gap between consumer attitudes and their purchasing behavior (Joshi & Rahman, 2015).

Based on these results, the third hypothesis can be formulated as follows:

> **H3:** *Subjective norms have a significant effect on the gap between attitude towards meat consumption and meat consumption behavior for people who have the intention to reduce their meat consumption, and this effect may vary across generations.*

2.4 Perceived Barriers

Many people encounter obstacles on their way to reducing meat consumption. These perceived barriers can be cognitive, emotional, practical, and social. Recognizing and understanding these barriers is crucial to analyzing the attitude-behavior gap (Lea & Worsley, 2003). Some examples of barriers are the following: First, a cognitive barrier might be the belief that "humans are meant to eat meat" (Lea & Worsley, 2003, p. 508). Second, another barrier may be placed in taste preferences, i.e., the enjoyment of meat consumption and the associated problem that this enjoyment exceeds the intention to reduce consumption (Lea & Worsley, 2003). Additionally, the social environment can be a barrier, for example, when the family eats meat, making it difficult for the person to change their diet (Lea & Worsley, 2003). Furthermore, people are creatures of habit, and many may find it challenging to change these deeply ingrained routines (Lea & Worsley, 2003).

Since the current dissertation analyzes the relationship between perceived barriers and meat consumption, some more relevant literature that focuses on these variables will be presented in the following. First, that the influence of perceived barriers on consumers' behavior indeed exists was concluded by Vieira et al. (2023). According to them, these barriers include the perception that change is not necessary, goal conflicts, interpersonal relationships, lack of knowledge, and the belief that individual efforts are not needed (tokenism). With that they influence consumers behavior in terms of adopting a more sustainable lifestyle (Vieira et al., 2023). Second, the relevance of perceived barriers in the context of meat consumption has been underscored by Zur and Klöckner (2014). Their findings infer that meat consumption is strongly predicted by eating habits and that consumers often perceive meat consumption as natural and normal (Zur & A. Klöckner, 2014). Additionally, Hoek et al. (2017) conducted qualitative interviews where participants indicated that the taste of meat and their enjoyment while consuming it is a key barrier for them to reduce their meat consumption (Hoek et al., 2017). Another study highlighting the strength of enjoyment as a barrier, is the one by Pohjolainen et al. (2015). They analyzed which barriers have an influence on the decision to follow a plant-based diet (which is related to meat reduction because of plant-based being a meat substitute) and found out that enjoyment is the most important barrier. Another important aspect that underscores the relevance of generation in this study is that these authors were able to conclude with their findings was that younger people seem to have a stronger perception of barriers than older people do, which was unforeseen to them because the opposite was previously shown (Pohjolainen et al., 2015).

In fact, differences in perceived barriers can also be evident among the generations. Perceived barriers include taste preferences, and as mentioned earlier, there are differences in the daily consumption of meat between generations (BMEL, 2023), which may indicate that this preference represents a varying degree of barrier for different age groups. Additionally, younger generations perceive stronger barriers due to their eating routines and perceived health benefits of meat, but also due to taste preferences. Due to varying levels of health and environmental awareness, it is likely that older generations encounter fewer perceived barriers. Furthermore, younger generations are more likely to feel social pressure and lack support regarding meat consumption, while older generations adhere to traditional eating habits. It also implies that the importance of meat and the barriers are not static but rather evolve with age (Pohjolainen et al., 2015). This aligns with the findings of Van Der Weele and Driessen (2019), who express that the widespread assumption is that older people are more set in their consumption patterns, which represents a barrier to reducing meat consumption. However, they concluded that older individuals (aged 40-85) are more open to change than originally assumed (Van Der Weele & Driessen, 2019). This uncertainty in evidence underscores the importance of further exploring the generational variable in the context of meat consumption and the openness to necessary changes.

Given these findings, the fourth hypothesis is:

> **H4:** *Perceived barriers have a significant effect on meat consumption behavior for people who have the intention to reduce their meat consumption, and this effect may vary across generations.*

Furthermore, Vieira et al. (2020) sought explanations for the factors influencing the gap between attitude and behavior in their study and examined, among other factors, "Conflicting Goals and Aspirations" (p. 12) as a barrier and influencing factor on this gap. One item that fell under this barrier stated: "These issues are important to me, but it's too hard to change my habits" (p. 8), which also falls under perceived barriers. It was found that this had a significant impact on the gap ($M = 3.11$) (Vieira et al., 2023).

Based on these findings, the fifth and last hypothesis is:

> **H5:** *Perceived barriers have a significant effect on the gap between attitudes towards meat consumption and meat consumption behavior for people who have the intention to reduce their meat consumption, and this effect may vary across generations.*

2.5 Research Gap

Despite significant attention to the environmental, health, and ethical implications of meat consumption, a substantial gap remains between individuals' attitudes and their actual behaviors. This discrepancy is often referred to as the attitude-behavior gap (ElHaffar et al., 2020). Understanding the factors that contribute to this gap is crucial for developing strategies that can help bridge it. While comprehensive studies examining the decision-making processes and behavioral changes, specifically across different generations, are lacking, such research is vital as it can reveal unique motivators and barriers faced by various age groups, allowing for more targeted and effective interventions.

In summary, further research is necessary to bridge the gap between attitude and behavior, to explore generational differences in meat consumption and, ultimately, to reduce meat consumption in general. Studies have already examined the relationship between the intention to reduce meat consumption and gender (Fantechi et al., 2024; Seffen & Dohle, 2023). At present, however, there is no known study that has analyzed the generation variable in the context of the attitude-behavior gap in meat consumption, together with a focus on subjective norms and perceived barriers.

2.6 Full Conceptual Model

Figure 1 illustrates the relationships between the variables attitude towards meat consumption, subjective norms, and perceived barriers, and their impact on meat consumption, and on the attitude-behavior gap in the context of meat consumption. A particular focus is placed on differences between generations. The model in general looks the same for all generations, however, it is hypothesized that the effects and interactions differ between generations.

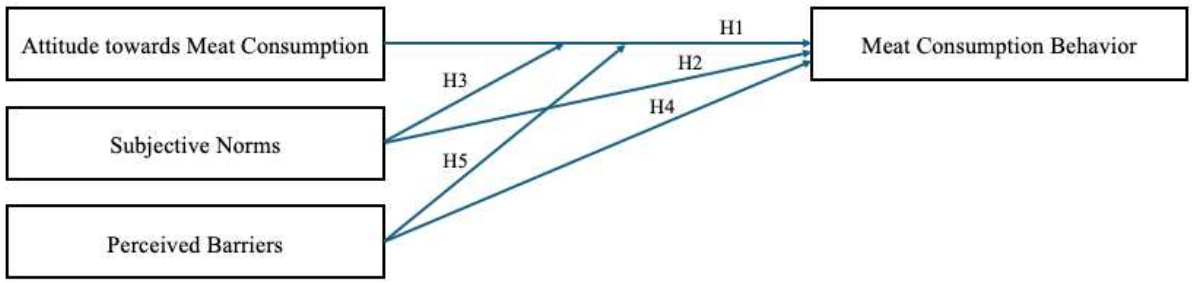

Figure 1: Conceptual Model

3 Methodology

The current chapter on methodology will now describe the procedure and the research approach used to test the hypotheses.

3.1 Participants

As no cases had to be removed during the data preparation, the entire sample of 1013 participants is described below. People between the ages of 18 and 65 took part in the survey, with a median age of 38 years and an equal proportion of men and women. Because this study focuses on generational differences, the sample was divided into four different age groups: GenZ (13-27 years), Millennials (28-42 years), GenX (43-57 years) and Baby Boomers (58-72 years) (Kecskes, 2023). However, since the survey only reached people between 18 and 65 years, the GenZ cohort only includes people older than 18 years and the Baby Boomer cohort people up to 65 years. The frequency of each generation can be seen in Table 1.

		GenZ	Millennials	GenX	Baby Boomers
N	Valid	212	412	302	87

Table 1: Frequencies of Generational Cohorts

In terms of working status, the majority are employed (employed/self-employed) at 73.9%, followed by freelancers or people being self-employed at 7.1% and not employed/not working at 4.8%. In terms of marital status, 45.9% are married / in a registered partnership, 26.2% are in a relationship and 23.5% are single. Most of the participants have completed vocational training (31.4%), followed by middle school / MSA / Polytechn., then high school (10^{th} grade) with 16.3%, bachelor's degree (10.3%) and master's degree (10.2%). In terms of children, 57.5% have at least one child (under 18 years) in the household. For more details on the demographic information, please see Appendix 2.

3.2 Research Approach

To test the hypotheses and provide an answer to the research problem, quantitative data in the form of an online survey were collected. This survey was created within the tool of Appinio, a Hamburg-based company specializing in high-quality market research, mainly in the business-to-business sector. Working there alongside my master studies allowed me to distribute my survey free of charge through their panel, whereby it was launched in German language. This

was to avoid misunderstandings while participants completed the survey, particularly since older people also take part in the survey and may not understand English as well as they understand German. The target group of this survey were people residing in Germany. The survey was published on June 24, 2024, and within a few hours, a total sample of 1013 was reached. An English translation of the survey can be found in the Appendix 1.

3.3 Study Design

The survey began with a consent form which included information about the general procedure, the estimated duration and briefly introduced the participants to the topic of the survey. The form concluded with the information that continuing with the survey constitutes consent to participate. The questionnaire began with a question about whether the participant intends to change their meat consumption in the future. Because this study focusses on people who have this intention, the survey ended for participants who answered with “Not change”, “Somewhat increase” or “Greatly increase”. Due to a question in the survey that asked for the influence of the partner on the survey participant, the second question in the survey was about their marital status, so that for people who answered this question with “Single”, the specific questions about partner influence were not displayed later in the survey. After that, the participants were asked about their current and intended meat consumption, including the frequency of processed and unprocessed meat. The second part of the survey was about their attitude towards meat consumption, continuing with questions on subjective norms by asking what the social circle thinks about their meat consumption and their motivation to comply with those opinions. It continued with questions about reasons or barriers towards their meat consumption reduction, and further with the social desirability questions. The survey ended with some demographic questions, and finally with the possibility to give feedback towards the survey, which is vital for improving future studies. To ensure that participants paid attention throughout the whole survey, an attention check was included, which the survey tool automatically implemented. In this attention check, the participant was asked to select the answer option with four letters, with only one of the options being correct, namely “lake”. The questionnaire can be found in the attachment (Appendix 1).

3.4 Measurement of Variables

In the following section, each variable of the conceptual model will be described, with an explanation on how it was measured.

3.4.1 Independent Variables

The first independent variable is attitude. Participants of the study were asked four questions about their attitude towards meat consumption, for example: “For me to eat meat is: bad-good” and “For me to eat meat is: worthless-valuable”, on a 5-point scale. This scale was derived from D’Souza et al (2022).

Next, the scale to measure subjective norm was taken from Povey et al. (2001), who first measured the normative pressure from the participants’ five specific others (friends, family, health experts, colleagues, and partner). Participants were asked to indicate to which extent the four or five statements applied to them, for example: “My family thinks I should replace my meat consumption”, by answering on a 7-point scale from “Not at all” to “To a very great extent”. After that, the motivation to comply with their specific others was measured with, again, four to five statements, an example being: “With regards to your meat consumption, how much do you want to do what your family thinks?”, also on a 7-point scale from “not at all” to “very much”. However, as it was assumed that not every participant has a partner, at the beginning of the survey they were asked about their marital status (Povey et al., 2001). Participants who answered that they are single, divorced / living apart or are widowed were not presented with the question that included “partner” as the specific other.

The third independent variable was perceived barriers. The survey included questions that asked participants about to what extent they agree with statements about barriers to reduce meat consumption, for example: “I find it difficult to reduce my meat consumption …because I don’t want to change my eating habits or routines. / … because I think humans are meant to eat meat”. Participants were presented with a scale from 1 (*strongly disagree*) to 7 (*totally agree*). These measurement items were taken from Cheah et al. (2020).

3.4.2 Dependent Variable

The dependent variable of this study, which was meat consumption, was taken from Strässner and Hartmann (2023). To obtain an index of how meat consumption varies among the participants, they were asked about their frequency of unprocessed and processed meat consumption per week, “Approximately how often do you eat unprocessed meat (e.g. steak, chicken breast, beef filet)?”, and “Approximately how often do you eat processed meat (e.g. sausage, cold cuts)?”, with answer options ranging from “Several times a day” (8), indicating high meat consumption, to “Never” (1), indicating low meat consumption.

3.4.3 Covariate Variables

In this study, a social desirability scale was used as a covariate. Its aim was to control for possible bias in respondents' answers, which can occur because people tend to answer in a socially acceptable way rather than truthfully. This bias is particularly relevant when the survey includes questions on sensitive areas or personal behaviors, as meat consumption is. For instance, questions regarding meat consumption might lead respondents to underreport their actual consumption in order to give socially desirable answers. Therefore, it was crucial to include the social desirability scale as a covariate, ensuring that the analysis was based on genuine responses rather than those aimed at conforming to social norms (Haghighat, 2013). Participants were presented with four questions regarding their social desirability, an example being: „Do you always practice what you preach to people?", "If you say to people that you will do something, do you always keep your promise no matter how inconvenient it may be?" and "Would you ever lie to people?". Each question could be answered with either „Yes" or „No". This scale includes one reverse-coded item, otherwise, participants receive one point for answer "Yes" to the questions. Values ranging from 0 (low tendency) to 4 (high tendency) could be obtained by summing the values for the individual items (Haghighat, 2013).

4 Results

This chapter aims at presenting the study's main findings. It starts with an overview of how the data needed to be prepared for the analysis and further with an assessment of the used scales. Before the in-depth analysis and hypotheses tests are presented, an overview of the sample and the descriptive statistics will be given. It ends with the analysis of all five hypotheses, which is fundamental for the conclusion and discussion in the subsequent chapter.

4.1 Data Preparation and Cleaning

The survey was distributed via the panel of Appinio, then the results were exported and uploaded into SPSS. A total of 1013 people took part in the survey. Since the survey went live through Appinio's panel, and their panel system automatically excludes participants who do not complete the survey and, instead, resamples, these 1013 completed the survey. The demographic information such as gender, age, place of residence, income, etc., was not collected via the actual survey, as this is already stored in Appinio's data base and can be automatically retrieved for each participant. As all participants had answered the attention check correctly, none of the 1013 participants had to be excluded so that the data analysis could be carried out with the entire sample.

One of the items of the social desirability scale had to be recoded because all answers marked "Yes" (=1) indicated a strong social desirability tendency, except for the question "Would you ever lie to people?". Here, the answer option "No" had to be recoded to "1" so that it also indicates high social desirability.

4.2 Scale Assessment

Before the items were averaged and a final variable with the final score was created, a scale assessment had to be carried out to ensure measure consistency. Cronbach's α was calculated for each scale where a set of items measured a specific concept. The results are summarized below.

For meat consumption, two items were used. The analysis resulted in a Cronbach's α of .75, which is regarded as satisfactory (Bland & Altman, 1997). The scale on attitude towards meat consumption comprised four items, its reliability analysis resulted in a value of .92, which indicates high internal consistency (Bland & Altman, 1997) . The subjective norms scale consisted of ten items. The calculated Cronbach's α was .96, which also indicates a high degree of consistency (Bland & Altman, 1997). Four items were used for the perceived barriers to reduce meat consumption. This yielded a Cronbach's α of .80, indicating satisfactory consistency (Bland & Altman, 1997). Finally, the social desirability scale was analyzed, where only a value of .49 was calculated, indicating low consistency. Consequently, the data related to this variable should be analyzed with caution.

The assessed reliability of all concepts, with the exception of social desirability, based on their Cronbach's α-values, shows that their reliability is high. This means that the composite score of several items can be used for further analysis. For all mentioned variables the average was calculated, while for subjective norms each response to the normative pressure of the social circle was first multiplied by the corresponding motivation to meet these expectations (Povey et al., 2001). For social desirability, it was calculated how many of the participants answered more than two of the four questions in a way, that is seen as socially desirable. This score then describes the proportion of the sample that have a high social desirability tendency. This calculation was adopted from the original paper (Haghighat, 2013). For more details on the scale reliability, please see Appendix 3.

4.3 Descriptive Statistics

The study involved several variables related to meat consumption, including the frequency of meat intake, intention to reduce meat consumption, attitude towards meat consumption, subjective norms, perceived barriers, and social desirability. To gain a comprehensive understanding of the participants' meat consumption patterns, the mentioned variables will be briefly described and analyzed in the next section.

The descriptive statistics show that the consumption of unprocessed meat have a mean of 4.47 (*SD* = 1.53), while the consumption of processed meat have a mean of 4.94 (*SD* = 1.68), on a scale from 1 ("Never") to 8 ("Several times a day"). All participants have the intention to decrease their meat consumption, with 78.9% stating that they intend to somewhat decrease it and 21.1% that they intend to greatly decrease it.

In terms of independent variables, the attitude towards meat consumption has a mean of 3.38 (*SD* = 0.94). Since the subjective norm is made up of the perceived expectations of others as well as the motivations to comply with these, the two corresponding items were multiplied together for each reference group and the products were calculated from this in each case (Povey et al., 2001). The scale is coded in a way that a higher value indicates that the influence of the social circle is rather low, while a value closer to 1 means that the influence is greater and the external pressure is higher. The mean for the overall score is 21.11 on a scale from 1 to 49 (*SD* = 14.38). When looking at the specific items, it shows that the norm and the motivation to comply with it is higher for health experts (*M* = 16.79, *SD* = 13.74), followed by the partner (*M* = 18.55, *SD* = 14.86). The influence of family and friends is a little bit weaker, with *M* = 21.80 (*SD* = 16.05) and *M* = 22.16 (*SD* = 15.96) respectively. The perceived barriers were measured based on four items. The strongest barrier to reduce meat consumption is the enjoyment of eating meat (*M* = 4.58, *SD* = 1.55), and the weakest is the difficulty to change eating habits or routines (*M* = 4.20, *SD* = 1.63).

Social desirability was measured based on a scale from 0 (low tendency) to 4 (high tendency). The mean of 2.09 (*SD* = 1.22) shows that the sample has medium tendency to report socially desirable behavior. The proportion of participants with a high or low tendency towards social desirability, based on a cut-off level (>2 socially desirable answers) recommended by Haghighat (2013), show that, based on this computation, 40.9% have a social desirability tendency. Please see Appendix 4 for a more detailed view into the descriptive statistics.

4.4 Bivariate Correlations

The bivariate correlations were analyzed to assess the relationships between the variables, namely attitude, subjective norms, perceived barriers, meat consumption, social desirability, educational level, age and gender and can be found in Table 2. The results show that attitude has a significant positive relationship with actual meat consumption. The Pearson correlation coefficient of .40 indicates a moderate positive correlation, which suggests that consumers who have a more positive attitude towards meat consumption are more likely to consume meat more frequently. The relationship is statistically significant with a p-value of less than .05. This means that this correlation is unlikely to be due to chance. The correlation between subjective norms and meat consumption is negative (r = -.33), indicating that consumers who perceive less social pressure from their social circle to reduce their meat consumption, are more likely to consume meat more frequently ($p < .05$). A moderate positive correlation was also detected between perceived barriers to reduce meat consumption and the actual meat consumption (r = .44, $p < .05$). This implies that people who perceive more barriers to reducing their meat consumption, actually tend to consume more meat. Social desirability is not significantly correlated with meat consumption (r = .05).

Regarding demographics, the correlation of age and meat consumption had a weakly negative and significant correlation (r = -.09, $p < .05$), indicating that older people tend to have a slightly lower meat consumption. The correlation between gender and meat consumption is significant positive (r = .13, $p < .05$), which suggests that gender might also influence meat consumption, with men consuming more meat than women. Lastly, there is a negative and significant correlation between meat consumption and educational level (r = -.08, $p < .05$), showing that as the level of education increases, meat consumption slightly decreases.

Correlations

		MC_Mean	Att_Mean	SN_Score	PB_Mean	Social_Desirability_Score	Gender	Age	Educational Level
MC_Mean	Pearson Correlation	1	,401**	-,334**	,436**	0,045	,126**	-,088**	-,079*
Att_Mean	Pearson Correlation	,401**	1	-,178**	,480**	,079*	,062*	0,043	-,195**
SN_Score	Pearson Correlation	-,334**	-,178**	1	-,272**	-,124**	-,206**	-0,002	,073*
PB_Mean	Pearson Correlation	,436**	,480**	-,272**	1	0,035	,110**	-,069*	0,053
Social_Desirability_Score	Pearson Correlation	0,045	,079*	-,124**	0,035	1	-,070*	0,036	-,123**
Gender	Pearson Correlation	,126**	,062*	-,206**	,110**	-,070*	1	0,040	,073*
Age	Pearson Correlation	-,088**	0,043	-0,002	-,069*	0,036	0,040	1	0,035
Educational Level	Pearson Correlation	-,079*	-,195**	,073*	0,053	-,123**	,073*	0,035	1

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

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

Table 2: Bivariate Correlations

4.5 Results of Hypotheses Tests

The next section deals with the testing of each of the five hypotheses, that happened using Hayes' PROCESS software imported into SPSS.

4.5.1 Comparative Analysis

A comparative analysis was conducted to see if there are differences in meat consumption between the generations. As mentioned before, the sample was divided into four generation cohorts. This resulted in 212 participants from GenZ, 412 from Millennials, 302 from GenX and 87 participants belonging to the Baby Boomer cohort. The results of the ANOVA test show that there are significant differences in meat consumption between the different generations, $F(3, 1009) = 4.43$, $p = .004$. However, when comparing specific groups through post hoc tests, only the comparison between Millennials and GenX showed a statistically significant difference, $M_{diff} = 0.38$, $p = .003$. For more details, please see Appendix 5.

4.5.2 Double Moderation Analysis using PROCESS

To test the full set of hypotheses, which involves a double moderation, it was decided to test Hypotheses 1 to 5 using Hayes' PROCESS software for SPSS with bootstrapping set to 10,000 samples and using Model 2.

Initially, the sample was filtered by the specific generation to ensure that the output was based only on the results of participants belonging to each respective generation. Meat consumption was set as the dependent variable (Y), and attitude as the independent variable (X). Subjective norms was selected as the moderator variable W, and perceived barriers as moderator variable Z.

Starting with H1, the output of PROCESS shows a positive relationship between attitude and meat consumption, which is significant for all generations ($p < .05$). This indicates that the more positive the attitude towards meat consumption, the higher the meat consumption frequency. Consequently, H1 is supported.

Moving on to H2, which examines the effect of subjective norms on meat consumption, the analysis reveals that the effect is not significant in any of the generations ($p > .05$). Therefore, H2 is not supported.

H3, which suggests an interaction between subjective norms and attitudes, is significant for GenZ ($p = .011$), while non-significant for the three other generations ($p > .05$). For GenZ,

when subjective norms are one SD below the mean (8.02), a 1-point increase in attitudes leads to a 0.98-point increase in meat consumption ($SE = 0.17$, $p < .05$) when perceived barriers are one SD below the mean (3.25), to a 0.66-point increase in meat consumption ($SE = 0.15$, $p < .05$) when perceived barriers are average (4.50) and to a 0.35-point increase in meat consumption ($SE = 0.17$, $p < .05$) when perceived barriers reach a high level (5.75). When subjective norms are average (21.23), the effect is still significant when perceived barriers are low or average but becomes non-significant when perceived barriers reach a high level (5.75). Lastly, when subjective norms reach a high level (40.25), a 1-point increase in attitudes leads to a 0.47-point increase in meat consumption ($SE = 0.14$, $p < .05$) when perceived barriers are low (3.25). However, the effect becomes non-significant when perceived barriers are average or high. Thus, H3 is partially supported, highlighting generational differences because it is significant only for GenZ.

H4 investigates the relationship between perceived barriers and meat consumption. The results indicate a positive and significant relationship between these variables across all generations ($p < .05$). H4 is therefore supported, meaning that the stronger the perceived barriers, the higher the meat consumption.

For H5, the interaction between attitudes and perceived barriers needed to be analyzed, which is significant for all generations ($p < .05$). For GenZ, when perceived barriers are one SD below the mean (3.25), a 1-point increase in attitudes leads to a 0.77-point increase in meat consumption ($SE = 0.13$, $p < .05$). When perceived barriers are average (4.50), a 1-point increase in attitudes leads to a 0.45-point increase in meat consumption ($SE = 0.11$, $p < .05$). However, when perceived barriers reach a high level (5.75), the relationship between attitude and meat consumption becomes non-significant ($p = .350$). For Millennials and GenX, this relationship becomes non-significant as well at the point where perceived barriers reach a high level (5.75 and 5.63, respectively). However, for Baby Boomers, the relationship between attitude and meat consumption becomes non-significant when perceived barriers are average (4.25), as well as when they reach a high level (5.25), with p-values of .067 and .739, respectively. Altogether, H5 is supported, while there may be differences between generations, particularly when looking at the different level of perceived barriers, that may have an influence on the relationship between attitude and meat consumption becoming non-significant. For further details of the results, please see Appendix 6.

5 Discussion

After the survey results have now been evaluated and analyzed, the next chapter discusses the results in more detail. A conclusion will be drawn, and implications for academia and management will be provided. Finally, limitations of the study will be mentioned, and a perspective on future research will be given.

5.1 Main Findings

The focus of the hypothesis testing was on subjective norms, perceived barriers, and attitudes and their relationship with meat consumption, with a focus on potential generational differences.

First, the significant positive relationship between attitude toward meat consumption and the actual frequency of meat consumption for all generations confirms that attitudes are a critical driver of behavior. This finding supports H1 and aligns with the consensus of previous literature (Kamenidou et al., 2020; Magnusson et al., 2001).

In contrast, H2 proposes that subjective norms would impact meat consumption and was not supported. Across all generational cohorts, this effect of subjective norms on meat consumption was not significant, which does not align with previous literature suggesting significant effects (Hielkema & Lund, 2021; Sharps et al., 2021). In other words, no matter how strong the societal pressure or expectations are to reduce meat consumption, it will not significantly influence meat consumption. This finding challenges the belief that social influence plays a significant role in dietary behaviors, at least in the context of meat consumption.

Moreover, H3 was only partially supported, since the interaction of subjective norms with attitudes was only significant for GenZ, not for the other generations. This aligns with previous literature only to some extent (Gabler et al., 2013; Joshi & Rahman, 2015), however highlights that effects may vary across generations.

H4, which tested the relationship between perceived barriers and meat consumption, was supported, which corresponds with results from previous literature (Pohjolainen et al., 2015; Van Der Weele & Driessen, 2019). The results showed a positive and significant relationship across all generations. This finding indicates that the more significant the barriers perceived by individuals, the more likely they are to consume meat. That H4 was supported, suggests that these numerous or strong barriers may be a reason for high meat consumption. Therefore, efforts should be made to address these barriers, in order to avoid higher meat consumption.

H5, which explored the interaction effects between attitudes, subjective norms and perceived barriers, was supported and provided nuanced insights, aligning with previous literature (Vieira et al., 2023). The interaction between attitude and perceived barriers was significant for all generational cohorts. This interaction suggests that, when barriers to reducing meat are low, there is a positive relationship between attitude and behavior. However, as perceived barriers increased, this relationship disappears.

The current study supports the literature only to some extent. The findings suggest that, while attitudes are a strong predictor of meat consumption, subjective norms do not exert the hypothesized influence, contrary to previous literature (Hielkema & Lund, 2021; Sharps et al., 2021). Perceived barriers play a crucial role in moderating the relationship between attitudes and behavior. Previous literature suggested that the existence of perceived barriers have a significant impact on the gap between attitude and behavior (Vieira et al., 2023), which is in line with the findings of the current study. Some differences between the generations exist, but were not ubiquitous, contrary to what was initially thought. Moreover, as indicated by the bivariate correlation table, the linear effect of age was not significant or particularly strong for some of the variables. However, the few generational differences suggest the need for tailored approaches when designing interventions to reduce meat consumption. Specifically, efforts should focus on lowering perceived barriers, particularly for younger generations, to enhance the effectiveness of attitude-behavior interventions. The results contribute to a deeper understanding of the dynamics at play in dietary behavior across generations, offering valuable insights for both academic research and managerial implications, which will be further discussed within the next section.

5.2 Academic and Managerial Implications

This study contributes to the literature of the relationship between attitudes, subjective norms, perceived barriers and behavior in the context of meat consumption. The confirmation on the significant role of attitudes, particularly among younger generations, aligns with previous research but also adds valuable insights by highlighting generational differences in the strength of this relationship. The non-significant role of subjective norms challenges existing findings, suggesting that more research is needed to explore how subjective norms operate differently across generations and contexts. Moreover, the significant interaction between attitudes and perceived barriers, suggest that interventions aiming to reduce meat consumption should not only focus on changing attitudes but also on reducing perceived barriers.

Regarding managerial implications, this study offers valuable insights particularly for people involved in environmental sustainability and the food industry. The strong influence of attitudes on meat consumption indicates that efforts should be made to ensure that people have less positive attitudes towards it. Campaigns should continue at aiming to promote negative aspects of meat consumption, but with a more targeted approach. Additionally, the findings also highlight the importance of addressing perceived barriers to reduce meat consumption. For instance, making plant-based alternatives more accessible, so that individuals can break out of their habits more easily, can help lower this barrier. Furthermore, the findings in generational differences suggest that a one-size-fits-all approach may not be effective. Instead, strategies that consider specific needs and challenges faced by different age groups might be more effective.

5.3 Limitations

To begin with, the conclusions of the current study may not be generalizable. Since this study focused solely on the German population, it is possible that, for example, consumption behavior, attitudes and intentions in other markets may differ, which would eventually lead to different results. Moreover, the results of the social desirability questions have shown that 40.9% of the sample have a social desirability tendency, based on the cut-off level suggested by Haghighat (2013), which suggests that respondents might have reported a behavior that they belief is more socially acceptable rather than their actual behavior. However, since social desirability does not correlate with eating behavior, this may be rather irrelevant. While the study focusses on generational differences, it does not fully account for other demographic variables, such as income or employment status. These factors could interact with generational influences. In addition, efforts were made to reach all age groups equally. However, the sample of Baby Boomers is comparatively smaller, with 87 participants assigned to this cohort, which may reduce the significance of the results for this cohort. Since Appinio launches its surveys through a mobile app, and the smartphone usage among Baby Boomers may be lower compared to younger generations, they should consider alternative ways to increase app usage among older smartphone users, for example by making the app more user-friendly for older people (e.g., through clearer instructions) or by using marketing channels Baby Boomers use more frequently (e.g., TV and radio). Lastly, while the model aimed to measure the gap between attitude and behavior, it may not fully capture the complexity of this relationship. For instance, attitudes were probably treated in a generalized manner and focused on meat consumption as a

whole. It might be worthwhile to differentiate between types of meat or address attitudes related to specific dimensions, such as health concerns of environmental aspects.

5.4 Future Research

Further research could consider additional influential factors, such as cultural background or income, to analyze whether other variables influence meat consumption. Secondly, meat consumption could be tracked more precisely to move beyond assumptions and gain more accurate insights into actual consumption patterns, without biases caused by social desirability. For example, participants could be asked to indicate their intended meat consumption over the next period and then be asked again, after two weeks, how much they actually consumed. This approach could provide more accurate insights into the gap between intention and actual behavior. Since the thesis did not find significant impact of subjective norms, this variable could be examined more thoroughly in future research. For instance, the specific contexts or conditions where subjective norms might have stronger influence could be investigated, e.g., in universities where peer-influence might be stronger because of frequent discussions about environmental responsibility. Finally, concrete strategies could be examined in more depth. It has been shown that attitudes have a significant impact on behavior, and further analysis could focus on how to shift attitudes toward meat consumption in a more negative direction. This could involve considering policy changes, such as implementing taxes or creating educational campaigns to increase general awareness of this issue.

5.5 Conclusion

To conclude, this study highlights the significant influence of attitudes, perceived barriers, and generational differences on meat consumption behavior. Attitudes were shown to predict behavior across all generations. However, the expected role of subjective norms did not align with previous research findings, challenging assumptions about the power of social influence in this context. In contrast, perceived barriers played a significant role in moderating the relationship between attitudes and meat consumption. The generational differences regarding the attitude-behavior gap in meat consumption are mainly observed in the interactions involving subjective norms and attitudes, where GenZ shows significant effects, unlike other generations. Thus, the generational differences were not as pronounced as initially hypothesized. These nuances underscore the complexity of behavior change, suggesting that future interventions should focus on lowering perceived barriers, while also addressing the attitudes that sustain high meat consumption.

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Appendices

Appendix 1: Survey

Question no.	Survey	Question type
Info 1	**Welcome and thank you for taking part in this survey, which will be about your meat consumption.** Participation in this survey is voluntary and you can withdraw at any time. All answers will be kept confidential. It should take approximately 4 minutes to complete the survey. By continuing with the survey, you confirm that you have read and understood this consent form and agree to participate in the research. Thank you for participating.	Info box
F1	**What is your marital status?** A: Single B: In a relationship C: Married/ in a registered partnership D: Divorced/ living in separation E: Widowed	Single Choice
F2	**How do you intend to change your meat consumption in the future?** A: Greatly decrease B: Somewhat decrease C: Not change D: Somewhat increase E: Greatly increase	Single Choice (Screen-Out: answer C, D, E)
F3	**Approximately how often do you eat unprocessed meat (e.g. steak, chicken breast, beef fillet)?** A: Several times a day B: Once a day C: 5-6 times a week D: 3-4 times a week E: 1-2 times a week F: Once a week G: Less than once a week H: Never	Single Choice
F4	**Approximately how often do you eat processed meat (e.g. sausage, cold cuts)?** A: Several times a day B: Once a day C: 5-6 times a week D: 3-4 times a week E: 1-2 times a week F: Once a week G: Less than once a week H: Never	Single Choice
F5	**Which diet are you most likely do identify with?** A: Meat eater B: Meat avoider C: Pescetarian D: Flexitarian E: Vegetarian F: Vegan	Single Choice
F6	**How long have you been following your current diet?** A: Up to 6 months B: 6 months to 1 year C: 1 to 3 years D: More than 3 years E: This has always been my diet	Single Choice
F7	**For me to eat meat is___.**	Likert-Scale

	1- bad 2-rather bad 3-neutral 4-rather good 5-good	
F8	**For me to eat meat is___.** 1-worthless 2-rather worthless 3-neutral 4-rather valuable 5-valuable	Likert-Scale
F9	**For me to eat meat is___.** 1-unpleasant 2-rather unpleasant 3-neutral 4-rather pleasant 5-pleasant	Likert-Scale
F10	**For me to eat meat is___.** 1-unenjoyable 2-rather unenjoyable 3-neutral 4-rather enjoyable 5-enjoyable	Likert-Scale
Info 2	**Please indicate to what extent the following statements apply to you.**	Info box
F11	**My friends think I should reduce my meat consumption.** 1-Not at all. to 7-To a very great extent.	Likert-Scale
F12	**My family thinks I should reduce my meat consumption.** 1-Not at all. to 7-To a very great extent.	Likert-Scale
F13	**Health experts think I should reduce my meat consumption.** 1-Not at all. to 7-To a very great extent.	Likert-Scale
F14	**My colleagues think I should reduce my meat consumption.** 1-Not at all. to 7-To a very great extent.	Likert-Scale
F15	**My partner thinks I should reduce my meat consumption.** 1-Not at all. to 7-To a very great extent.	Likert-Scale
F16	**With regard to your meat consumption, how much do you want to do what your friends think?** 1-Not at all. to 7-Very much.	Likert-Scale
F17	**With regard to your meat consumption, how much do you want to do what your family thinks?** 1-Not at all. to 7-Very much.	Likert-Scale
F18	**With regard to your meat consumption, how much do you want to do what health experts think?** 1-Not at all. to 7-Very much.	Likert-Scale
F19	**With regard to your meat consumption, how much do you want to do what your colleagues think?** 1-Not at all. to 7-Very much.	Likert-Scale
F20	**With regard to your meat consumption, how much do you want to do what your partner thinks?** 1-Not at all. to 7-Very much.	Likert-Scale

Info 3	**To what extent do you agree with the following statements?**	Info box
F21	**I find it difficult to reduce my meat consumption…** 1. **… because I don't want to change my eating habits or routines.** Strongly disagree – Strongly agree	Matrix
F22	**I find it difficult to reduce my meat consumption…** **2. … because I think humans are meant to eat meat.** Strongly disagree – Strongly agree	Matrix
F23	**I find it difficult to reduce my meat consumption…** **3. … because I like eating meat.** Strongly disagree – Strongly agree	Matrix
F24	**I find it difficult to reduce my meat consumption…** **4. … because my family eats meat.** Strongly disagree – Strongly agree	Matrix
F25	**Would you smile at people every time you meet them?** A: Yes B: No	Single Choice
F26	**Do you always practice what you preach to people?** A: Yes B: No	Single Choice
F27	**If you say to people that you will do something, do you always keep your promise inconvenient it may be?** A: Yes B: No	Single Choice
F28	**Would you ever lie to people?** A: Yes B: No	Single Choice
F29	**What is your highest level of education? If you are currently enrolled, please select your highest degree completed.** A: No degree B: Elementary school C: Special needs/ auxiliary school D: Secondary school/ Polytechn. high school (8^{th}/9^{th} grade) E: Middle school/ MSA/ Polytechn. high school (10^{th} grade) F: Advanced technical college entrance qualification G: General university entrance qualification/ advanced high school diploma H: Vocational training without a degree I: Completed vocational training J: Master craftsmen training K: Bachelor's degree L: Master's degree M: Doctoral degree N: Prefer not so specify.	Single Choice
F30	**What is your current employment status?** A: University student B: Student C: Not in employment and not working D: Employed E: Freelancer/ Self-employed F: Retired G: Apprentice/ trainee H: Other I: Prefer not to specify	Single Choice
F31	**Thank you for taking part in this survey, which focused on the intention to reduce your own meat consumption and actual meat consumption. If you have any feedback on this study, feel free to share it here:** _____	Open question (free text)

Appendix 2: Participants

GenerationGroup

	N	%
GenZ	212	20,9%
Millennials	412	40,7%
GenX	302	29,8%
BabyBoomer	87	8,6%

gender

	N	%
f	506	50,0%
m	507	50,0%

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
age	1013	18	65	38,90	12,067
Valid N (listwise)	1013				

2. What is your marital status?

	N	%
Single	238	23,5%
In a relationship	265	26,2%
Married/ in a registered partnership	465	45,9%
Divorced/ living in seperation	36	3,6%
Widowed	9	0,9%

Children in household (<18)

	N	%
Min. one child (<18) in the household	582	57,5%
No children (<18) in the household	431	42,5%

Educational Level

	N	%
No degree	16	1,6%
Elementary school	23	2,3%
Special needs/ auxiliary school	15	1,5%
Secondary school/ Polytechn. high school (8th/9th grade)	52	5,1%
Middle school/ MSA/ Polytechn. high school (10th grade)	165	16,3%
Advanced technical college entrance qualification	76	7,5%
General university entrance qualification/ advanced high school diploma	82	8,1%
Vocational training without a degree	7	0,7%
Completed vocational training	318	31,4%
Master craftsmen training	41	4,0%
Bachelor's degree	104	10,3%
Master's degree	103	10,2%
Doctoral degree	11	1,1%

29. What is your current employment status?

	N	%
University student	38	3,8%
Student	20	2,0%
Not in employment and not working	49	4,8%
Employed	749	73,9%
Freelance/ self-employed	72	7,1%
Retired	36	3,6%
Apprentice/Trainee	29	2,9%
Other	16	1,6%
Prefer not to specify	4	0,4%

Appendix 3: Scale Assessment

Meat Consumption

Reliability Statistics

Cronbach's Alpha	N of Items
,746	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
4. Approximately how often do you eat unprocessed meat (e.g. steak, chicken breast, beef fillet)?	4,94	2,825	,597	.
5. Approximately how often do you eat processed meat (e.g. sausage, cold cuts)?	4,47	2,350	,597	.

Attitude towards meat consumption

Reliability Statistics

Cronbach's Alpha	N of Items
,921	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
8. For me to eat meat is ___. (bad-good)	10,21	8,169	,820	,896
9. For me to eat meat is ___. (worthless-valuable)	10,13	8,550	,786	,908
10. For me to eat meat is ___. (unpleasant-pleasant)	10,04	8,188	,825	,895
11. For me to eat meat is ___. (unenjoyable-enjoyable)	10,17	8,004	,839	,890

Subjective Norms

Reliability Statistics

Cronbach's Alpha	N of Items
,958	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
13. My friends think I should reduce my meat consumption.	34,63	210,129	,838	,953
14. My family thinks I should reduce my meat consumption.	34,69	209,400	,854	,952
15. Health experts think I should reduce my meat consumption.	34,02	220,922	,677	,959
16. My colleagues think I should reduce my meat consumption.	34,89	208,615	,863	,952
17. My partner thinks I should reduce my meat consumption.	34,66	208,996	,841	,953
18. With regard to your meat consumption, how much do you want to do what your friends?	34,53	211,108	,866	,952
19. With regard to your meat consumption, how much do you want to do what your family thinks?	34,33	211,941	,847	,952
20. With regard to your meat consumption, how much do you want to do what health experts think?	34,01	220,129	,740	,957
21. With regard to your meat consumption, how much do you want to do what your colleagues?	34,68	208,959	,857	,952
22. With regard to your meat consumption, how much do you want to do what your partner thinks?	33,94	217,466	,765	,956

Perceived Barriers

Reliability Statistics

Cronbach's Alpha	N of Items
,796	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because I don't want to change my eating habits or routines.	13,45	16,562	,635	,732
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because I think humans are meant to eat meat.	13,41	16,323	,615	,741
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because I like eating meat.	12,80	17,411	,601	,749
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because my family eats meat.	13,30	16,106	,582	,759

Social Desirability

Reliability Statistics

Cronbach's Alpha	N of Items
,486	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
24. Would you smile at people every time you meet them?	4,48	,920	,333	,365
25. Do you always practice what you preach to people?	4,33	,949	,300	,398
26. If you say to people that you will do something, do you always keep your promise no matter how inconvenient it may be?	4,61	,974	,328	,375
27. Would you ever lie to people?	4,31	1,061	,177	,511

Appendix 4: Descriptive Statistics

Meat Consumption

4. Approximately how often do you eat unprocessed meat (e.g. steak, chicken breast, beef fillet)?

	N	%
Never	35	3,5%
Less than once a week	82	8,1%
Once a week	108	10,7%
1-2 times a week	295	29,1%
3-4 times a week	257	25,4%
5-6 times a week	136	13,4%
Once a day	79	7,8%
Several times a day	21	2,1%

5. Approximately how often do you eat processed meat (e.g. sausage, cold cuts)?

	N	%
Never	40	3,9%
Less than once a week	69	6,8%
Once a week	65	6,4%
1-2 times a week	174	17,2%
3-4 times a week	286	28,2%
5-6 times a week	183	18,1%
Once a day	156	15,4%
Several times a day	40	3,9%

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MC_Mean	1013	1,00	8,00	4,7058	1,43617
4. Approximately how often do you eat unprocessed meat (e.g. steak, chicken breast, beef fillet)?	1013	1	8	4,47	1,533
5. Approximately how often do you eat processed meat (e.g. sausage, cold cuts)?	1013	1	8	4,94	1,681
Valid N (listwise)	1013				

Intention to reduce meat consumption

3. How do you intend to change your meat consumption in the future?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Decrease sharply	214	21,1	21,1	21,1
	Decrease slightly	799	78,9	78,9	100,0
	Total	1013	100,0	100,0	

Attitude towards Meat Consumption

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Att_Mean	1013	1,00	5,00	3,3798	,94379
Valid N (listwise)	1013				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
8. For me to eat meat is ___. (bad-good)	1013	1	5	3,31	1,058
9. For me to eat meat is ___. (worthless-valuable)	1013	1	5	3,39	1,016
10. For me to eat meat is ___. (unpleasant-pleasant)	1013	1	5	3,48	1,050
11. For me to eat meat is ___. (unenjoyable-enjoyable)	1013	1	5	3,35	1,074
Valid N (listwise)	1013				

Subjective Norms

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Friends_Product	1013	1,00	49,00	22,1599	15,95597
Family_Product	1013	1,00	49,00	21,7996	16,05002
HealthExperts_Product	1013	1,00	49,00	16,7848	13,74784
Colleagues_Product	1013	1,00	49,00	24,7038	16,95679
Partner_Product	730	1,00	49,00	18,5534	14,86254
SN_Score	1013	1,00	49,00	21,1113	14,37684
Valid N (listwise)	730				

Perceived Barriers

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because I don't want to change my eating habits or routines.	1013	1	7	4,20	1,629
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because I think humans are meant to eat meat.	1013	1	7	4,24	1,697
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because I like eating meat.	1013	1	7	4,85	1,556
23. To what extent do you agree with the following statements? I find it difficult to reduce meat consumption... _because my family eats meat.	1013	1	7	4,35	1,785
PB_Mean	1013	1,00	7,00	4,4131	1,31416
Valid N (listwise)	1013				

Social Desirability

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
24. Would you smile at people every time you meet them?	1013	0	1	,57	,495
25. Do you always practice what you preach to people?	1013	0	1	,42	,494
26. If you say to people that you will do something, do you always keep your promise no matter how inconvenient it may be?	1013	0	1	,70	,459
27. Would you ever lie to people?	1013	0	1	,41	,491
Social_Desirability_Score	1013	,00	4,00	2,0928	1,21717
Valid N (listwise)	1013				

SD_High_Tendency

	N	%
,00	599	59,1%
1,00	414	40,9%

Appendix 5: Comparative Analysis

Report

MC_Mean

GenerationGroup	Mean	N	Std. Deviation
GenZ	4,7241	212	1,62199
Millennials	4,8786	412	1,39423
GenX	4,4983	302	1,35697
BabyBoomer	4,5632	87	1,32902
Total	4,7058	1013	1,43617

Oneway

ANOVA

MC_Mean

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27,145	3	9,048	4,431	,004
Within Groups	2060,191	1009	2,042		
Total	2087,336	1012			

ANOVA Effect Sizes[a,b]

		Point Estimate	95% Confidence Interval Lower	Upper
MC_Mean	Eta-squared	,013	,001	,028
	Epsilon-squared	,010	-,002	,025
	Omega-squared Fixed-effect	,010	-,002	,025
	Omega-squared Random-effect	,003	-,001	,008

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Post Hoc Tests

Multiple Comparisons

Dependent Variable: MC_Mean

Tukey HSD

(I) GenerationGroup	(J) GenerationGroup	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
GenZ	Millennials	-,15458	,12078	,576	-,4654	,1562
	GenX	,22571	,12803	,292	-,1038	,5552
	BabyBoomer	,16084	,18193	,813	-,3073	,6290
Millennials	GenZ	,15458	,12078	,576	-,1562	,4654
	GenX	,38030*	,10824	,003	,1017	,6588
	BabyBoomer	,31542	,16860	,241	-,1184	,7493
GenX	GenZ	-,22571	,12803	,292	-,5552	,1038
	Millennials	-,38030*	,10824	,003	-,6588	-,1017
	BabyBoomer	-,06487	,17387	,982	-,5123	,3825
BabyBoomer	GenZ	-,16084	,18193	,813	-,6290	,3073
	Millennials	-,31542	,16860	,241	-,7493	,1184
	GenX	,06487	,17387	,982	-,3825	,5123

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

MC_Mean

Tukey HSD[a,b]

GenerationGroup	N	Subset for alpha = 0.05 1
GenX	302	4,4983
BabyBoomer	87	4,5632
GenZ	212	4,7241
Millennials	412	4,8786
Sig.		,054

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 182.235.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Appendix 6: PROCESS Model 2 – Moderation without covariates

GenZ

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 2
    Y  : MC_Mean
    X  : Att_Mean
    W  : SN_Score
    Z  : PB_Mean

Sample
Size:  212

**************************************************************************
OUTCOME VARIABLE:
 MC_Mean

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      ,6131      ,3759     1,6818    24,8151     5,0000   206,0000      ,0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    -1,5806     1,0997    -1,4373      ,1521    -3,7488      ,5875
Att_Mean     1,9186      ,3419     5,6122      ,0000     1,2446     2,5926
SN_Score      ,0224      ,0216     1,0394      ,2998     -,0201      ,0649
Int_1        -,0157      ,0062    -2,5547      ,0113     -,0279     -,0036
PB_Mean      1,0164      ,1950     5,2124      ,0000      ,6320     1,4009
Int_2        -,2513      ,0574    -4,3770      ,0000     -,3645     -,1381

Product terms key:
 Int_1    :        Att_Mean x        SN_Score
 Int_2    :        Att_Mean x        PB_Mean

Test(s) of highest order unconditional interaction(s):
        R2-chng          F        df1        df2          p
X*W       ,0198     6,5267     1,0000   206,0000      ,0113
X*Z       ,0580    19,1578     1,0000   206,0000      ,0000
BOTH      ,0610    10,0631     2,0000   206,0000      ,0001
----------
    Focal predict: Att_Mean (X)
          Mod var: SN_Score (W)
          Mod var: PB_Mean  (Z)
```

Conditional effects of the focal predictor at values of the moderator(s):

SN_Score	PB_Mean	Effect	se	t	p	LLCI	ULCI
8,0160	3,2500	,9758	,1729	5,6441	,0000	,6349	1,3166
8,0160	4,5000	,6617	,1530	4,3254	,0000	,3601	,9632
8,0160	5,7500	,3475	,1650	2,1069	,0363	,0223	,6728
21,2250	3,2500	,7680	,1258	6,1039	,0000	,5199	1,0161
21,2250	4,5000	,4539	,1171	3,8747	,0001	,2229	,6848
21,2250	5,7500	,1398	,1480	,9442	,3462	-,1521	,4316
40,2500	3,2500	,4688	,1372	3,4160	,0008	,1982	,7393
40,2500	4,5000	,1546	,1518	1,0190	,3094	-,1446	,4538
40,2500	5,7500	-,1595	,1937	-,8232	,4113	-,5414	,2225

********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

Z values in conditional tables are the 16th, 50th, and 84th percentiles.

------ END MATRIX -----

Millennials

Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****
Model : 2
Y : MC_Mean
X : Att_Mean
W : SN_Score
Z : PB_Mean

Sample
Size: 412

****
OUTCOME VARIABLE:
MC_Mean

Model Summary

R	R-sq	MSE	F	df1	df2	p

,5582	,3116	1,3546	36,7542	5,0000	406,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,1065	,8834	1,2525	,2111	-,6302	2,8431
Att_Mean	1,0225	,2420	4,2257	,0000	,5469	1,4982
SN_Score	-,0256	,0175	-1,4640	,1440	-,0599	,0088
Int_1	-,0007	,0049	-,1407	,8882	-,0103	,0090
PB_Mean	,7462	,1561	4,7813	,0000	,4394	1,0530
Int_2	-,1623	,0435	-3,7298	,0002	-,2479	-,0768

Product terms key:

Int_1 : Att_Mean x SN_Score

Int_2 : Att_Mean x PB_Mean

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	,0000	,0198	1,0000	406,0000	,8882
X*Z	,0236	13,9114	1,0000	406,0000	,0002
BOTH	,0282	8,3138	2,0000	406,0000	,0003

Focal predict: Att_Mean (X)

Mod var: SN_Score (W)

Mod var: PB_Mean (Z)

Conditional effects of the focal predictor at values of the moderator(s):

SN_Score	PB_Mean	Effect	se	t	p	LLCI	ULCI
5,2000	3,5000	,4509	,0987	4,5697	,0000	,2569	,6448
5,2000	4,7500	,2480	,0784	3,1618	,0017	,0938	,4022
5,2000	5,7500	,0857	,0869	,9864	,3245	-,0851	,2565
14,8000	3,5000	,4442	,0770	5,7704	,0000	,2929	,5956
14,8000	4,7500	,2414	,0677	3,5676	,0004	,1084	,3744
14,8000	5,7500	,0791	,0881	,8975	,3700	-,0941	,2522
36,3680	3,5000	,4293	,1165	3,6849	,0003	,2003	,6584
36,3680	4,7500	,2265	,1313	1,7246	,0854	-,0317	,4846
36,3680	5,7500	,0642	,1563	,4104	,6817	-,2432	,3715

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:

95,0000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

Z values in conditional tables are the 16th, 50th, and 84th percentiles.

------ END MATRIX -----

GenX

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 2
    Y  : MC_Mean
    X  : Att_Mean
    W  : SN_Score
    Z  : PB_Mean

Sample
Size:  302

**************************************************************************
OUTCOME VARIABLE:
 MC_Mean

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      ,5404      ,2921     1,3256    24,4221     5,0000   296,0000      ,0000

Model
              coeff         se          t          p       LLCI       ULCI
constant      ,3762      ,7958      ,4728      ,6367    -1,1899     1,9424
Att_Mean      ,9233      ,2429     3,8015      ,0002      ,4453     1,4013
SN_Score      ,0002      ,0158      ,0157      ,9875     -,0308      ,0313
Int_1        -,0025      ,0043     -,5916      ,5546     -,0110      ,0059
PB_Mean       ,7592      ,1587     4,7855      ,0000      ,4470     1,0715
Int_2        -,1366      ,0447    -3,0570      ,0024     -,2246     -,0487
```

Product terms key:

Int_1 : Att_Mean x SN_Score

Int_2 : Att_Mean x PB_Mean

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	,0008	,3500	1,0000	296,0000	,5546
X*Z	,0224	9,3454	1,0000	296,0000	,0024
BOTH	,0228	4,7748	2,0000	296,0000	,0091

Focal predict: Att_Mean (X)

Mod var: SN_Score (W)

Mod var: PB_Mean (Z)

Conditional effects of the focal predictor at values of the moderator(s):

SN_Score	PB_Mean	Effect	se	t	p	LLCI	ULCI
6,6000	2,7500	,5309	,1307	4,0622	,0001	,2737	,7881
6,6000	4,5000	,2918	,1055	2,7663	,0060	,0842	,4994
6,6000	5,6300	,1374	,1174	1,1707	,2427	-,0936	,3685
20,1000	2,7500	,4965	,1039	4,7805	,0000	,2921	,7009
20,1000	4,5000	,2575	,0886	2,9042	,0040	,0830	,4319
20,1000	5,6300	,1031	,1117	,9233	,3566	-,1166	,3228
40,6000	2,7500	,4444	,1188	3,7391	,0002	,2105	,6783
40,6000	4,5000	,2053	,1256	1,6341	,1033	-,0420	,4526
40,6000	5,6300	,0509	,1528	,3333	,7391	-,2498	,3517

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:

95,0000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

Z values in conditional tables are the 16th, 50th, and 84th percentiles.

------ END MATRIX -----

Baby Boomers

Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2022). www.guilford.com/p/hayes3

****

Model : 2

Y : MC_Mean

X : Att_Mean

W : SN_Score

Z : PB_Mean

Sample

Size: 87

****

OUTCOME VARIABLE:

MC_Mean

Model Summary

R	R-sq	MSE	F	df1	df2	p
,6579	,4328	1,0636	12,3627	5,0000	81,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-1,0002	1,1447	-,8737	,3848	-3,2778	1,2774
Att_Mean	1,3260	,3509	3,7792	,0003	,6279	2,0241
SN_Score	-,0060	,0276	-,2167	,8290	-,0610	,0490
Int_1	-,0024	,0077	-,3108	,7568	-,0178	,0130

PB_Mean	1,1480	,2695	4,2591	,0001	,6117	1,6843
Int_2	-,2320	,0730	-3,1792	,0021	-,3773	-,0868

Product terms key:

Int_1 : Att_Mean x SN_Score

Int_2 : Att_Mean x PB_Mean

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	,0007	,0966	1,0000	81,0000	,7568
X*Z	,0708	10,1072	1,0000	81,0000	,0021
BOTH	,0710	5,0664	2,0000	81,0000	,0084

Focal predict: Att_Mean (X)

Mod var: SN_Score (W)

Mod var: PB_Mean (Z)

Conditional effects of the focal predictor at values of the moderator(s):

SN_Score	PB_Mean	Effect	se	t	p	LLCI	ULCI
8,0320	3,0000	,6105	,1842	3,3139	,0014	,2439	,9770
8,0320	4,2500	,3204	,1776	1,8042	,0749	-,0329	,6738
8,0320	5,2500	,0884	,2040	,4332	,6660	-,3175	,4942
18,4000	3,0000	,5855	,1645	3,5586	,0006	,2581	,9129
18,4000	4,2500	,2955	,1593	1,8548	,0673	-,0215	,6124
18,4000	5,2500	,0634	,1897	,3342	,7391	-,3141	,4409
38,9120	3,0000	,5361	,2270	2,3618	,0206	,0845	,9878
38,9120	4,2500	,2461	,2263	1,0873	,2801	-,2042	,6963
38,9120	5,2500	,0140	,2509	,0558	,9556	-,4852	,5132

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output:

95,0000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

Z values in conditional tables are the 16th, 50th, and 84th percentiles.

------ END MATRIX -----