



An analysis of the relationship between meat substitutes consumption and purchase intention: A study on consumer behavior

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ABSTRACT

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In recent years there has been a growing interest of consumers and companies in making more sustainable decisions across all industries. In this case, the meat industry stands out, where the tendency to replace meat with alternative foods has been increasingly pronounced. Nevertheless, what can contribute to this change in consumer preferences?

This study explores the factors that may influence consumer behavior towards meat substitutes, such as the type of packaging and the type of protein, also considering the attitude of food neophobia and sustainability consciousness.

The collection of information was indispensable for the success of this study. Thus, primary data, such as the distributed questionnaire.

The results obtained indicate that the type of packaging does not influence consumer purchase intention, regardless of the type of protein. However, it was confirmed that the higher the awareness regarding sustainability, the higher the intention to purchase meat substitutes and the lower the intention to purchase meat, being an important finding in this study. Finally, food neophobia also has a moderating effect on the model. The higher the food neophobia the lower the purchase intention for meat substitutes while for meat it remains constant.

Key Words:

Sustainability, Packaging, Meat Substitutes, Purchase Intention, Sensory Attributes, Food Neophobia

SUMÁRIO

Análise da relação entre o consumo de substitutos de carne e a intenção de compra: Um estudo sobre o comportamento do consumidor.

Ana Maria Sampaio Martins

Nos últimos anos tem vindo a verificar-se um crescente interesse por parte dos consumidores e das empresas em tomar decisões mais sustentáveis, transversal a todas as indústrias. Neste caso, destaca-se a indústria da carne, em que a tendência para substituir a carne por alimentos alternativos tem vindo a aumentar. Mas o que é que pode contribuir para esta alteração das preferências do consumidor?

Este estudo explora os fatores que podem influenciar o comportamento do consumidor relativamente aos substitutos da carne, como o tipo de embalagem, o tipo de proteína, a atitude de neofobia alimentar e a consciência de sustentabilidade.

A recolha de informação foi imprescindível para o sucesso deste estudo. Desta forma, para suportar esta investigação compilaram-se dados primários, como o questionário distribuído.

Os resultados obtidos indicam que o tipo de embalagem não influencia a intenção de compra do consumidor, independentemente do tipo de proteína. No entanto, confirmou-se que quanto maior a consciência relativamente à sustentabilidade, maior a intenção de compra de substitutos da carne e menor a intenção de compra de carne, sendo uma conclusão importante neste estudo. Finalmente, a neofobia alimentar também tem um efeito moderador no modelo. Quanto maior a neofobia alimentar menor a intenção de compra por substitutos da carne enquanto para carne se mantém constante.

Palavras – Chave:

Sustentabilidade, Embalagem, Substitutos da Carne, Intenção de Compra, Atributos Sensoriais, Neofobia Alimentar

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GLOSSARY

FN – Food Neophobia

SC – Sustainability Consciousness

PI – Purchase Intention

GHG - Green House Gas

BM – Beef Meatballs

SM – Soy Meatballs

BH – Beef Hamburger

SH – Soy Hamburger

CHAPTER 1: INTRODUCTION

1.1. Background and problem statement

The growth of meat substitutes offers a primary illustration of the shift in the recent global movement in the food market toward plant-based and alternative protein sources. Many issues, such as apprehensions about animal welfare, human health, and the environmental effects of meat, have contributed to this transition. Although meat substitutes are more widely available and trendy, consumer adoption has yet to peak, and many people are reluctant to try them.

For many, meat is indispensable and irreplaceable nourishment. With the contribution of protein, amino acids, vitamins, and minerals such as zinc, vitamin B, and selenium, meat has become essential for everyday meals (Kluferld, 2018). Although it is considered an essential food for many, it has environmental and health consequences.

Since the 1980s, meat consumption has been increasing exponentially, and it is clear the impact that this industry has on the environment. This industry has an active role in the emission of gases contributing to the greenhouse effect, the water footprint, and pollution, which leads to a greater scarcity of this resource (González et al., 2020).

In addition to the indirect effect on the consumer associated with the environmental impact, meat consumption, especially when it comes to red meat, can also be associated with several diseases, such as obesity, a higher risk for chronic diseases, and a higher predisposition to cancer (Salter, 2018).

Therefore, to meet consumer demand to reduce the risks associated with meat consumption different meat alternatives have emerged. These options are presented in different forms and can be soy, tofu, and legumes such as lentils or lupin (Elzerman, 2015).

Even though more and more information is available in different channels on the consequences of meat consumption, society needs constant awareness-raising of the risks of this industry and the benefits of plant-based options.

1.2 Problem Statement

Meat consumption has been increasing over the years. Knowing that this industry has an enormous impact on both the environment and the health of its consumers, why don't people look for new meat substitutes? This study intends to understand what the consumers' barriers

are to purchasing meat substitutes, with more focus on perceived sensory attributes and their impact on purchase intention.

As a crucial part of understanding and interpreting the relationship between different concepts of this study, the research questions support the research process and aid in narrowing the study's emphasis. Additionally, they offer a succinct and unambiguous summary of the study's objectives and the areas the study should touch.

Below are the research questions that will help guide the study, providing a framework for the data analysis.

RQ1: What influence does the package have on the purchase intention of meat substitutes?

RQ2: Does consumer sustainability consciousness influences meat substitute consumption?

RQ3: Is food neophobia a barrier to starting eating and buying meat substitutes?

1.3 Relevance

A few years ago, I saw a documentary about the meat industry's environmental impact. At the time, I was impressed because I had never thought about the consequences and the expenditure of resources associated with consuming a beef steak. Then, I decided to reduce my meat consumption and stop eating beef altogether. When people ask me why I don't eat beef, and I explain, many people seem to be impressed and completely unaware of the impact and risks of this food at various levels.

Through this study, I find it interesting to understand if people have information regarding the impact of this industry, as well as what is stopping consumers from starting to introduce meat substitutes in their diet or just reducing meat consumption.

Considering some of the issues mentioned above, this study focuses on the impact of perceived sensory attributes, such as packaging, and the differences in the type of protein on consumer purchase intention. It also wants to understand the impact of food neophobia on purchase intention, as well as the impact of sustainability consciousness on acquiring meat substitutes. Thus, the primary goal of this study is to understand which barriers stop consumers from eating meat substitutes and if sustainability and food neophobia impact meat substitutes purchase intention.

1.4 Research methods

This study aims to formulate the problem and find answers to the questions raised, which is of utmost importance to conducting in-depth research. Access to primary data was essential to answer the research questions. A survey was applied to help draw more precise conclusions, regarding the relationship between the different concepts, such as purchase intention, food neophobia or consumer sustainability consciousness.

1.5 Dissertation outline

The next chapter presents the literature review, which includes contextualizing some variables and concepts essential for this study. The following chapter presents the methodology, explaining how the primary data will be accessed and the deconstruction of the questionnaire. The fourth chapter refers to the results and the analysis of the results obtained, relating them to the hypothesis questions presented above. Finally, the fifth part of this work answers the research questions and contains the conclusion, study limitations, and possible future topics to research.

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This chapter is a theoretical introduction to the topics that will be studied. All concepts related to the problem statement will be analyzed in the following points to formulate hypotheses. In this case, the focus will be on purchase intention, topics related to meat consumption and its impact, as well as the analysis of what food neophobia is and its implications.

2.1. Consumer's purchase intention

To better understand consumer behavior, it is necessary to evaluate purchase intention to predict consumer behavior toward a product or service. Since it can be affected by different factors, studying it helps strategic decisions. Thus, for existing or new products, it acknowledges which niche or markets the product should be invested in and promoted (Sewall, 1978; Silk & Urban, 1978; Urban & Hauser, 1993). A high purchase intention means that the probability of buying is high, which does not mean that the consumer will buy it. Conversely, when the consumer has a low purchase intention, they can still buy the product (Roudposhti, et al., 2018).

2.2. Perceived sensory attributes

Introducing a new food, whether to try it once or to introduce it definitively, always requires the performance of our sensory part, an association that happens unconsciously.

The consumer consciously perceives the sensory characteristics of a product through smell, touch, taste, sight, and hearing. The information about sensory attributes is collected during the consumption of a food product and refers directly to the product itself. People taste the food and evaluate its quality based on their perceptions (Moskowitz, H.).

The evaluation of sensory attributes in food starts before consuming it. First, there is the moment when people inspect, touch, and smell it (Sharma et al., 1973), and the process continues in the mouth to assess taste and texture.

The identical involves when introducing meat substitutes. The whole process of noticing the differences in texture, taste, or smell is part of the process and can be decisive if the consumer wants to continue to buy and integrate it into his or her diet. The elements for the success of meat alternatives are their sensory properties, such as appearance, taste, and texture (Elzerman, J., et al., 2010). Many consumers highly value the taste and texture of meat; in particular,

tenderness and juiciness are well-appreciated texture attributes (Bredahl et al., 1998; Grunert, 1997). For meat consumers, taste and texture are crucial characteristics that are valuable for acquiring meat substitutes (Hoek, Luning, Stafleu, & de Graaf, 2004).

The replication of the texture and flavor of meat in plant-based alternatives has been a challenge in food processing. The attempt to have these sensory attributes is often tricky due to the production of off-flavors from legumes and the lower amount of saturated fat, which is vital to tenderness and juiciness. To increase consumer confidence in these alternatives, it is essential that they can associate the products with their previous experiences and form positive expectations about their performance (Fiorentina, M.; et al. 2020).

H1: Purchase intention is positively influenced by perceived sensory attributes.

2.3. Packaging

Packaging relates to the presentation of food and drinks in terms of boxes or packages and to their display in retail outlets (such as in bottles, bags, and boxes) or restaurants (for instance, in cups, bowls, or plates). The packaging draws attention to the product, helps create unique positive associations that distinguish it from its competitors, and adds additional value to the customer's perception (Chandon, P., 2012).

The role of packaging in a product's success encompasses marketing and logistics. As far as marketing is concerned, the packaging attracts attention and communicates essential information about the product (Prendergast, G.; Pitt, L.; 1996). There are four main packaging elements that can influence if the consumer is buying the product, but there are two that stand out: visual and informational. The visual elements, such as graphics and the size/shape of the packaging, tend to evoke emotional responses in the consumer. On the other hand, the informational elements, including the information provided, target the consumer's cognitive processes (Silayoi, P.; Speece, M.; 2004). Furthermore, in previous studies (D. Billeter, M. Zhu, J.J. Inman; 2012), it was found that packages with a transparent component received higher ratings from consumers in terms of preference, were deemed more credible, and were associated with a stronger intention to buy, considering the product visually attractive.

H2: Transparent packaging has a higher impact on purchase intent than non-transparent packaging.

2.4. Sustainability and its effect on consumer behavior

The concept of sustainability has been increasingly discussed and analyzed over the last few years and has gained increasing importance worldwide. (Pereira, L., et al., 2021).

Sustainability focuses on preventing the depletion of natural or physical resources for the needs and requirements of society and future generations. Sustainable development must include social, economic, and environmental aspects (Goodland, R., 1995).

In recent years, it has become clear that the excessive consumption of resources will end in the near future, so individuals consider the consequences that their choices may have. Therefore, everyone must realize that their behavior will affect their surroundings and, consequently, the environment. With the increase of awareness regarding the environmental impact that each one has, consumers' choices have been changing, for several reasons, from ethical beliefs, voluntarily and on their own initiative, being more willing to opt for greener solutions. These behavioral changes translate into an increasing offer of more sustainable products. (Kostadinova, E., 2016).

2.5. Comparing a vegan diet with a vegetarian diet: the difference between the two

Meat has always been present in the diet and has a solid gastronomic and cultural position, although it varies from country to country. For this reason, introducing different types of non-meat diets is challenging for their acceptance. However, there are more and more different kinds of diets, which include and exclude different foods. In Western countries, adopting vegetarianism, veganism, and plant-based foods is a growing trend (Alcorta, A. et al., 2021).

Plant-based diets include vegan, lacto-ovo-vegetarian, and fish-vegetarian (Marrone G.; et al., 2021). Within these possibilities are those that eliminate all animal products, those that do not consume meat and fish but include eggs and dairy, and those that eliminate only meat, respectively (Olfert, M.; Wattick, R.; 2018).

The vegetarian diet includes everything plant-based, excluding meat and fish. It may include honey, eggs, and dairy. Although a plant-based diet may be considered vegetarian, it has a different food approach. Contrary to vegetarianism, the plant-based diet is focused more on the consumption of plant-based food such as fruit, pulses and, vegetables, nuts, but may also include animal foods in small amounts (Alcorta, A. et al., 2021). If thought out and followed correctly, this type of diet has all the necessary carbohydrates, nutrients, fats, and proteins to

support everyday health and performance. Different studies, such as from The American Dietetic Association (ADA), show that adequately planned vegetarian diets are healthier and more nutritionally adequate for containing more fiber, fruits, antioxidants, carbohydrates, and less saturated fat.

In industrialized countries, the vegan diet has considerably increased, changing the demand for vegan products, and influencing their production and supply. In this case, this diet does not include animal products, not only those in which the animal is killed but also products such as dairy or eggs (Janssen, M., 2016; et al., 2016).

The impact on health and the environment is lower when considering diets that do not include fish but mainly meat (Fresán, U.; Sabaté, J.; 2019). Overall, plant-based diets are associated with lower health risks of diseases such as heart disease, hypertension, obesity, and different types of cancer (Venderley, A.; Campbell, W.; 2006). The health advantages are also a decisive point for the decision to change the diet adopted, for all the complications that may arise in the long term, such as lactose intolerance and allergy to dairy products, increasing the demand for soy products (Craig, W.; 2009).

2.6. Evolution of meat consumption

The type of food that each individual eats has changed over the years. Regarding meat consumption, it has been increasing following the escalation of the world's population. From 1961 to 2011, meat consumption changed, increasing from 23.1kg to 42.20kg per person per year, higher in developed countries (Sans, P. Combris, P.; 2015). While in the 1960s, the primary source of protein was wheat, by 2020, more than 58% of the protein comes from animal-derived products, with meat representing the largest source of protein in the most significant supply (González, N.; et al.; 2020).

Meat is common in both affluent and emerging societies (Kearney, 2010; Langthaler, 2018) and has environmental, health, and food security consequences (Milforda, A., et al., 2019). However, there are differences in consumption levels between these two types of economies; in affluent economies, it has been increasing over the years, and conversely, in emerging economies, it has decreased. Still, these are only some factors that influence the type of diet, meat consumption also changes with income, western culture, favorable weather conditions in the country for meat production, globalization, or religion. For example, in countries on the

same continent and with the same monthly income, the main trends in dietary patterns vary. Argentina and Brazil have different amounts of meat, and Japan has lower meat consumption figures than the other developed countries. From these facts, it is possible to understand that in addition to income, many other influencing factors that were previously mentioned, such as culture, can affect meat consumption. (Sans, P., and Combris, P., 2015).

In recent years, countries with an emerging economy have been experiencing a change in available livestock, with the emergence of a more significant amount of pork and poultry (Delgado, 2003; Speedy, 2003). Meat is one of the main foods in a daily diet, and its consumption is relevant as a good source of nutrients such as protein, iron, vitamins, and others. However, meat consumption brings irreparable consequences for the environment, together with a significant increase in population. Because of population expansion and rising per capita demand in many countries, the global beef output is rising at a pace of roughly 1% annually. The emission of carbon dioxide (CO₂) during meat production, soaking trees, grasses, and other collected plants accounts for most of beef production's greenhouse impact. The methane (CH₄) released by animal manure and by the animals themselves when they digest their food comes in second place as the most critical factor to consider (Petrovic, Z.; et al.; 2015). Thus, if this information is shared correctly, it can incentivize consumers to change their diet more quickly (Sans, P. Combris, P.; 2015).

H3: The impact of meat on purchase intention is higher compared to meat substitutes.

2.7. Meat consumption and the impact on the environment

Meat consumption has been increasing in recent years, depending on social, economic, environmental, health, and animal welfare factors. Currently, meat demand will continuously increase until 2050, given demographic forecasts (Desiere et al., 2018; Gouel & Guimbard, 2019). However, there are limitations in livestock production that may prevent this from happening. To better understand this industry's impact, there are three essential points to address: Green House Gas (GHG) emissions, biodiversity, and water waste (Röös, E.; et al., 2012).

Beef production and dairy farming are responsible for a large part of GHG compared to other human activities, with beef having the highest GHG emissions with 22.6kg CO₂-eq/kg¹¹

(Petrovic, Z.; et al.; 2015). GHG emissions in the food industry, include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), and together, they are responsible for one-third of the world's emissions (Crippa et al., 2021; Poore & Nemecek, 2018). Typically, a life cycle assessment (LCA) evaluates each stage and input while manufacturing a product to determine its overall GHG emissions. It should consider all essential environmental consequences to identify and evaluate potential tradeoffs and prevent unfavorable results (Bellarbi, J., et al, 2012).

The processes that contribute to GHG emissions and, consequently, environmental impact are feed production, enteric fermentation from food digestion by animals (mainly ruminants), manure handling, and energy use in animal houses. Other processes related to the production chain also impact the number of gases emitted, such as energy used in field operations, feed processing and transport, manufacturing of mineral fertilizers, and soil emissions (Röös, E.; et al., 2012).

The importance of forests is indisputable, half of which have disappeared in recent years. The destruction of these forests leads to increased carbon pollution, as they act as absorbers of carbon dioxide. The demand from the population increases the production of livestock. The consequences mentioned above still need to be increased. It is also necessary to mention deforestation and, consequently, loss of biodiversity is one of them, especially in Latin America (Henders, S.; et al. 2015). In addition to being the leading cause of habitat damage and a significant contributor to climate change, pasture and cropland growth has detrimental consequences on wild biodiversity (Williams et al., 2021). Different studies point out that livestock production is one of the significant reasons for biodiversity loss, with the appearance of different problems such as climate change, water and soil pollution, overgrazing, and diseases, among others (Crenna et al. 2019, Henry et al. 2019, Machovina et al. 2015).

Regarding water, it is a vital resource for maintaining the health of people and ecosystems, and water use is the most significant environmental burden (Pfister et al., 2009). Of all the economic activities, agriculture has the highest freshwater consumption, accounting for 70% of consumption (UNESCO-WWAP 2009), as the livestock industry consumes 8% of the global water supply used for feed-based production (Schlinnk, A.; et al., 2010). This scenario in this industry is worrying, given the increase in the world's population and the consequent increase in the need for food, which will put food supply chains under stress, as well as many populations experiencing a significant decrease in available water (Ridoutt, B.; et al., 2011).

According to the research of (Ridoutt, B.; et al., 2011), water use has considerably fewer adverse effects on the environment than GHG emissions do. Thus, reducing GHG emissions is the industry's top priority. Even though this means using more water to reduce emissions, the balance will be positive in the long run.

From the environmental point of view, livestock production is the most polluting, with more GHG emissions compared to plant-based products. In addition, the land required to produce meat food is much greater than plant food (Venderley, A.; Campbell, W.; 2006). Thus, considering the meat industry's impact, plant-based options are more suitable for reducing the consequences for both the consumer and the environment. In the study of (Siegrist, M.; Hartmann, C.; 2018) consumers' eating habits were also influenced by how they viewed foods' effects on the environment. These results imply that raising public awareness of how different meals affect the environment may benefit the sustainability of consumers' food choices.

H4: Consumer sustainability consciousness moderates the relationship between perceived sensory attributes and purchase intention.

H4a: Consumer sustainability consciousness moderates the relationship between packaging perceived sensory attributes and purchase intention.

H4b: Consumer sustainability consciousness moderates the relationship between type of protein perceived sensory attributes and purchase intention.

2.8. Meat substitutes

Customers are more conscious of sustainable food production practices due to environmental and socioeconomic challenges, including deforestation, food security, and environmental pollution (Aiking; de Boer, 2006).

The trend toward changing dietary patterns and increasing consumption of meat substitutes has become a market opportunity. Creating appealing, protein-rich foods from plant sources has sparked much curiosity (Pumar, K.; et al. 2017). At least the 1960s, meat alternatives such as tofu and textured soy protein products were available in the West, and a growing number of different meat substitute options have emerged (Curtain, F.; Grafenauer, S.; 2019),

There is an increasing range of protein source options for obtaining meat substitutes from animal and vegetal origins. Plant proteins such as wheat gluten and peanut globulins, cottonseed, peanut, sesame, yeast, and soybean are the raw materials for meat substrates. Soy

proteins, pulses, almonds, cereal proteins, and vegetables are the primary ingredients used in manufacturing meat substitutes (Pumar, K.; et al. 2017).

In order to choose the type of protein to consume and use in a new product, there are two parameters to consider: the amino acids that the protein has, which translates into its quality, and the best way to use the protein, which assesses its digestibility. In general, proteins of animal origin, milk or eggs, for example, have higher quality because of their nutritional properties. (Hoffman, J.; Falvo, M.; 2004).

Less meat consumption, for example, substituting meat with meat alternatives, should be part of a more sustainable diet. Environmentally, meat production has a significant effect when compared to the production of plant-based foods. The non-vegetarian diet required 2,9 times as much water, 2,5 times as much primary energy, 13 times as much fertilizer, and 1,4 times as many insecticides as the vegetarian diet. Moreover, traditional meat diets score significantly higher regarding Green House Gas emissions and environmental impact than vegetarian diets (Sabaté & Soret, 2014).

Consumers' perception of taste and appearance is the most critical variable for practically accepting meat replacements. Long-term success requires accessibility and compatibility with local cuisine. It will only be possible to decrease meat consumption and promote the acceptance of meat alternatives to attain healthier, plant-based, more sustainable eating patterns if more information is available on consumer preferences (Weinrich, R.; 2019).

2.9. Food neophobia

Food neophobia is a concept created by Pliner and Hobden (1992) as a personality trait that can be measured using the Food Neophobia Scale (FNS)(Hoek, A.; et al., 2011). It is observed when an individual is reluctant to try new, processed, altered, or less typical food for a particular culture or individual (Alcorta, A., et al., 2021).

The concept of the omnivore's dilemma may have been a potential driver of food neophobia. In the Palaeolithic, the appearance of different foods had a completely different approach, as the main concern was to avoid poisonous food, which ended up restricting the diet. With the advent of cooking, especially fire, it became possible to give a new dimension to cooking, with the realization of which foods to eat, the development of a different sensory experience, and the

introduction of eating patterns that changed according to different cultures (Armelagos, G.; 2014)

Currently, food choices are different in every culture, but even in families, there are significant dissimilarities (Raundebush, B.; et al.; 1995). Knowing that food neophobia dramatically impacts the quality of diet, it becomes essential that there is familiarization with different foods and types of food from childhood (Alcorta, A.; et al., 2021).

With changing diets by consumers, opportunities have been created to develop new foods through the desire for sustainable foods, increased awareness of health and wellness, and other societal changes (Tuorila, H., Hartmann, C., 2020). An individual's attitude towards food affects their food choices. Food monotonicity, insufficient nutritional intake, and a high risk of failure of newly introduced food products are possible correlates of food neophobia (Svendsen, M.; et al.; 2017).

Thus, introducing new products to the market can be more challenging. Food producers and processors are forced to create new products due to market saturation and shifting consumer taste patterns to satisfy customer desires and requests and maintain their competitive position in the market (Barrena, R.; Sánchez, M.; 2012). However, to reduce food neophobia, a possible strategy is to adopt clear and informative labels. Identifying the precise protein source in the ingredient list makes it possible to improve consumer perception of the product, supporting the consumer movement towards 'clean labeling' (Alcorta, A., et al., 2021).

H5: Food Neophobia moderates the relationship between perceived sensory attributes and purchase intention.

H5a: Food Neophobia moderates the relationship between packaging perceived sensory attributes and purchase intention.

H5b: Food Neophobia moderates the relationship between type of protein perceived sensory attributes and purchase intention.

2.10. Conceptual Framework

The following image presents the conceptual model. This model, guided by prior research, aims to examine the different relationships between the concepts presented.

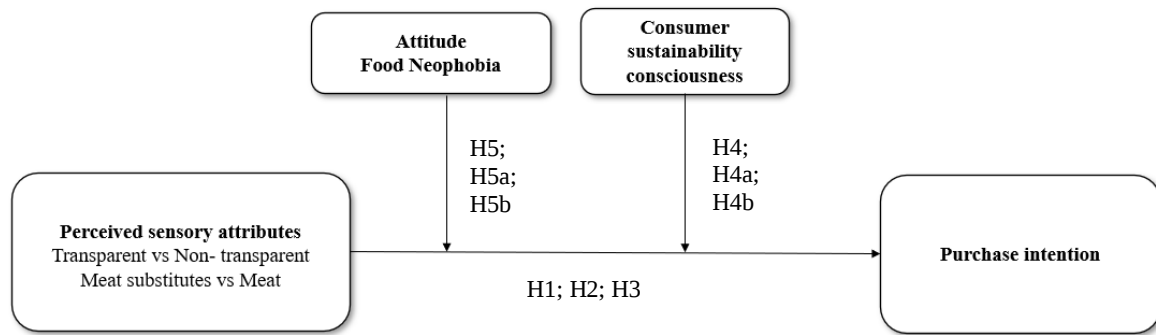


Figure 1: Conceptual Framework

CHAPTER 3: METHODOLOGY

This chapter presents the methodology used to answer the research questions. First part describes the research approach used to achieve the hypotheses mentioned above. It will also be explained the analysis of primary data, the details of the survey created to support the fundamental analysis and develop the stimuli and the indicators. These will be used to draw conclusions capable of responding to the hypotheses and research questions presented above.

3.1 Research Approach

The first step to begin this research process was understanding which topic would be interesting and which variables to study. To know how to collect the data, there is a need to have a strategy in place, which means how the research questions would be answered, considering variables such as perceived sensory attributes in meat substitutes considering the topics like food neophobia or sustainability.

After the research, it was essential to complete the conceptual model once it provided the basis for constructing the Literature Review, research question, and hypotheses.

The development of the Literature Review is crucial. Reviewing concepts, giving background for the research development, and establishing relationships between them are essential to begin constructing and synthesizing arguments for this dissertation. It is also essential to mention that this method was fundamental to creating a solid basis for analyzing the primary data.

Using explanatory research methods was essential to provide more detailed and profound research regarding this study related to meat substitutes.

The development of the stimuli was more challenging to concretize on paper the theory part than expected. However, after discussing different hypotheses related to the subject under study, it was possible to understand which variables were more appropriate to study, what would be more interesting, and what in the future could effectively make a difference in the acquisition of meat substitutes. At the end of this interaction process, it was possible to create the stimuli that can significantly impact reaching the sought conclusions. The stimuli were fundamental in the questionnaire, which provides the necessary data for the conclusions of this research. From this point on, it was possible to realize that the stimuli significantly impacted reaching the sought conclusions.

3.2 Primary Data

It is possible to have primary data through questionnaires. The person conducting the study is the one who has access, and that information cannot be found in another study or article and is obtained, as a rule, through (Curtis, K., 2008).

From the Literature Review and the research questions presented above, it is essential to understand consumers' purchase intention of meat substitutes. For this reason, an online survey was distributed to understand consumers to explore their attitudes and behaviors regarding meat substitutes.

The developed questionnaire (appendix 1) had 22 questions divided into seven blocks, corresponding to different topics such as the participant's demographics, sustainability consciousness, food neophobia, meat substitutes consumption habits, health consciousness, shopping habits, and finally, the stimuli, which included three questions each. The stimuli presented questions to understand the purchase intention in each case, the influence of the type of packaging, and a question regarding the type of protein. These last two questions were part of the stimuli randomization. It is also essential to mention that this method was fundamental to creating a solid basis for analyzing the primary data and were questioning the type of packaging and the type of protein not to compromise the study.

3.2.1 Data Collection

The survey presented is regarding consumers' intention to purchase meat substitutes. Knowing that meat consumption has been increasing more and more over the years, as analyzed above, it is vital to find new solutions and understand the market perspectives and new opportunities. Before the questionnaire was shared publicly, a test was carried out with a small group of 7 people to understand if the answers obtained were as desired, and for the questionnaire to be reliable, at least 200 answers were needed. The survey was shared online through social media like Instagram, Facebook, and WhatsApp as it is speedy, accessible, and easy to answer for respondents. It was also distributed in English and Portuguese to reach more age groups and not restricted by nationality targets.

3.2.2 Stimuli Development

For the stimuli, it was essential to have the sensory attributes represented since it is a variable of the conceptual model. Therefore, the section of the image that appealed to the taste and

texture was essential simultaneously, meaning that images had to have representative products that could disseminate that kind of sense to the respondents.

In that direction, it was pivotal to understand if there was a difference between the purchase intention of different types of protein, both meat and an alternative option, in this case soy, which is visible on the product's packaging. Also, the packaging presented was different to understand what type of packaging the consumers prefer. In this case there were two options presented, transparent and non-transparent packaging, so that it is possible to understand whether the fact that consumers visualize the product is decisive for the purchase or not.

In the following table (Table 1) are the four developed stimuli represented:

	Protein type: Beef	Protein type: Soy
Packaging: Transparent		
Packaging: Non-transparent		

Table 1 - Manipulation Scenarios

3.2.3 Measurement / Indicators

Divided into different parts, the questionnaire comprised questions associated with constructs and others that were not. It was essential to look for the constructs that best explained each point to assess the variables and moderators of the model. The food neophobia was based on the questionnaire by Pliner and Hobden, 1992 which accounts for a 7-point scale with 10 items. The next segment aims to understand the consumers' consciousness concerning sustainability and health based on the questionnaires of Lau, Hartman, and Ware (1998) with 7 items and Steptoe and Pollard, 1995, with 6 items, with 7-point Likert and 7-point Likert scales, respectively. All these constructs used contributed to the validity and reliability of the survey. Through this method, it was possible to evaluate consumer behavior in relation to different concepts.

Operational Model		
Constructs	Number of items	Literature for Scale Items
Perceived Sensory Attributes	Stimulus	Own Development
Food Neophobia	10	Henriques, A., King, S., Meiselman, H. (2009)
Consumer health consciousness	6	Steptoe, A. and Pollard, T. (1995)
Consumer sustainability consciousness	7	Loo, E., Hoefkens, C., Verbeke, W. (2015)
Purchase Intention	3	(Bao et al., 2011)

Table 2 - Operational Model with the respective Literature

3.3. Data Analysis

The collected survey data were analyzed using IBM SPSS Statistics to verify all the previous hypotheses in the Literature Review. The data preparation is essential, starting with the presentation of the sample and the respective descriptive statistics, including mean, standard deviation, and range. After obtaining the final number of responses, it was essential to perform the reliability test through Cronbach's alpha measure for all the constructs presented previously.

Testing the hypothesis regarding the relationships between our variables of interest was crucial. For this purpose, Process macro for SPSS was used to conduct regression analyses to examine direct and indirect effects on independent, dependent, and mediator variables. For all the tests, the confidence interval considered was 95%.

CHAPTER 4: RESULTS AND DISCUSSION

The next chapter will focus on the presentation of the critical features of the sample data. An analysis of the sample, characteristics and properties is essential to test the hypotheses presented above and the complete model to conclude this market research.

4.1 Results

The following steps will be to tailor the sample to check the sample's reliability, distribution, descriptive statistics, and hypothesis test results.

4.1.1 Sample preparation

Of the 592 responses, 160 answered only some of the questions, since it was not compulsory to answer all the questions in the questionnaire, there were quite a few missing values. Thus, they were eliminated from the sample since data quality is esteemed, namely having accurate and reliable data and not only random answers, which the participant needed to think out adequately. Additionally, for this questionnaire, only participants over 18 years of age were considered, thereby excluding four answers.

In order to finalize the database validation, it was essential to perform a manipulation check. Based on the results, 89 people should have correctly answered the protein type and packaging questions and were therefore excluded. In this way, a total of 253 answers were eliminated. This means that the analysis resulted in 342 valid responses remaining in the sample.

4.1.2. Outlier Analysis

The analysis of outliers was performed, and no invalid answers were excluded since the sample did not present extreme values that may not fit with the overall pattern of the data.

4.1.3 Sample characterization

Of the 342 respondents, women were predominant, with 67.3% and 32.7% male, 0.6% non-binary, and 0.9% preferred not to say. The representativeness of the participants in terms of age was well achieved since there were responses for all ranges, standing out between 18 and 24 with 20.5%, 25 and 34 with 19.6%, 45 and 54 with 21.3%, and 55 and 64 with 20.2%. The participants were diverse in terms of educational background, with 0.3% with only primary school, 15.8% with secondary school, 45.9% with a degree, and 38.0% with a master's degree.

The type of diet was also questioned, in which 83,9% considered themselves omnivorous, 7,9% vegetarian, 1,2% vegan, 2,9% have a gluten-free diet, and 4,1% have a type of diet not presented

in the hypotheses, such as lactose-free diet. Concerning the participants' eating habits, 50,6% responded that they eat meat substitutes, and of these, 12,9% eat daily, 51,4% consume weekly, and 34,1% monthly.

The stimulus presented in the survey were randomly distributed to the participants. The four scenarios, which had a corresponding image to make it more visual, differed in the type of protein (beef or soy) and packaging (transparent or non-transparent). The associated questions were related to purchase intention, packaging, and type of protein. For the first stimulus, SH had 78 answers (22,8%), BM 92 answers (26,9%), SM 83 answers (24,3%), and BH 89 answers (26,0%). This distribution was evaluated, and the distribution among the participants was statistically equitable ($X^2_{(3)}=1,368$; $p=0,713$).

Considering only the protein variable, 161 people answered for soy (47,1%) and 181 for beef (52,9%). Furthermore, for the packaging, 167 people answered for the transparent packaging (48,8%) and 175 for the opaque packaging (51,2%).

Variable	n	%
Gender		
Male	107	31,3
Female	230	67,3
Non-binary	2	0,6
Prefer not to say	3	0,9
Age Range		
18-24 years	70	20,5
25-34 years	67	19,6
35-44 years	36	10,5
45-54 years	73	21,3
55-64 years	69	20,2
+65 years	27	7,9
Level of education		
Primary school	1	0,3
High school	54	15,8
Bachelor's degree	157	45,9
Master's degree and above	130	38,0
Employment status		
Student	32	9,4
Working student	12	3,5
Employed full time	215	62,9
Self-employed	37	10,8
Employed part-time	3	,9
Unemployed looking for work	10	2,9
Unemployed not looking for work	9	2,6
Retired	24	7,0
Cohabitation		
Partner	92	26,9
Partner with children	91	26,6
Single parent	31	9,1
Roommates	20	5,8
Parents	55	16,1
Alone	44	12,9
Other	9	2,6
Total	342	100,0

Table 3 - Sample Demographics Characteristics

4.2. Measures Reliability

Before performing the data analysis, it was necessary to perform a reliability analysis of the constructs presented above. The measure used to assess reliability was Cronbach's alpha. Thus, it is possible to assess internal consistency, which describes how the items in a test measure the same concept (Tavakol, M.; Dennick, R., 2011).

The scale of George and Mallery (2003) was essential to have a scale to analyze the constructs presented in the operational model (Gliem, J.; Gliem, R.; 2033).

The sustainability consciousness construct, had a Cronbach's alpha of 0,773, considering it acceptable as well as the Food Neophobia construct, which had a Cronbach's alpha of 0,761. Finally, the Purchase Intention, which presented 3 items, had a Cronbach's alpha of 0,927.

Constructs	Cronbach's Alpha	Quality	Number of items
Sustainability Consciousness	0,773	Acceptable	7
Food Neophobia	0,761	Acceptable	10
Purchase Intention	0,927	Excellent	3

Table 4 - Cronbach's Alpha Scores

4.3. Hypothesis Test

H1: Purchase intention is positively influenced by perceived sensory attributes.

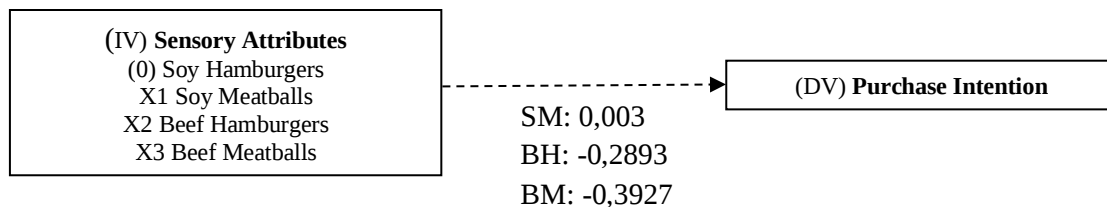


Figure 2 - Relationship between Purchase intention Perceived Sensory Attributes

The main goal of this hypothesis was to analyze the relationship between the dependent and independent variables without the effect of the moderator. In this case, the regression model was not valid ($F_{(7, 338)} = 2,4053$; $p = 0,0673$) with the variation in purchase intention explained only 2.09% by sensory attributes ($R^2 = 0,0209$). The significant observable impact is only for the beef meatballs stimulus, which has a negative impact on purchase intention ($B = -0,3927$; $t = -2,1201$; $p = 0,0347$), revealing that participants with the beef meatballs stimulus have a 0.3927 lower purchase intention than those who answered the soy hamburger questions. Thus, it is not possible to verify hypothesis 1.

H2: Transparent packaging has a higher impact on purchase intent than non-transparent packaging.

For this hypothesis, the most appropriate test was the t-test since the intent was to compare two independent samples regarding the dependent variable.

In this case, the test was to understand if the packaging impacts the purchase intention. Of the 167 participants that answered the transparent packaging question, the purchase intention mean

was 2.31 (SD=1,28). For the 175 participants that answered the question regarding non-transparent packaging, the purchase intention mean was 2,26 (SD=1,15), as shown in table X. Despite the difference of 0,05, the participant's purchase intention with transparent packaging does not prove to be significantly higher compared to participants that answered for non-transparent packaging ($t_{(340)} = 0,398$; $p = 0,346$). Thus, it is possible to conclude that hypothesis 2 is not valid.

	Purchase Intention				P (one-side)
	N	Mean	Std. Deviation	t340	
Transparent	167	2,31	1,28	0,398	0,346
Non-transparent	175	2,26	1,15		

Table 5 - T-Test for Hypothesis 2

H3: The impact of meat on purchase intention is higher compared to meat substitutes.

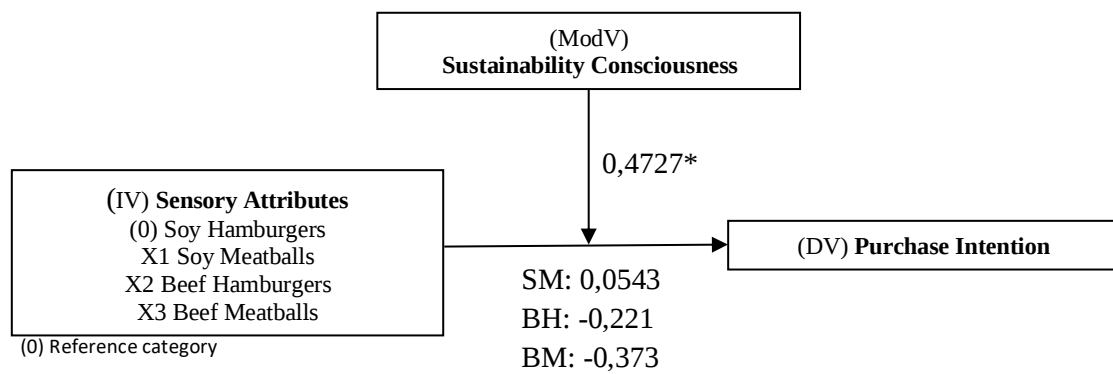
The test performed to conclude this hypothesis was also a t-test.

In this case, the 181 respondents with beef stimulus had a mean purchase intention of 2,12 (SD=1,19), and the 161 with soy stimulus had a mean purchase intention of 2,46 (SD=1,21). The difference of 0.34 is statistically significant, which means that participants with the soy protein stimulus have a higher purchase intention than those with the beef protein stimulus ($t_{(340)} = -2,630$; $p = 0,04$). Thus, hypothesis 3 is not confirmed.

	Purchase Intention				P (one-side)
	N	Mean	Std. Deviation	t340	
Beef	181	2,12	1,19	-2,63	0,004
Soy	161	2,46	1,21		

Table 6 - T-Test for Hypothesis 3

H4: Consumer sustainability consciousness moderates the relationship between perceived sensory attributes and purchase intention.



*** Significant at $p < 0,1\%$, ** Significant at $p < 1\%$, *Significant at $p < 5\%$

Figure 3 - The moderating effect of Sustainability Consciousness in the relationship between Sensory Attributes and Purchase Intention

The relationship between sensory attributes and purchase intention is also essential to understand to draw conclusions that help answer the research questions. It was crucial to study this relationship using Process Macro model 4. In this case, the moderator considered was sustainability consciousness, and it was found that the model presented is statistically significant ($F_{(7,334)} = 2,7933$, $p = 0,0077$), explaining 5,53% ($R^2 = 0,0553$) of the variation in purchase intention (Table 8).

From the results in table 8, sensory attributes have a significant adverse effect on purchase intention, where participants under the beef meatballs stimulus reveal a lower purchase intention compared to participants who responded to the stimulus associated with soy hamburgers ($B = -0,3730$, $t = -2,0234$, $p = 0,0438$). However, regarding sustainability consciousness, it was found that they significantly positively affect purchase intention. The higher the sustainability consciousness, the higher the purchase intention for meat substitutes, as shown in Figure 4.

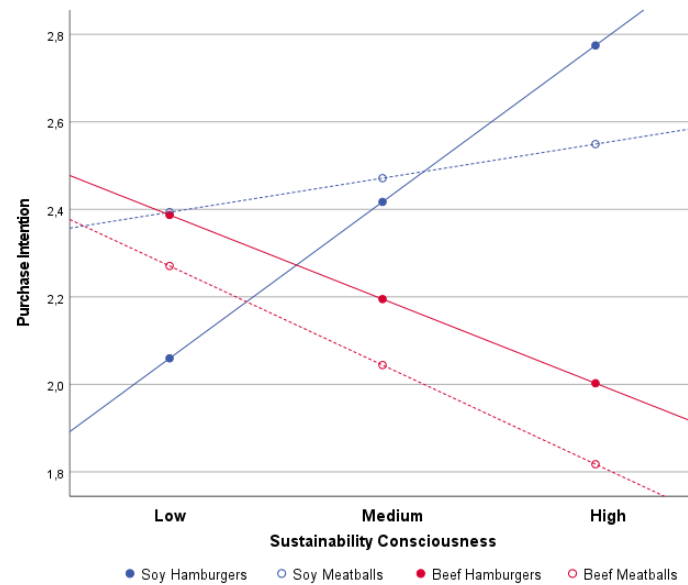


Figure 4 - Sustainability Consciousness and Purchase Intention Relationship Chart

Thus, there is an interaction effect between sensory attributes and sustainability consciousness, highlighting that participants responding to beef hamburgers reveal a much lower purchase intention than those exposed to soy hamburgers ($B = -0,7270$, $t = -2,6797$, $p = 0,0077$). Participants exposed to the beef meatballs stimulus also showed an equally lower purchase intention when compared to soy hamburgers ($B = -0,7722$, $t = -3,1677$, $p = 0,0017$).

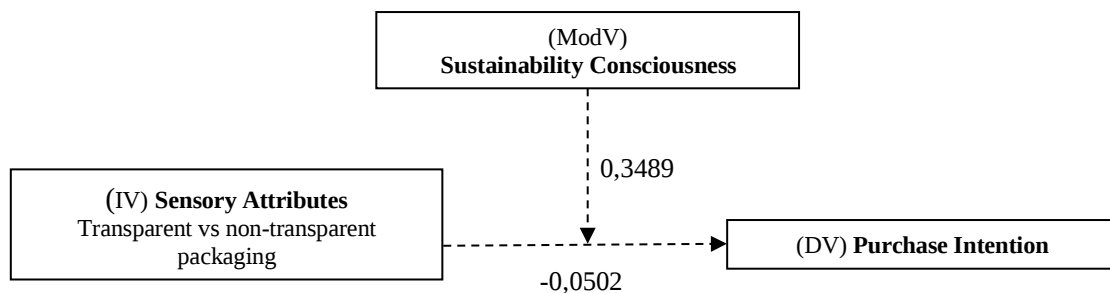
Table 9 (appendix 3) shows the effects of sensory attributes on purchase intention according to the levels of the moderator's sustainability consciousness. After standardization of the moderator, it was considered a LOW sustainability consciousness the results below/equal to -1, with a standard deviation below the mean ($SD=0,7564$), a MEDIUM sustainability consciousness results in between -1 and 1 standard deviation from the mean and a HIGH sustainability consciousness result in 1, with standard deviation above the mean. Thus, it can be concluded that when participants have a LOW sustainability consciousness, sensory attributes do not significantly impact purchase intention ($F_{(7,334)} = 0,6084$, $p = 0,6100$).

The same is true when participants have a MEDIUM sustainability consciousness. In this condition, sensory attributes do not significantly impact purchase intention ($F_{(7,334)} = 2,3849$, $p = 0,0691$). Despite this result, a significant adverse effect associated with the beef meatballs stimulus emerges in the model. Purchase intention is lower for participants who answered questions about Soy Hamburgers ($B=-0,3730$; $t=-2,0234$; $p = 0,0438$).

Finally, when participants have HIGH sustainability consciousness, sensory attributes statistically affect purchase intention ($F_{(7,334)} = 6,1018$, $p = 0,0005$), participants exposed to

stimuli associated with beef protein, namely those exposed to beef hamburgers ($B=-0,7720$; $t=-2,9926$; $p = 0,0030$) and beef meatballs ($B=-0,9571$; $t=-3,7288$; $p = 0,0002$), showing a significantly lower purchase intention than those exposed to soy hamburger. Thus, it is possible to accept hypothesis 4.

H4a: Consumer sustainability consciousness moderates the relationship between packaging perceived sensory attributes and purchase intention.



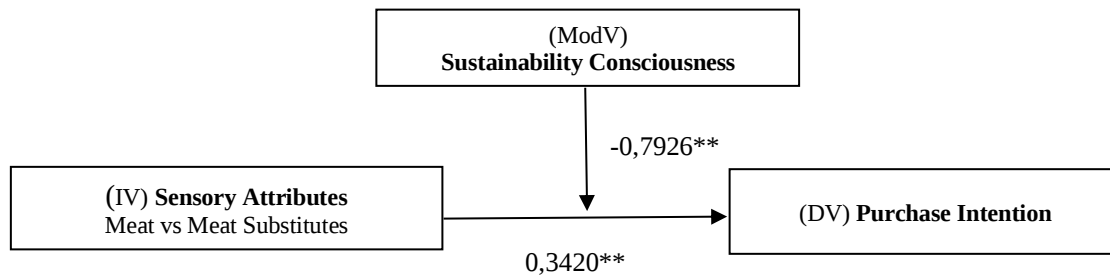
*** Significant at $p<0,1\%$, ** Significant at $p<1\%$, *Significant at $p<5\%$

Figure 5 - The moderating effect of Sustainability Consciousness in the relationship between Product Packaging and Purchase Intention

The present model aims to verify whether sustainability consciousness moderates the relationship between packaging and purchase intention. From the results, it is possible to understand that packaging does not have a significant effect on purchase intention ($B = -0,0502$, $t = -0,3801$, $p = 0,7041$), in the same way, that consumer's sustainability consciousness does not present a significant effect on purchase intention ($B = 0,3489$, $t = 1,1679$, $p = 0,2437$). Finally, there is also no interaction effect between packaging and sustainability consciousness, i.e., the levels of sustainability consciousness do not change the effect of packaging ($B = -0,2273$, $t = -1,2732$, $p = 0,2038$).

Thus, it is possible to conclude that the model is not statistically significant ($F_{(3, 338)} = 0,6025$, $p = 0,6138$), explaining only 0.53% ($R^2=0,0053$) of the purchase intention variation. So, hypothesis H4.a is rejected.

H4b: Consumer sustainability consciousness moderates the relationship between type of protein perceived sensory attributes and purchase intention.



*** Significant at $p < 0,1\%$, ** Significant at $p < 1\%$, *Significant at $p < 5\%$

Figure 6 - The moderating effect of Sustainability Consciousness in the relationship between the type of protein and Purchase Intention

This proposed model aims to conclude the moderating effect of sustainability consciousness relative to protein type on purchase intention. This moderation model is statistically significant ($F_{(3, 338)} = 5,5084$ $p = 0,0011$), explaining 4.66% ($R^2 = 0,0466$) of the variation in purchase intention.

Understanding how the type of protein affects consumers' purchase intention is essential. In this case, participants stimulated by meat substitutes showed a higher purchase intention than those who answered beef questions ($B = 0,3420$, $t = 2,6586$, $p = 0,0082$).

The interaction effect is positive ($B = 0,5225$, $t = 3,0732$, $p = 0,0023$), and the greater the sustainability consciousness, the greater the impact on the purchase intention of meat substitutes compared to meat.

Table 12 (appendix 5) shows the effect of protein type on purchase intention according to the levels of the moderator sustainability consciousness. In this case, LOW sustainability consciousness was considered the result to be -1 with a standard deviation below the mean ($SD = 0,7564$), MEDIUM for results between -1 and 1 with a standard deviation equal to the mean, and HIGH with results 1 with a standard deviation above the mean ($SD = 0,7564$).

From the analysis, participants presenting a LOW sustainable consciousness, the type of protein does not present a statistically significant effect on purchase intention ($B = -0,0532$; $t = -0,2927$; $p = 0,7699$). Considering the following MEDIUM level, the type of protein already shows a positive effect on purchase intention ($B = 0,3420$; $t = 2,6586$; $p = 0,0082$), and the purchase intention of meat substitutes is higher than that of meat. Regarding the HIGH level of

sustainability consciousness, the type of protein has a positive effect on purchase intention ($B=0,7373$; $t=4,0526$; $p=0,0001$).

Thus, with the increase of sustainability consciousness, participants' purchase intention for meat tends to decrease, as shown in figure 7. Finally, it is possible to conclude that hypothesis 4b is accepted.

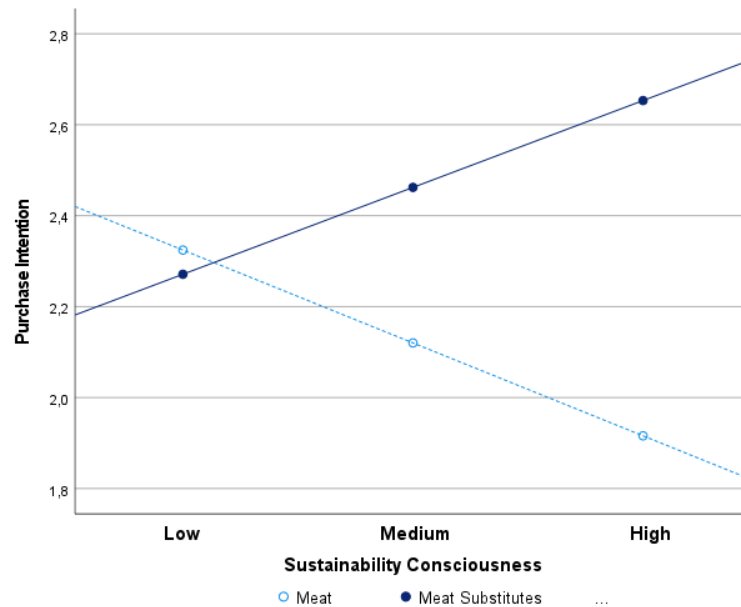


Figure 7 - Sustainability Consciousness and Purchase Intention Relationship Chart

H5: Food Neophobia moderates the relationship between perceived sensory attributes and purchase intention.

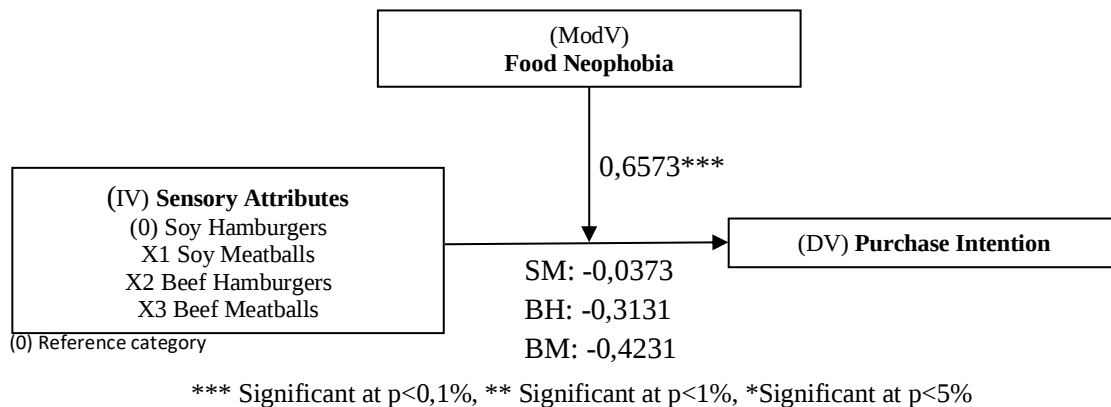


Figure 8 - The moderating effect of Food Neophobia in the relationship between Sensory Attributes and Purchase Intention

The present model aims to assess whether Food Neophobia moderates the relationship between Sensory Attributes (IV) and Purchase Intention (DV).

The results show that the sensory attributes related to beef meatballs have a significant adverse effect on purchase intention. Participants under the beef meatballs stimulus show a lower purchase intention than the soy hamburgers stimulus ($B = -0,4231$, $t = -2,3230$, $p = 0,0208$).

Regarding the moderator, it was found that food neophobia has a significant negative effect on purchase intention, where the higher the food neophobia, the lower the purchase intention ($B = -0,6573$, $t = -3,4456$, $p = 0,0006$).

Finally, there was an interaction effect between sensory attributes and food neophobia, where participants exposed to beef hamburgers stimulus revealed a significantly higher purchase intention than those exposed to soy hamburgers ($B = 0,6917$, $t = 2,5687$, $p = 0,0106$), as well as those exposed to beef meatballs having a significantly higher purchase intention than those exposed to soy hamburgers ($B = 0,5602$, $t = 2,1947$, $p = 0,0289$), as shown in Table 13 (appendix 6).

Table 14 (appendix 6) shows the effects of sensory attributes on purchase intention as a function of food neophobia moderator levels. After food neophobia standardization, we considered LOW food neophobia as 1 standard deviation below the mean ($SD=0,6993$), MEDIUM food neophobia as -1 to 1 standard deviation above the mean, and HIGH food neophobia as 1 standard deviation above the mean ($SD=0,6993$).

Thus, when participants exhibit a LOW food neophobia, sensory attributes have a statistically significant effect on purchase intention ($F_{(7,334)} = 5,5683$, $p = 0,0010$). Participants exposed to beef protein stimuli had a significantly lower purchase intention than those exposed to soy hamburgers, more precisely, beef hamburgers ($B = -0,7969$; $t = -2,8728$; $p = 0,0043$) and beef meatballs ($B = -0,8149$; $t = -3,2690$; $p = 0,0012$).

When participants have MEDIUM food neophobia, the sensory attributes marginally impact purchase intention ($F_{(7,334)} = 2,6205$, $p = 0,0507$), participants exposed to the beef hamburgers stimulus have a significantly lower Purchase Intention than those exposed to soy hamburgers ($B = -0,4231$; $t = -2,3230$; $p = 0,0208$).

However, when participants have a HIGH food neophobia, sensory attributes do not significantly impact purchase intention.

Thus, it is possible to accept hypothesis 5.

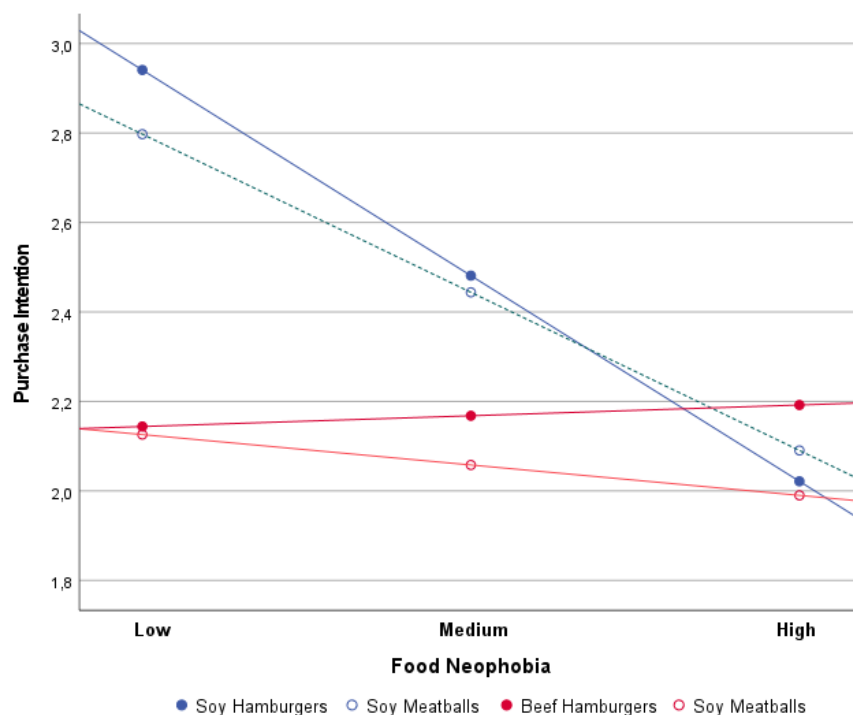
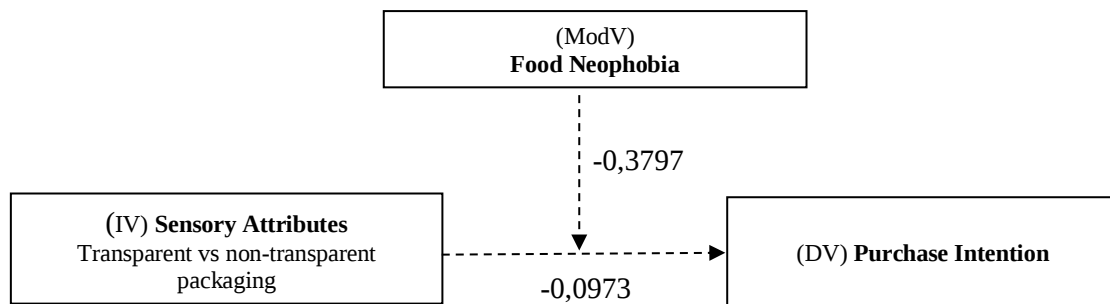


Figure 9 - Food Neophobia and Purchase Intention Relationship Chart considering each stimulus.

H5a: Food Neophobia moderates the relationship between packaging perceived sensory attributes and purchase intention.



*** Significant at $p < 0,1\%$, ** Significant at $p < 1\%$, *Significant at $p < 5\%$

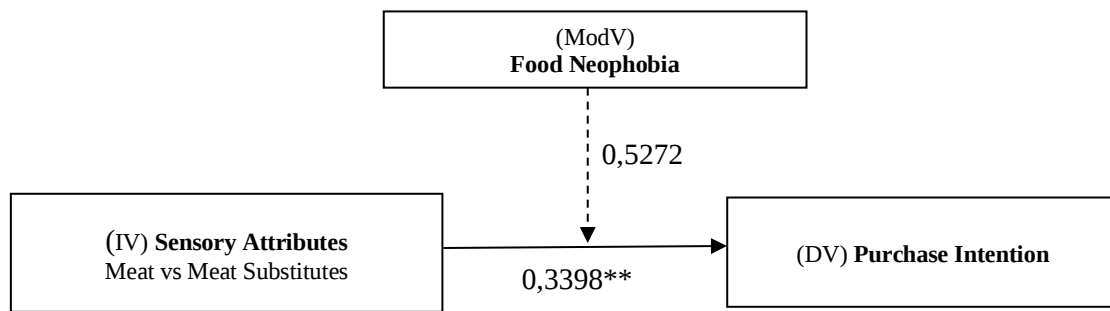
Figure 10 - The moderating effect of Food Neophobia in the relationship between packaging and Purchase Intention

The type of packaging can also influence purchase intention. For this reason, the presented model aims to assess whether food neophobia moderates the relationship between packaging and purchase intention.

The model presented cannot be considered statistically significant ($F_{(3, 338)} = 3,3593$, $p = 0,0190$), explaining only 2.90% ($R^2 = 0,0290$) of the variation in purchase intention. From table 14 it is possible to understand that packaging does not have a significant effect on purchase intention ($B = -0,0973$, $t = -0,7459$, $p = 0,4563$), nor does food neophobia have a significant effect on the independent variable ($B = -0,3797$, $t = -1,2574$, $p = 0,2095$). Additionally, there is no interaction effect between packaging and purchase intention when considering food neophobia, i.e., purchase intention does not change as a function of participants' food neophobia levels ($B = 0,0568$, $t = 0,3033$, $p = 0,7619$).

Thus, since the model is only significant because of the constant ($p < 0.001$), and none of the relationships are significant, so the proposed hypothesis 5a is not verified.

H5b: Food Neophobia moderates the relationship between type of protein perceived sensory attributes and purchase intention.



*** Significant at $p < 0,1\%$, ** Significant at $p < 1\%$, *Significant at $p < 5\%$

Figure 11 - The moderating effect of Food Neophobia in the relationship between the type of protein and Purchase Intention

The moderating effect food neophobia has associated with protein type, and purchase intention is presented in figure 11. In this case, the model is statistically significant ($F_{(3, 338)} = 8,7660$, $p < 0,0001$), explaining 7.22% ($R^2 = 0,0722$) of the variation in purchase intention. Thus, the type of protein has a significant positive effect on purchase intention, where participants under the meat substitute stimulus show a higher purchase intention than those associated with the meat stimulus ($B = 0.3398$, $t = 2.6775$, $p = 0.0078$).

When the effect of food neophobia on purchase intention was analyzed, it was found to have no significant effect on purchase intention ($B = 0,5227$, $t = 1,8712$, $p = 0,0622$). Additionally, there was a negative interaction effect between the type of protein and food neophobia ($B = -0.5229$, $t = -3.0406$, $p = 0.0025$), with the higher the food neophobia, the lower the impact of meat substitutes compared to meat.

Table 17 (appendix 8) shows the effects of protein type on purchase intention as a function of the moderator: food neophobia.

Once again, it was created levels for food neophobia, where LOW corresponds to -1 results with a standard deviation lower than the mean ($SD = 0.6993$), MEDIUM for results between -1 and 1 and a standard deviation equal to the mean, and HIGH with results of 1 and standard deviation higher than the mean ($SD = 0.6993$).

Analyzing each level of food neophobia, for LOW, the type of protein has a significant positive effect on purchase intention ($B = 0,7264$; $t = 4,0448$; $p = 0,0001$). As for the MEDIUM level, the type of protein has a significant positive effect on purchase intention ($B = 0,3398$; $t = 2,6775$;

p=0,0078). Moreover, finally, when participants have a HIGH level of food neophobia, the stimulus protein type does not show a statistically significant effect.

Thus, with increasing food neophobia, the purchase intention associated with meat substitutes tends to decrease, and that of meat remains the same, as shown in figure 12.

The model and the interaction between the moderator and the independent variable are significant. Although the main effect of food neophobia is not statistically significant and does not have a massive impact on the outcome variable, when observing the levels created, it should be noted that two of the three are significant, showing a clear trend that the higher the food neophobia, the lower the purchase intention of meat substitutes. Thus, it is possible to accept hypothesis 5b accepted.

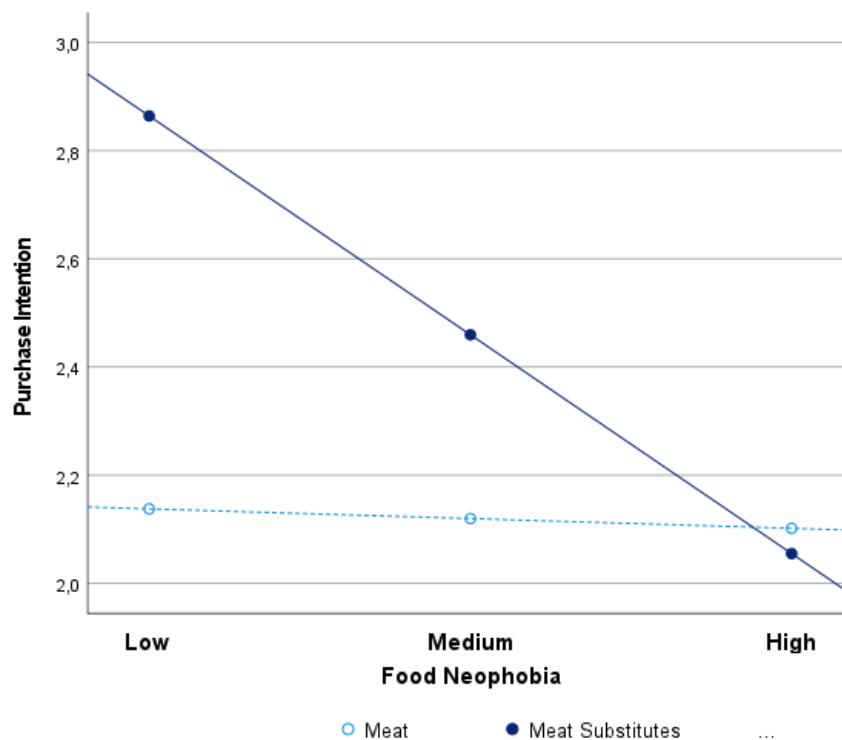


Figure 12 - Food Neophobia and Purchase Intention Relationship Chart

4.4. Full Model Test

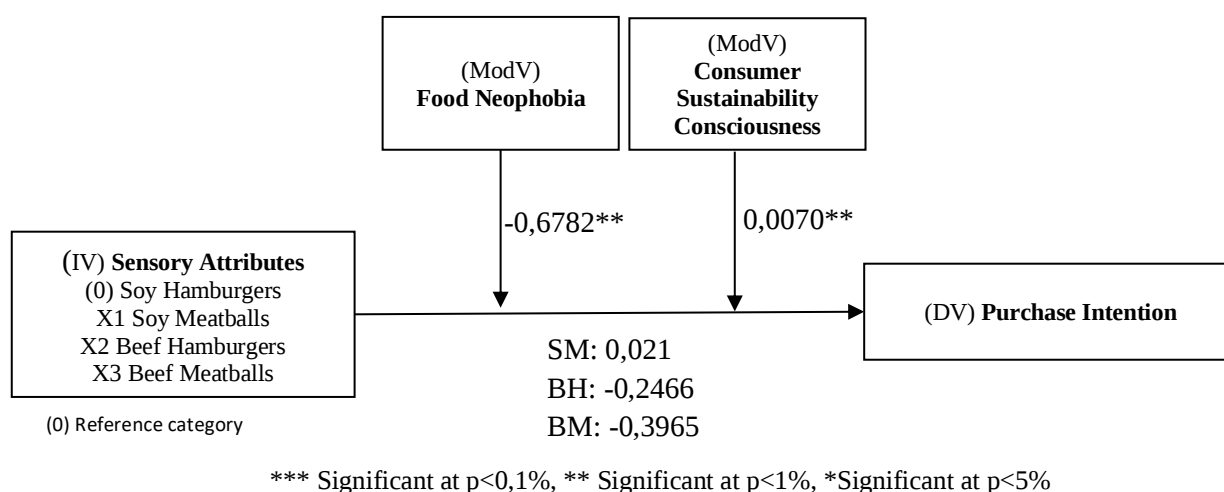


Figure 13 - The moderating effect of Food Neophobia and Sustainability Consciousness in the relationship between Sensory Attributes and Purchase Intention

The model presented purposes to evaluate whether food neophobia and consumer sustainability consciousness have a moderating effect on the relationship between sensory attributes and purchase intention.

Table 19 (appendix 9) shows that the sensory attributes related to beef meatballs have a significant adverse effect on purchase intention, in which participants exposed to the beef meatballs stimulus show a lower purchase intention compared to participants exposed to the soy hamburger stimulus ($B = -0,3965$, $t = -2,1947$, $p = 0,0289$).

It was found that food neophobia has a significant negative effect on purchase intention, where the higher the food neophobia, the lower the purchase intention ($B = -0,6782$, $t = -3,6032$, $p = 0,0004$). Thus, there is an interaction effect between sensory attributes and food neophobia, where participants exposed to the beef hamburger stimulus show a significantly higher purchase intention than those exposed to the soy hamburger stimulus ($B = 0,7375$, $t = 2,7706$, $p = 0,0059$) and those exposed to beef meatballs also show a significantly higher purchase intention than those associated with soy hamburger ($B = 0,6213$, $t = 2,4596$, $p = 0,0144$).

Consumer sustainability consciousness has a significant positive effect on purchase intention, where the higher the sustainability consciousness, the higher the purchase intention. Further specifying and analyzing the interaction of sustainability consciousness with sensory attributes, it is possible to verify that participants exposed to the beef hamburger stimulus reveal a significantly lower purchase intention compared to the responses to the soy hamburger stimulus

($B = -0,7600$, $t = -2,8636$, $p = 0,0045$) and those associated with the beef meatballs stimulus also show a lower purchase intention compared to the soy hamburger stimulus ($B = -0,7930$, $t = -3,3230$, $p = 0,0010$). Thus, it is confirmed that the model is statistically significant ($F_{(11, 330)} = 3,7783$, $p < 0,001$), explaining 11.19% ($R^2=0,1119$) of the variation in purchase intention.

CHAPTER 5: CONCLUSIONS AND LIMITATIONS

This chapter's goals are to summarize the study's key findings, make inferences from them, and discuss the research's consequences, together with recommendations for future studies that could build on the contributions of this study. This chapter evaluates the research and contributes to the more extensive academic discussion by analyzing the study's strengths and flaws.

5.1 Main Findings & Conclusions

RQ1: What influence does the package have on the purchase intention of meat substitutes?

One of the objectives of this study was to determine whether packaging could influence consumer attitudes. For this purpose, two different types of packaging were presented: transparent and non-transparent, both for beef and soy.

Packaging was studied under different hypotheses to see whether it would have an impact on consumer choice and purchase intention. After analyzing the results, it is possible to understand that there is no impact on the purchase intention, whether under the influence of food neophobia or sustainability consciousness individually. However, when one evaluates the sensory attributes as a whole, analyzing the type of protein and the packaging together, there is a significant interaction between the dependent variable and purchase intention for each moderator.

Although it was found that the fact of transparent packaging could translate into higher purchase intention by being more credible and having higher ratings by consumers (D. Billeter, M. Zhu, J.J. Inman; 2012), in this study, it was not possible to draw such conclusions.

RQ2: Does consumer sustainability consciousness influences meat substitute consumption?

Does the fact that people are more environmentally conscious regarding meat and the impact of its industry have a significant effect on purchase intention? Yes. Through the analysis, it is possible to verify that when the moderator considered sustainability consciousness, the higher this factor presented by the participant, the higher his/her purchase intention for meat substitutes.

Through the levels of sustainability consciousness defined (low, medium, high), it is possible to conclude that the purchase intention for meat substitutes has more significant interaction with the moderator at the "high" level, which could mean that more access to information and more knowledge regarding the environmental impact of the meat industry, the higher is the consumer's tendency to decrease meat consumption.

RQ3: Is Food Neophobia a barrier to starting eating and buying meat substitutes?

In this study, it was essential to understand if the attitude associated with food neophobia has any influence when the consumer faces a product different from what is considered more standard. Knowing that this can be a barrier to the consumption of meat substitutes, the different interactions that could exist and influence the purchase intention of meat substitutes were studied.

According to the analysis made for each stimulus, it was found that participants associated with beef hamburgers had a significantly higher purchase intention than those exposed to soy hamburgers.

When considering only the packaging, food neophobia has impact on the consumer's purchase intention, concluding that the fact of seeing the product does not influence decision-making. When considering only the type of protein, purchase intention decreases significantly for meat substitutes as the level of food neophobia increases, while that of meat remains almost constant.

In addition to seeking to answer these questions, it was also interesting to understand that the model is not statistically significant without moderators, which means that moderators play a crucial role in the relationship between the dependent and independent variable. This is why the study of the remaining hypotheses was essential to understand what could impact purchase intention when it comes to meat substitutes.

5.2 Managerial / Academic Implications

This study was conducted to understand which drivers could contribute to the purchase intention of meat substitutes. In this case, it was perceived that when the participant manifests a greater sustainability consciousness, the purchase intention for meat substitutes is much higher than beef. These conclusions may be necessary for the adaptation of marketers' future strategies.

The increasing popularity of meat substitutes presents significant opportunities and challenges for marketers in the nourishment industry. If well thought out, marketers can develop strategies that address consumers' unique attributes and motivations interested in meat substitutes.

The analysis concluded that an awareness of sustainability impacts the purchase intention of meat substitutes. This conclusion can be a starting point for strategy development as consumers become more environmentally conscious and increasingly interested in plant-based foods with nutritional benefits and lower environmental impact.

It was also found that food neophobia impacts purchase intention, which can be a barrier to acquiring meat substitutes. In this case, it may be part of the marketer's strategy that the new substitutes are as similar as possible to the meat.

5.3 Limitations and Further Research

This research has different limitations that must be mentioned. When doing marketing research that is based on a survey, several constraints should be considered. First, even if the questionnaire was distributed randomly, the sample may not fully represent the population, leading to sampling bias. Also, when answering the survey respondents may be more likely to give answers that they believe are socially acceptable. It should also be noted that the sample had many answers, but as many participants left many questions unanswered, this affected the final number of answers counted.

Furthermore, it was only possible to present four stimuli in the questionnaire, referring to hamburgers and meatballs, which may not meet the participants' food preferences and influence how they answer the questions.

Studying sensory attributes is not accessible through a questionnaire where participants do not have the opportunity to interact with the product. Through the images presented, only the type of packaging was considered, whether it was transparent or opaque, as well as the type of protein. Besides the fact that more variables are associated with the foodstuff's packaging type, the associated image is also essential to persuade the purchase. In this case, the images presented may have been unclear to some participants, influencing the response.

As already mentioned, evaluating different sensory parameters, such as texture and flavor, was impossible in this study. It would be interesting to evaluate the differences consumers feel when

tasting the same product where only the type of protein varies and to understand why this product is not purchased more often or why they have not tried it before if that is the case.

Further research should focus on other factors influencing consumers' purchase intention for meat substitutes. Besides the sensory part, it can be interesting to understand the impact of price and the lack of information regarding certain types of protein.

Finally, it would be essential to study if information regarding the impact of meat production on the environment was shared and if it would impact consumers' choices after accessing this information.

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APPENDICES

Appendix 1: Survey

Introduction

This questionnaire is an integral part of the research that is being carried out for my Master's thesis at Católica Lisbon School of Business and Economics. It is available in Portuguese and English, and it will take you approximately 4 minutes to complete the full questionnaire. It is important to remember that all answers are anonymous and therefore the data is confidential. If you have any questions, please do not hesitate to send an e-mail to: s-anmamartins@ucp.pt. Thank you for your participation!

Block 1: Food Shopping

Q01 How often do you do the food shopping?

- ☐ Never (1)
- ☐ Daily (2)
- ☐ Weekly (3)
- ☐ Monthly (4)

Block 2: Health

Q02 It is important to me that the food I eat on a typical day:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Contains a lot of vitamins and minerals (1)	☐	☐	☐	☐	☐
Keeps me healthy (2)	☐	☐	☐	☐	☐
Is nutritious (3)	☐	☐	☐	☐	☐
Is high in protein (4)	☐	☐	☐	☐	☐
Is good for my skin/teeth/hair/nails (5)	☐	☐	☐	☐	☐
Is high in fibre (6)	☐	☐	☐	☐	☐

Block 3: Sustainability

Q03 Consider the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I am fussy about where my meat comes from (1)	☐	☐	☐	☐	☐
I always try to buy meat that has been produced in my country (2)	☐	☐	☐	☐	☐
I think it is important to buy meat that was produced with good standards of animal welfare (3)	☐	☐	☐	☐	☐
I choose food which has been produced in a way that minimises cruelty to animals (4)	☐	☐	☐	☐	☐
I buy free range meat where possible (5)	☐	☐	☐	☐	☐
I don't really think much about the animal when I buy meat (6)	☐	☐	☐	☐	☐
To help reduce the impact of climate change, it is better to eat less animal foods (7)	☐	☐	☐	☐	☐

Block 4: Randomization and attribution of stimulus - Soy Hamburger

Q04 Imagine you're in the supermarket doing your food shopping. Consider that the following product is found in that same supermarket.



Q05 Consider the next statements regarding the product presented previously

	Stongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The likelihood of my purchasing this product is very high (1)	☐	☐	☐	☐	☐
The probability that I would try this product is very high (2)	☐	☐	☐	☐	☐
My willingness to buy this product is very high (3)	☐	☐	☐	☐	☐

Q06 What did the packaging of the previous product look like?

- ☐ Transparent (1)
- ☐ Non-transparent (2)

Q07 What was the type of protein in the product presented?

- ☐ Beef (1)
- ☐ Soy (2)

Block 5: Randomization and attribution of stimulus - Beef Meatballs

Q04 Imagine you're in the supermarket doing your food shopping. Consider that the following frozen product is found in that same supermarket.



Q05 Consider the next statements regarding the product presented previously

	Stongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The likelihood of my purchasing this product is very high (2)	☐	☐	☐	☐	☐
The probability that I would try this product is very high (3)	☐	☐	☐	☐	☐
My willingness to buy this product is very high (4)	☐	☐	☐	☐	☐

Q06 What did the packaging of the previous product look like?

- ☐ Transparent (1)
- ☐ Non-transparent (2)

Q07 What was the type of protein in the product presented?

- ☐ Beef (1)
- ☐ Soy (2)

Block 6: Randomization and attribution of stimulus - Soy Meatballs

Q04 Imagine you're in the supermarket doing your food shopping. Consider that the following frozen product is found in that same supermarket.



Q05 Consider the next statements regarding the product presented previously:

	Stongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The likelihood of my purchasing this product is very high (2)	☐	☐	☐	☐	☐
The probability that I would try this product is very high (3)	☐	☐	☐	☐	☐
My willingness to buy this product is very high (4)	☐	☐	☐	☐	☐

Q06 What did the packaging of the previous product look like?

- ☐ Transparent (1)
- ☐ Non-transparent (2)

Q07 What was the type of protein in the product presented?

- ☐ Beef (1)
- ☐ Soy (2)

Block 7: Randomization and attribution of stimulus - Beef Hamburger

Q04 Imagine you're in the supermarket doing your food shopping. Consider that the following product is found in that same supermarket.



Q05 Consider the next statements regarding the product presented previously:

	Stongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The likelihood of my purchasing this product is very high (2)	☐	☐	☐	☐	☐
The probability that I would try this product is very high (3)	☐	☐	☐	☐	☐
My willingness to buy this product is very high (4)	☐	☐	☐	☐	☐

Q06 What did the packaging of the previous product look like?

- ☐ Transparent (1)
- ☐ Non-transparent (2)

Q07 What was the type of protein in the product presented?

- ☐ Beef (1)
- ☐ Soy (2)

Block 8: Meat Substitutes Habits

Q09 Do you eat meat substitutes?

- ☐ Yes (3)
- ☐ No (4)

Display This Question: If Do you eat meat substitutes? = Yes

Q10 How often do you eat meat substitutes per month?

- ☐ Never (1)
- ☐ Daily (2)
- ☐ Weekly (3)
- ☐ Monthly (4)

Display This Question: If Do you eat meat substitutes? = Yes

Q11 In which situations do you eat meat substitutes ?

- ☐ Fast-food (1)
- ☐ Restaurant (2)
- ☐ Cooking at home (3)
- ☐ Other (4) _____

Display This Question: If Do you eat meat substitutes? = Yes

Q12 What is the main reason why you started eating meat substitutes?

- ☐ Impact on health (1)
- ☐ Impact of the livestock industry on the environment (2)
- ☐ Impact on animals' lives (3)
- ☐ Religious convictions (4)
- ☐ Other (5) _____

Display This Question: If Do you eat meat substitutes? = Yes

Q13 How would you rate your experience with meat substitutes?

- ☐ Very good (1)
- ☐ Good (2)
- ☐ Fair (3)
- ☐ Poor (4)
- ☐ Very poor (5)

Display This Question: If Do you eat meat substitutes? = No

Q14 What is the biggest barrier to buy meat substitutes?

- ☐ Price (1)
- ☐ Flavour (2)
- ☐ Texture (3)
- ☐ Packaging (4)
- ☐ Difficult to find to buy (5)
- ☐ Not knowing how to cook (6)
- ☐ Other (7) _____

Block 8: Food Neophobia

Q15 Regarding your food habits, how would you rate the next statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I am constantly sampling new and different foods (1)	☐	☐	☐	☐	☐
I trust new foods (2)	☐	☐	☐	☐	☐
If I don't know what is in a food, I won't try it (3)	☐	☐	☐	☐	☐
I like foods from different countries (4)	☐	☐	☐	☐	☐
At dinner parties I will try new food (5)	☐	☐	☐	☐	☐
I am afraid to eat things I have never had before (6)	☐	☐	☐	☐	☐
I am very particular about the foods I will eat (7)	☐	☐	☐	☐	☐
I will eat almost everything (8)	☐	☐	☐	☐	☐

Q16 Consider the following statements:

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The meat substitute product has to taste the same as meat (1)	☐	☐	☐	☐	☐
The packaging of a meat substitute is very important (2)	☐	☐	☐	☐	☐
Price is decisive when buying a meat substitute (3)	☐	☐	☐	☐	☐
Texture is essential when buying a meat substitute (4)	☐	☐	☐	☐	☐
I am likely to start replacing meat with different meat substitutes (5)	☐	☐	☐	☐	☐

Block 9: Respondents demographics

Q17 What is your gender?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Non-binary (3)
- ☐ Prefer not to say (4)

Q18 What is your age range?

- ☐ 0-17 (1)
- ☐ 18-24 (2)
- ☐ 25-34 (3)
- ☐ 35-44 (4)
- ☐ 45-54 (5)
- ☐ 55-64 (6)
- ☐ +65 (7)

Q19 What is your level of education?

- ☐ Primary school (1)
- ☐ High school (2)
- ☐ Bachelor's degree (3)
- ☐ Master's degree and above (4)
- ☐ Other (5) _____

Q20 What is your employment status?

- ☐ Employed full time (1)
- ☐ Self-employed (2)
- ☐ Employed part time (3)
- ☐ Working student (4)
- ☐ Unemployed looking for work (5)
- ☐ Unemployed not looking for work (6)
- ☐ Student (7)
- ☐ Retired (8)

Q21 Who do you live with at the moment?

- ☐ Partner (1)
- ☐ Partner with children (2)
- ☐ Single parent (3)
- ☐ Roommates (4)
- ☐ Parents (5)
- ☐ Alone (6)
- ☐ Other (7) _____

Q22 What type of diet do you most identify with?

- ☐ Omnivorous (1)
- ☐ Vegetarian (2)
- ☐ Vegan (3)
- ☐ Gluten-free diet (4)
- ☐ Other (5) _____

Appendix 2: Hypothesis 1 data

	Outcome Purchase Intention (VD)			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Constant	2,4615	0,1363	18,0651	<0,001***
Sensory Attributes (c)				
(SA1) Soy Meatballs	0,0003	0,1898	0,0016	0,9987
(SA2) Beef Hamburgers	-0,2893	0,1867	-1,5497	0,1221
(SA3) Beef Meatballs	-0,3927	0,1852	-2,1201	0,0347*
	R²=0,0209	F_(3,338)=	2,4053	p=0,0673

Soy Hamburgers is the SA reference category (0), B Non standardized coefficients, SE Standard Error
c. Total effect X-Y c'. Direct effect X-Y a. X-Mediator effect

Table 7 - SPSS Output Hypothesis 1

Appendix 3: Hypothesis 4 data

	Outcome Meat Substitutes Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Constant	2,4171	0,1358	17,7984	<0,001***
(SA) Sensory Attributes				
(SA1) Soy Meatballs	0,0543	0,1889	0,2872	0,7741
(SA2) Beef Hamburgers	-0,2221	0,1861	-1,1936	0,2335
(SA3) Beef Meatballs	-0,373	0,1843	-2,0234	0,0438*
(SC) Sustainability Consciousness	0,4727	0,1887	2,5047	0,0127*
Interaction VI*Mod				
SA1*SC	-0,3698	0,2467	-1,4991	0,1348
SA2*SC	-0,727	0,2713	-2,6797	0,0077**
SA3*SC	-0,7722	0,2438	-3,1677	0,0017**
	F_(7,334)=	2,7933		0,0077
	R²=	0,0553		

Soy Hamburgers is the SA reference category (0), B Non-standardized coefficients, SE Standard Error
Significance: * p<0,05 ** p<0,01 *** p<0,001

Table 8 - SPSS Output Hypothesis 4

Sustainability Consciousness	(SA) Sensory Attributes	Outcome Meat Substitutes Purchase Intention				
		Conditional Means	B Coefficient	SE	<i>t</i>	<i>p</i>
Low	(0) Soy Hamburgers	2,0596				
	(SA1) Soy Meatballs	2,3936	0,334	0,2684	1,2444	0,2142
	(SA2) Beef Hamburgers	2,3873	0,3278	0,2949	1,1116	0,2671
	(SA3) Beef Meatballs	2,2707	0,2112	0,2647	0,7977	0,4256
				$F_{(7,334)}=$	0,6084	0,61
Medium	(0) Soy Hamburgers	2,4171				
	(SA1) Soy Meatballs	2,4714	0,0543	0,1889	0,2872	0,7741
	(SA2) Beef Hamburgers	2,195	-0,2221	0,1861	-1,1936	0,2335
	(SA3) Beef Meatballs	2,0442	-0,373	0,1843	-2,0234	0,0438*
				$F_{(7,334)}=$	2,3849	0,0691
High	(0) Soy Hamburgers	2,7747				
	(SA1) Soy Meatballs	2,5492	-0,2255	0,2627	-0,8584	0,3913
	(SA2) Beef Hamburgers	2,0027	-0,772	0,258	-2,9926	0,0030**
	(SA3) Beef Meatballs	1,8176	-0,9571	0,2567	-3,7288	0,0002***
				$F_{(7,334)}=$	6,1018	0,0005***

Soy Hamburgers is the SA reference category (0), B Non-standardized coefficients, SE Standard Error
Significance: * $p < 0,05$ ** $p < 0,01$ *** $p < 0,001$

Table 9 - SPSS Output Hypothesis 4

Appendix 4: Hypothesis 4a data

	Outcome Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Constant	2,3465	0,2107	11,138	$< 0,001$ ***
SA Packaging – Non-transparent	-0,0502	0,1322	-0,3801	0,7041
(SC) Sustainability Consciousness	0,3489	0,2987	1,1679	0,2437
Interaction Packaging * SC	-0,2273	0,1785	-1,2732	0,2038
	$F_{(3,338)}=$	0,6025		0,6138
	$R^2=$	0,0053		

Transparent packaging is the reference category (0), B Non standardized coefficients, SE Standard Error
Significance: * $p < 0,05$ ** $p < 0,01$ *** $p < 0,001$

Table 10 - SPSS Output Hypothesis 4a

Appendix 5: Hypothesis 4b data

	Outcome Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Constant	1,7782	0,1998	8,8997	<0,001***
SA Type of Protein – Meat Substitute	0,342	0,1286	2,6586	0,0082**
(SC) Sustainability Consciousness	-0,7926	0,2685	-2,9518	0,0034**
Interaction Type of Protein * SC	0,5225	0,17	3,0732	0,0023**
$F_{(3, 338)} =$	5,5084			0,0011
$R^2 =$	0,0466			

Meat is the reference category (0), B Non standarized coefficients, SE Standard Error
Significance: * $p < 0,05$ ** $p < 0,01$ *** $p < 0,001$

Table 11 -SPSS Output Hypothesis 4b

Sustainable Consciousness	Outcome Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Low	-0,0532	0,1819	-0,2927	0,7699
Medium	0,342	0,1286	2,6586	0,0082**
High	0,7373	0,1819	4,0526	0,0001***

Meat is the reference category (0), B Non standarized coefficients, SE Standard Error
Significance: * $p < 0,05$ ** $p < 0,01$ *** $p < 0,001$

Table 12 - Effect of Type of Protein on Purchase Intention, as a function of levels of the moderator Sustainable Consciousness

Appendix 6: Hypothesis 5 data

	Outcome Purchase Intention			
	B Coefficient	SE	t	p
Constant	2,4813	0,1334	18,607	<0,001***
(SA) Sensory Attributes				
(SA1) Soy Meatballs	-0,0373	0,1858	-0,2006	0,8412
(SA2) Beef Hamburgers	-0,3131	0,184	-1,7016	0,0898
(SA3) Beef Meatballs	-0,4231	0,1822	-23230	0,0208*
(FN) Food Neophobia	-0,6573	0,1908	-3,4456	0,0006***
Interaction VI*Mod				
SA1*FN	0,1519	0,267	0,569	0,5697
SA2*FN	0,6917	0,2693	2,5687	0,0106*
SA3*FN	0,5602	0,2552	2,1947	0,0289**
F _(7, 334) =	3,8714			0,0005***
R ² =	0,075			

Soy Hamburgers is the SA reference category (0), B Non-standardized coefficients, SE Standard Error
Significance: * p<0,05 ** p<0,01 *** p<0,001

Table 13 - SPSS Output Hypothesis 5

Food Neophobia	(SA) Sensory Attributes	Outcome Purchase Intention				
		Conditional Means	B Coefficient	SE	t	p
LOW	(0) Soy Hamburgers	2,941				
	(SA1) Soy Meatballs	2,7975	-0,1435	0,263	-0,5456	0,5857
	(SA2) Beef Hamburgers	2,1441	-0,7969	0,2774	-2,8728	0,0043**
	(SA3) Beef Meatballs	2,1261	-0,8149	0,2493	-3,269	0,0012**
				F _(7, 334) =	5,5683	0,0010**
Medium	(0) Soy Hamburgers	2,4813				
	(SA1) Soy Meatballs	2,444	-0,0373	0,1858	-0,2006	0,8412
	(SA2) Beef Hamburgers	2,1681	-0,3131	0,184	-1,7016	0,0898
	(SA3) Beef Meatballs	2,0581	-0,4231	0,1822	-2,323	0,0208*
				F _(7, 334) =	2,6205	0,0507
HIGH	(0) Soy Hamburgers	2,0216				
	(SA1) Soy Meatballs	2,0906	0,069	0,2638	0,2616	0,7938
	(SA2) Beef Hamburgers	2,1922	0,1706	0,2484	0,6867	0,4927
	(SA3) Beef Meatballs	1,9902	-0,0314	0,2607	-0,1204	0,9042
				F _(7, 334) =	0,2654	0,8503

(0) Reference category, B Non-standardized coefficients, SE Standard Error
Significance: * p<0,05 ** p<0,01 *** p<0,001

Table 14 - SPSS Output Hypothesis 5

Appendix 7: Hypothesis 5a data

	Outcome Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Constant	2,4299	0,2077	11,6966	<0,001 ***
Packaging- Non-transparent (SC) Food Neophobia	-0,0973 -0,3797	0,1304 0,302	-0,7459 -1,2574	0,4563 0,2095
Interaction Packaging * SC	0,0568	0,1872	0,3033	0,7619
	$F_{(3, 338)} =$	3,3593		0,019
	$R^2 =$	0,029		

Transparent packaging is the reference category (0), B Non standardized coefficients, SE Standard Error
Significance: * $p < 0,05$ ** $p < 0,01$ *** $p < 0,001$

Table 15 - SPSS Output Hypothesis 5a

Appendix 8: Hypothesis 5b data

	Outcome Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Constant	1,78	0,1971	9,0304	<0,001 ***
SA Type of Protein – Meat Substitute (FN) Food Neophobia	0,3398 0,5272	0,1269 0,2817	2,6775 1,8712	0,0078 ** 0,0622
Interaction Type of Protein * FN	-0,5529	0,1818	-3,0406	0,0025 **
	$F_{(3, 338)} =$	8,766		<0,001 ***
	$R^2 =$	0,0722		

Meat is the reference category (0), B Non standardized coefficients, SE Standard Error
Significance: * $p < 0,05$ ** $p < 0,01$ *** $p < 0,001$

Table 16 - SPSS Output Hypothesis 5b

Food Neophobia	Outcome Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Low	0,7264	0,1796	4,0448	0,0001***
Medium	0,3398	0,1269	2,6775	0,0078**
High	-0,0468	0,1797	-0,2606	0,7946

Meat is the reference category (0), B Non standardized coefficients, SE Standard Error
Significance: * p<0,05 ** p<0,01 *** p<0,001

Table 17 - Effect of Type of Protein on Purchase Intention, as a function of levels of the moderator Food Neophobia

Appendix 9: Full model test data

	Outcome Purchase Intention			
	B Coefficient	SE	<i>t</i>	<i>p</i>
Constant	2,4349	0,1326	18,3677	<0,001***
(SA) Sensory Attributes				
(SA1) Soy Meatballs	0,021	0,1845	0,1137	0,9095
(SA2) Beef Hamburgers	-0,2466	0,1828	-1,3487	0,1784
(SA3) Beef Meatballs	-0,3965	0,1807	-2,1947	0,0289*
(FN) Food Neophobia	-0,6782	0,19882	-3,6032	0,0004**
Interaction VI*Mod				
SA1*FN	0,1621	0,2636	0,6151	0,5389
SA2* FN	0,7375	0,2662	2,7706	0,0059**
SA3* FN	0,6213	0,2526	2,4596	0,0144**
(SC) Sustainability Consciousness	0,4999	0,1843	2,7128	0,0070**
Interaction VI*Mod				
SA1*SC	-0,3675	0,241	-1,5252	0,1282
SA2* SC	-0,76	0,2654	-2,8636	0,0045**
SA3* SC	-0,793	0,2387	-3,323	0,0010**
$F_{(11, 330)}=$	3,7783			<0,001***
$R^2=$	0,1119			

Soy Hamburgers is the SA reference category (0), B Non standardized coefficients, SE Standard Error
Significance: * p<0,05 ** p<0,01 *** p<0,001

Table 18 - SPSS Output Full Model Test