The Role of Healthy Packaging Design in Driving Purchase Intentions for Yogurts

Larissa Frenes

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Professor Paulo Romeiro.

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ABSTRACT

As health-consciousness rises in society, the role of packaging design in marketing has become important, not only to convey product characteristics but also to shape consumers' buying behavior and to align with the health-conscious attitudes of consumers. This study investigates the interplay of yogurt packaging design elements—color, imagery, and Nutri-Score—and their impact on consumers' purchase intentions, emphasizing the roles of health-conscious attitudes and brand image.

This research applies a mixed-method approach, using literature review, a focus group for co-creating stimuli, interviews for validating the stimuli, and then the main and primary data collection via an online survey. A 2x2x2 factorial design was employed, considering three packaging elements: Color, Imagery, and Nutritional Information.

The study reveals the significance of Nutri-Score, to predict purchase intention, particularly for consumers with medium to high health-conscious attitude. However, contrary to expectations, the main findings indicate that the effect of color and imagery did not show a significant effect on purchase intention. Moreover, findings suggest that maintaining a strong and positive brand image is crucial for influencing consumers' behavior.

These findings offer practical implications for companies operating in the yogurt industry, emphasizing Nutri-Score on yogurt packaging can enhance purchase intention, especially among consumers with an attitude towards healthy eating. Furthermore, marketers can gain insights into developing effective packaging strategies that influence consumers' purchase intention.

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SUMÁRIO

À medida que a consciência para a saúde cresce na sociedade, o design das embalagens torna-se importante para o marketing. A sua relevância não transmite apenas as características do produto, mas influenciam o comportamento de compra do consumidor e alinham-se à consciência de saúde do mesmo. Este estudo foca-se na interação de elementos de design de embalagens de iogurtes – cor, design e nutri-score – e o seu impacto na intenção de compra, destacando a consciência de saúde e a imagem da marca.

Para tal, aplicou-se uma abordagem de métodos mistos, que englobam uma revisão da literatura, focus group para a co-criação de estímulos, entrevistas para validação dos mesmos, e um questionário online para a recolha de dados principais e primários. Foi implementado um design fatorial 2x2x2 para analisar os três elementos da embalagem.

Os resultados evidenciam a relevância do Nutri-Score para a previsão da intenção de compra, particularmente para consumidores com preocupação média a elevada com a saúde. Por outro lado, a cor e design, têm um efeito não significativo na intenção de compra, reforçando a necessidade de manter uma imagem de marca forte e positiva como elemento crucial para influenciar o comportamento do consumidor.

Estas conclusões são essenciais para empresas deste setor. A integração do Nutri-Score nas embalagens tem o potencial de impulsionar a intenção de compra, especialmente entre consumidores que valorizam a alimentação saudável. Adicionalmente, estes resultados podem orientar os profissionais de marketing na criação de estratégias de design de embalagens mais eficazes.

Título: "O Papel do Design de Embalagens Saudáveis na Intenção de Compra de Iogurtes".

Autor: Larissa Frenes

Palavras-chave: Design de embalagens, Consciência para a saúde, Informação nutricional, Nutri-Score, Elementos visuais, Cores, Design, Intenção de compra, Imagem da marca

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The inspiration for this topic emerged during my brand management internship at Danone. I would like to take this opportunity to thank the Danone Marketing Team Vienna for sparking the idea for my thesis.

Moreover, as a freelance graphic designer, this research provided me with an unique opportunity to pursue my passion for design while investigating its influence on purchase intentions. This was also of great value to my professional development. Through this experience, I have gained a deeper understanding of the elements that influence purchase intentions and am able to incorporate these insights into my work. I appreciate that my professional and academic paths have connected in this special way.

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GLOSSARY

AVG	Average
Avg_PI	Average Purchase Intention
Avg_HC	Average Health-conscious attitude
Avg_BI	Average Brand Image
BI	Brand Image
HC	Health-conscious
HEA	Healthy eating attitude
NS	Nutri-Score
PI	Purchase Intention
PIM	Packaging imagery
PC	Packaging colors

1. CHAPTER: INTRODUCTION

1.1. Background

Some of the emerging societal health issues, notably obesity, have strong links to our dietary patterns. This has led an increased number of individuals to become conscious of the need for change and to seek out food and beverage options that contribute to their personal health and well-being (Nielsen, 2017).

With this increase of health-conscious consumers, product packaging design has emerged as a strategic marketing tool that can portray products as healthy (Hallez et al., 2023). Packaging design plays a crucial role in attracting consumers' attention and impacting their purchase decisions, as it can implicitly as well as explicitly provide key information about the product and communicate product attributes (Khuong & Tran, 2018).

Especially for food products, packaging design serves a key role in communicating the products attributes and characteristics. Due to the abundance of products on supermarket shelves, consumers tend to form their judgement about a product's healthiness more from the front-of-package rather than the in-depth nutritional information presented on the back(Newman et al., 2016).

It should be noted that packaging design is not interpreted in a vacuum. Most often, consumers connect the packaging to the brand behind the product. This brand image conveys distinct benefits, values, and broad brand attitudes, which people can associate with, which can influence their buying decisions (Kotler & Keller, 2016). As such, understanding the relationship between brand image, packaging design, and purchase intention is crucial for the development of an effective marketing and packaging strategy.

Consumers' attitudes towards a particular product are not only determined by the design, the brand or anticipated taste (Fenko et al., 2018), but are also deeply intertwined with personal attitudes that they bring to the table, primarily their health consciousness. The growing awareness about health has consequently increased the importance of perceived healthiness of food products in influencing consumers' purchase intentions (Huang & Lu, 2016). Thus, it becomes essential to investigate how packaging design elements align with and cater to these health-conscious attitudes, ensuring effective engagement with the target audience.

The packaging design elements to be investigated within this study are packaging color, imagery on the product and the Nutritional Information displayed. Despite the significant importance that packaging design plays in drawing consumer attention and influencing their

purchase decisions, there is little research exploring the impact of consumers' attitude towards a healthy lifestyle on this relationship. Moreover, the effect of the brand image associated with such packaging is not well understood. This study seeks to bridge this knowledge gap by investigating the impact of packaging design elements, specifically color, imagery, and Nutri-Score, on consumers' purchase intention for yogurt. Simultaneously it aims at exploring the effect of consumers' health-conscious attitudes on the relationship between packaging design and purchase intention, as well as explore the impact of brand image associated with yogurt packaging.

1.2. Problem Statement

As explained above, this study is designed to explore the influence of packaging design on purchase intention within the context of the yogurt industry. It considers the moderating role of a health-conscious attitude and the mediating effect of brand image in the yogurt industry. In order to achieve this objective, the following research questions have been developed:

How do consumers' healthy eating attitude and brand image impact the relationship between packaging design and purchase intention of yogurts?

RQ1: What is the impact of packaging design on purchase intention of yogurts?

RQ2: How does consumers' attitude towards healthy eating affect the relationship between packaging design and purchase intention?

RQ3: How does brand image influence the relationship between packaging design and purchase intention?

RQ4: Among packaging design elements, which element has the strongest effect on consumers' purchase intent?

1.3. Relevance

In general, packaging design is widely explored in the literature, and it has already been proven multiple times that packaging has an influence on consumers' behavior (Mazhar et al., 2015). However, in earlier studies, the main emphasis was either on visual elements or on nutritional information. Hence, there is a need to conduct a simultaneous exploration of both these dimensions and investigate which element has the strongest most significant impact on purchase intention, specifically within the framework of yogurt products. While, considering the brand image and consumers' attitude towards healthy eating, this study contributes to a better understanding of the relationship between packaging design and consumer behavior. In addition, the present study addresses the research gap highlighted by Hallez et al. (2023) that suggested exploring the effect of colors on brand image. By filling this gap in the literature and understanding the potential impact of packaging design elements on purchase behavior, marketers can gain insights into developing effective packaging strategies to influence consumer perceptions and drive favorable attitudes towards health.

1.4. Research methods

To adequately address the proposed research questions, primary research was conducted. The first step involved a critical review of relevant literature and scientific journals to get a more comprehensive understanding of the examined variables: packaging design, purchase intention, brand image, and attitudes towards healthy eating, as well as their interrelationships Based on the insights gained from the literature's findings, a conceptual model and hypotheses were developed. Then, a focus group was conducted to co-create the packaging design stimuli. After validating the packaging stimuli, primary data was gathered via an online survey, supported by eight distinct packaging designs as stimuli. Lastly, the data from the survey was analyzed and the hypotheses were tested in SPSS Statistics with independent T-sample test and regression analysis.

1.5. Dissertation outline

Overall, the thesis consists of five chapters. The next chapter, Chapter 2, is a review of the literature that provides a comprehensive understanding of each of the independent variables, the moderator, the mediator, and the dependent variable. Furthermore, the chapter presents the conceptual model that was derived from findings in the literature, along with the corresponding

hypotheses. Chapter 3 then describes the survey's methodology to address the research questions in an adequate way, including the focus group for the stimuli co-creation, the interviews as stimuli validation and the main online survey. Then, the survey's findings will be discussed, and the hypotheses examined using statistical tests in SPSS. In Chapter 5, a conclusion will be drawn, the limitations of the study will be laid out and further research gaps will be identified.

2. CHAPTER: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

In this part, the critical factors shaping this study are dissected: consumers' attitude towards a health-conscious lifestyle, purchase intention, and packaging design in its facets. These key areas are thoroughly examined to illuminate their roles and interactions in the consumers' purchase decisions. Lastly, the relevant literature for brand image is summarized.

2.1. Consumers' attitude towards healthy eating

The role of consumers' attitude in shaping their food-related choices and behavior has been an area of focus in recent research. Particularly in the light of the growing trend toward health, consumers' attitude regarding healthy eating have gained significant attention. Therefore, consumers' attitude towards healthy eating is examined as a mediator within this master thesis. In the remainder of this thesis this construct is referred to as consumers health attitude and health-conscious attitude. These terms were used interchangeably across the literature, as well as in this thesis.

As per Bohner & Dickel's (2011) definition, attitude can be described as "(..) an evaluation of an object of thought. Attitude objects comprise anything a person may hold in mind, ranging from the mundane to the abstract, including things, people, groups, and ideas.". Particularly when it comes to food decisions, these are probably mediated by consumers' attitudes and beliefs (Shepherd et al., 1995). However, based on Shepherd et al., (1995) people's food choices may be determined more by their beliefs about a food's nutritional quality and health effects than by its actual nutritional quality and health effects.

The trend towards health has impacted the food and beverage business significantly in recent years (Meziane, 2007). As more and more people report following a healthy diet, the food and beverage businesses have been encouraged to redefine and launch new healthier goods in various categories (Riley et al., 2015).

According to Gould, the extent to which individuals value and prioritize their health is referred to as their health-consciousness (Gould, 1988). The consumption patterns associated with health-conscious eating demonstrate a sincere interest in maintaining a nutritious and balanced diet (Kokkoris & Stavrova, 2021). According to the definition of Prasad et al. (2008) health-conscious behavior involves consistently preferring the healthier versions of products. Such behaviors may involve actions like following a balanced diet plan, preparing, and consuming

fresh foods such as fruits and vegetables and looking for nutrition advice from experts for their dietary choices (Kokkoris & Stavrova, 2021).

In contrast, low health-conscious consumers, as found in studies by Michaelidou & Hassan 2008) and (Prasad et al., 2008) exhibit lower motivation to adopt healthy eating behavior and are more likely to choose less nutritious food. They tend to place more weight on hedonic food cues, such as taste when making dietary decisions, in comparison to consumers with high health-consciousness (Mai & Hoffmann, 2012).

Recent research by Kokkoris & Stavrova (2021) discovered a strong link between consumer's food meanings and their eating behavior. This finding emphasizes the importance of investigating the meanings and connotations consumers have with food, especially in the context of healthy eating. It seems that the interpretation and value that individuals assign to food have a greater impact on their eating behaviors than their goals and behaviors that are related to the food. Based on their research results, the social and moral connotation of food has a more significant influence on health-conscious behaviors than the actual nutritional value and health benefits of food itself. In conclusion, consumers' attitude towards health-conscious eating plays a significant role in their food consumption and purchase behavior.

2.2. Purchase Intention

Purchase intention as dependent variable was chosen since it was considered most appropriate to evaluate the impact of the intervention.

Purchase intention refers to a person's conscious intention to acquire a particular brand (Spears & Singh, 2004). According to (Bagozzi & Burnkrant, 1979) purchase intention represents an individual's propensity to actually take action in relation to a specific brand. In contrast, attitudes are more general assessments, while intentions include an individual's motivation expressed by a deliberate plan to invest effort in performing a specific behavior (Eagly & Chaiken, 1993, p. 168). Kupiec and Revell argued that consumer's intention to purchase depends on the degree to which they assume a product will satisfy their wants and needs (Kupiec & Revell, 2001). Research focusing on young consumers in Europe and North America indicated that perception of healthiness, in addition to price and taste, are the most significant determinants when buying food products (Johansen et al., 2011).

In the food industry, predicting the success and future sales of new product innovations is often based on the purchase intention (Kytö et al., 2019). Furthermore, Kytö et al. (2019) mentioned

that in order to obtain more precise results when measuring purchase intentions, the expectation and perception phases could be considered when measuring purchase intentions. Despite the widespread use of purchase intention as a measure for consumer behavior prediction, there exists critical voice concerning the linear pattern between consumer's behavior and purchase intention. This criticism may arise from the fact that purchase intention does not necessarily lead to actual buying behavior in all cases (Chandon et al., 2005). However, since assessing purchase intention is a widely used approach for forecasting consumer's future decision-making behavior (Kytö et al., 2019; Morwitz et al., 2007), purchase intention is considered as crucial variable to measure and capture the effect of the IVs.

2.3. Packaging design

Around 70 to 80 % of grocery buying decisions are only made in the store itself (Bell et al., 2011) and 90% of these are made after inspecting the package (Urbany et al., 1996). As a result, packaging design acts as a potent marketing instrument (Togawa et al., 2019). Packaging design does not only impact consumers when choosing a product, it can also influence the perceived quality and usage of a product. Furthermore, packaging design can help to communicate the strategy to the consumer and therefore contribute significantly to a brand's equity (Kotler & Keller, 2016). The packaging is the purchaser's first touchpoint with the product in the supermarket. In order to profit from the packaging's benefits and to influence consumers' buying behaviors, the functional as well as the design dimensions must be selected properly (Kotler & Keller, 2016).

Innovative packaging designs can function as replacement for advertising campaigns by attracting consumers' attention at the point of sale. As a result, packaging serves as its own form of advertising for the product (Mazhar et al., 2015, Kotler & Keller, 2016, p. 316).

In this research the following elements of packaging design are considered and examined in more detail: visual elements and nutritional information.

2.4. Visual elements

The visual elements of packaging, such as colors, images, and font, are frequently used to establish the visual identity of a good (Orth & Malkewitz, 2008). These elements are able to draw in consumer's attention while simultaneously implicitly communicate a brand's values

and impact consumers' perceptions (Chrysochou & Festila, 2019; Silayoi & Speece, 2007). Particularly in the context of fast-moving consumer goods, visual appearance plays a critical role due to customers' propensity for low involvement in the decision-making process. Consumers tend to decrease their search effort and rely more heavily on visual cues in the purchase process (Silayoi & Speece, 2007). Also, Sehrawet and Kundu (2007) showed that the use of visual cues allows information to be conveyed much quicker and with less effort than verbal cues due to the effort necessary in understanding a text for a low-involvement product. These findings are in line with past research that found that visual information is generally regarded as being more potent than verbal information (Mick & Mcquarrie, 2003).

Moreover, considering that changing the visual appearance of the packaging is generally more cost-effective for companies as opposed to making modifications to weight, size, and shape, investing more resources into the visual packaging elements may be an advantageous strategy (Togawa et al., 2019).

2.4.1. Color

Color is everywhere we go and conveys information. Consumers decide on a product within 90 seconds of their first encounter with the product. Between 62 and 90 percent of the product's evaluation is determined only by colors. Therefore, the use of color can help to influence attitudes toward particular products by influencing moods and feelings, either positively or negatively. This goes beyond just differentiating products from those of competitors. Considering that our emotions and moods are erratic and that colors influence how we feel, one should comprehend the significance of color in marketing. In order to benefit from the multi-segment marketing potential, it is crucial to understand how the various connotations attached to particular colors (Singh, 2006).

Colors are able to communicate various meanings such as quality, gender and even shape consumer's health perception of a brand. For instance, the color black indicates quality and luxury, whereas green and white are perceived as natural, sustainable, and commonly associated with healthy, organic products (Chrysochou & Festila, 2019; Karnal et al., 2016).

Chrysochou & Festila (2019) highlight in their article the importance of color in packaging design as a significant factor in shaping consumers' perception of a product's quality and flavor. Especially in terms of organic products, where natural colors are used to reinforce the idea of being more natural, healthy, and environmentally friendly, colors can provoke emotions and

have an influence on how consumers look at a product. Thus, in order to effectively communicate product information and shape consumers' behavior, marketers should be aware of the significance that color plays in packaging design (Chrysochou & Festila, 2019).

Consistent with previous studies, Hallez et al. (2023) explored how color temperature significantly impacts consumer's food perception in terms of healthiness and tastiness. While cool colors such as blue and green make food appear healthier and more sustainable, warm colors enhance a product's tastiness. However, an experimental study conducted by Rebollar et al. (2012) shows that consumers have a higher preference for products with warm-colored packaging. This may be due to the phenomenon that warm colors on the packaging enhance the perceived taste of the product and consequently lead to a greater preference and choice for the food product. In addition, Huang & Lu (2016) found that the impact of color on perceived healthiness is also related to the type of product, whether hedonic or utilitarian. While color exhibits a significant effect on utilitarian products, such an effect is absent for hedonistic goods.

In line with Van Rompay et al. (2016) study, this thesis also utilizes the color dimension to create a packaging design with a "healthy" impression with using cold colors, and an "unhealthy" and "tasty" look with using warm colors. Hence, the color dimensions warm (red) and the color dimension cold (green) will be investigated.

H1a: Warmer packaging colors lead to higher purchase intention overall than colder colors.

H1b: Attitude towards healthy eating moderates the relationship between packaging colors and purchase intention.

2.4.2. Imagery

Another crucial component of the packages' visual appearance is the imagery which is located at the front of the packaging (Rebollar et al., 2017). In line with the perspective of Chrysochou & Festila (2019) all the packaging's illustrations and photographs are considered as imagery within the context of this master thesis. Primarily, the images on the packaging show either the product contained within the package, or its constituent ingredients as well as garnish ideas or even only flavor profiles. Consumers tend to apply the characteristics of the portrayed product/image to the main product (Gil-Pérez et al., 2020). For instance, they might guess the calorie content of the product by the image displayed such as the serving suggestion (Jiang & Lei, 2014). Therefore, showing the main flavor-giving ingredient on the package, for instance fruits that give candies their flavor, enhances consumers' perception in terms of naturalness (Gil-Pérez et al., 2020). Building on this idea, Rebollar et al. (2017) did research where they analyzed the effectiveness of verbal versus visual elements to communicate a secondary message and the impact on consumers' willingness to pay for a bag of chips. In summary, higher scores regarding all attributes (intense flavor, crunchy, artisan, high quality, healthy and willingness to pay) could be achieved with images, which highlights the importance of using imageries (Rebollar et al., 2017).

The characteristics of the imagery's subject such as the degree of product processing depicted in the image can also influence consumer's perception and purchase behavior (Capelli & Thomas, 2021). Capelli & Thomas (2021) conducted a study that revealed that if the product is presented in an unprocessed form, for instance showing a raw orange instead of a glass of orange juice, can enhance perceptions of healthfulness and naturalness as well as perceived purity of taste, as opposed to presenting a product in processed form. Hence, this can influence consumers' consumption and purchase intention.

In addition to the content of the imagery, the position of the imagery makes a difference in consumers' perception and choice of the product. Accordingly, if a food image is placed at the bottom of the packaging label, it contributes to consumers making healthier dietary choices by eating less of the food. Therefore, companies can affect not only the consumers' buying decision with package design but also their flavor perception and consumption habits (Togawa et al., 2019).

Considering this relevant literature, my conclusion is that it is essential to incorporate the two attribute levels, raw fruits, and processed food for investigating the influence of packaging images.

H2a: Image of processed food leads to higher purchase intention (vs. image of raw ingredients).

H2b: Attitude towards healthy eating moderates the relationship between packaging image and purchase intention

2.5. Nutritional information

It has been proven several times that nutritional information may affect consumers' expectations and ideas about how healthy a product is (Chandon, 2013; Kozup et al., 2003). Consequently, packaged food products are legally obligated to list their ingredients on the packaging. Typically, the ingredients are displayed on the pack to enable health-conscious consumers to easily locate them (Capelli & Thomas, 2021). However, most consumers generally avoid reading the detailed information on a package such as the nutritional facts table or ingredient list and rely more on the succinct information on the front of package (Wansink & Sobal, 2007). Therefore, a growing number of companies have started to incorporate nutritional information on the front-of-package. The inclusion of nutrition information on the front-of-package indicates that companies are striving to make ingredient and health information more accessible to all consumers, rather than solely catering the health-conscious consumers who already actively look for and utilize nutritional information to make purchase intentions (Bialkova & van Trijp, 2011).

2.5.1. Nutri-Score

An example of health label is the widely used Nutri-Score label which provides Information about how healthy a food is. Based on Nutri-Score, consumers can evaluate if a product's nutritional quality is more beneficial or less beneficial in comparison to goods from the same product category. However, other aspects of food such as the level of processing are not considered (Fedde et al., 2022). Nutri-Score is a five-category classification system rating a food product in terms of nutritional quality. The label's calculation is based on the UK Food Standards Agency's nutrient profiling system and considers both favorable nutrients (e.g. fruits,

vegetables, nuts, fibers, proteins) and unfavorable nutrients (e.g. energy, saturated fatty acids, total sugar), whereas each nutrient generates positive or negative points. The total score results in five categories for nutrient quality (see figure 1) (Julia & Hercberg, 2017). Nutri-Score is displayed as a scale ranging from A, shown as dark green, to D appears in dark red with five points.

Figure 1: Nutri-Score label

The main purpose of Nutri-Score is to guide consumers increasingly towards choosing healthier foods (Folkvord et al., 2021). Whether or to what extent the Nutri-Score label has an impact on consumers' purchasing decisions is a matter of considerable debate. Gomez et al. (2017) discovered that it is challenging for consumers to disregard nutrition labels on food products while they are grocery shopping. Grunert & Wills note that by encouraging consumers' positive attitudes and consumption intentions, for instance, nutrition labels are an enticing way to influence consumers' food choices at the point of purchase. It preserves consumer choice and reduces the cost of seeking information about a product (Grunert & Wills, 2007).

Given that the Nutri-Score label is the second most utilized by the yogurt and milk desserts category, it seems to be an appropriate choice for representing the nutritional information of yogurts (Fedde et al., 2022). Based on the current literature, this study exclusively focuses on Nutri-Score as a health label with no consideration given to other forms of nutritional information on the pack. As Fedde et al. (2022) have reported that food products labelled with Nutri-Score C, D, or E indicate lower nutritional quality, this thesis will use Nutri-Score A to represent a healthy nutritional quality and Nutri-Score D to express relatively lower nutritional quality in the stimuli.

H3a: A healthy Nutri-Score leads to higher purchase intention than an unhealthy Nutri-Score.

H3b: Attitude towards healthy eating moderates the relationship between Nutri-Score and purchase intention.

2.6. Brand Image

Since packaging design contributes significantly to a brand's image (Gulzar, 2011; Kotler & Keller, 2016), the variable brand image is examined as a moderating variable in this thesis. Although brand image is a common term and concept in marketing, many different definitions and interpretations exist (Hsieh et al., 2004; Keller, 1993). Given the lack of a general definition of brand image, a detailed analysis of the literature is required.

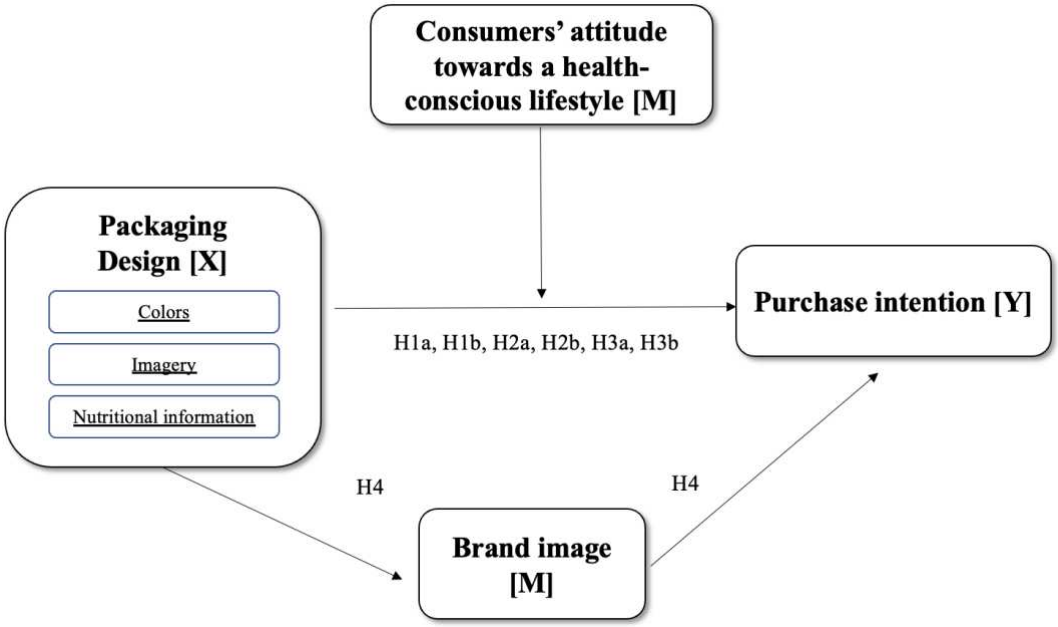
A name, symbol, sign, design, term, or a mix of thesis components is referred to as a brand. Its purpose is to differentiate the products and services from those of the competition. Brand elements refer to a brand's various elements, such as names, logos, symbols, and packaging design etc. (Kotler & Keller, 2016). Those brand elements should create a distinctive, cohesive set that improves both brand awareness and brand image (Kotler & Keller, 2016). Brand Image encompasses functional, experiential, or symbolic benefits, general brand attitudes, and associations with or unrelated to the product. Depending on their strength, distinctiveness, and favorability, these linkages can differ. Brand image refers, besides brand awareness, to the main component of the concept of brand equity (Keller, 1993).

Keller considers brand image as the collection of associations that people have with a given brand (Keller, 1993). A strong brand image makes it easier for consumers to recognize the demands that the brand meets and to distinguish the company from its rivals, which enhances the possibility that customers will buy the brand. However, a positive brand image can not only influence consumers' intentions to buy but also raise the brand's value (Hsieh et al., 2004).

H4: Brand image mediates the relationship between packaging design and purchase intention, such that the effect of packaging design on purchase intention is stronger for products with a strong brand image.

2.7. Conceptual Framework

Based on the literature review and the hypotheses raised, the following conceptual model is derived:



3. CHAPTER: METHODOLOGY

This chapter presents and explains the research approach applied to investigate the topic, draw conclusions about the hypothesis and answer the research questions. After the research approach is introduced, information on the primary and secondary collection is presented and clarified. After that, the data analysis, which is about how the previous hypotheses are tested, is discussed in detail.

3.1. Research Approach

The main objective of this dissertation is to gain insights into the relationship between packaging design and purchase intention, having brand image as a mediator and consumers' attitude towards a healthy lifestyle as a moderator. The three packaging elements color, image and nutritional information will be analyzed, whereas each attribute has two levels to test the impact of packaging on purchase intention. The variables considered with the two levels are presented in Table 1.

Table 1: Independent variables with two levels

Variable	**Level**
Nutritional information:	Nutri-Score A
	Nutri-Score D
Imagery:	Raw fruits
	Processed yogurt
Colors:	Cold (green)
	Warm (red)

Overall, the research methodology for this study combined exploratory and causal research techniques. Firstly, exploratory research in form of an extensive literature review was conducted to identify and analyze previous studies related to the topic of packaging design, purchase intention, brand image and consumers' attitude towards a healthy lifestyle. This served as the basis to set up the hypotheses and to define the research problem. To ensure that the most recent and relevant information is included, the literature study concentrated on top academic journals. Additionally, in order to identify and explore potential significant connections between these variables, a conceptual framework was developed based on the

literature review. Subsequently, this dissertation used an explanatory method, also called causal method. This research method is applied to identify and measure the relationships between the variables and to test the hypotheses (Burns et al., 2017).
Then, a focus group was organized to co-create the packaging stimuli. Decisions on the different elements are made conjointly to avoid biases in the creation of the stimuli. Using these findings from the focus group and the literature, the stimuli are created by myself in Adobe Illustrator and Adobe Photoshop. Furthermore, 1-to-1 interviews are conducted in order to validate the stimuli if they are interpreted as intended. Lastly, a quantitative approach will be applied where the main online survey with closed-ended questions is used to collect primary data. But before publishing, pilot interviews were conducted to test the survey.

The present study applies a 2x2x2 factorial design, incorporating a conjoint analysis, to investigate the effects of nutritional information, colors, and imagery as independent variables. This design creates 8 different conditions (Table 2). The use of complex factorial designs is required in the context of this thesis for investigating numerous components at once. Complex factorial designs are factorial designs that include three or more independent variables (Kothari, 2004, p. 50)

Table 2: Visualization of eight stimuli scenarios

Stimuli/Scenarios	Color	Image	Nutri-Score
Stimuli 1	Green	Raw fruit	Nutri-Score A
Stimuli 2	Green	Raw fruit	Nutri-Score D
Stimuli 3	Red	Raw fruit	Nutri-Score A
Stimuli 4	Red	Raw fruit	Nutri-Score D
Stimuli 5	Red	Processed food	Nutri-Score A
Stimuli 6	Red	Processed food	Nutri-Score D
Stimuli 7	Green	Processed food	Nutri-Score A
Stimuli 8	Green	Processed food	Nutri-Score D

3.2. Category Choice

This research initiative is mainly focused on the investigation of packaging design in the yogurt industry, prioritizing strawberry yogurt. The central role yogurt holds in the global dairy market, with only the European Union constituting a substantial 41% of the market value (Statista, 2021), confirms this emphasis. In response to the increasing awareness of the health benefits of

flavored yogurt, the market is projected to grow significantly in the coming years. Allied Market Research (2019) estimates that by 2027, the market for flavored yogurt will have grown to a size of more than $117 billion. The most popular among these flavors is strawberry yogurt, thus providing a strong relevance for this flavor as subject of this study. This growth forecast has prompted manufacturers to focus on innovative and enticing product offers, primarily related to package design and flavor selection, in order to capture a larger share of the flavored yogurt market (Allied Market Research, 2019).

3.3. Stimuli Design

To capture the independent variable of parckaging design, a set of eight stimuli was developed using Adobe Photoshop and Adobe Illustrator. To ensure an unbiased process, a focus group was conducted for the co-creation of these stimuli. The yogurt labels were designed considering the three 2-level attributes: color, imagery, and nutritional information. Additionally, a fictitious brand named "Slurp" was introduced to minimize potential consumer biases stemming from pre-existing attitudes and taste perceptions associated with well-known brands or products.

The decisions regarding the attributes of color and Nutri-Score were informed by existing literature. Considering that the Nutri-Score label is widely adopted in the yogurt and milk desserts category (Fedde et al., 2022), it offers itself a suitable choice for representing the nutritional information of yogurts. In line with the current literature, this study exclusively focuses on Nutri-Score as the health label, excluding other forms of nutritional information displayed on the packaging. Building on the findings of Fedde et al. (2022), where Nutri-Score C, D, or E indicates lower nutritional quality, this thesis employs Nutri-Score A to represent a healthy nutritional quality and Nutri-Score D to signify comparatively low nutritional quality in the stimuli.

In line with Hallez (2023), this study investigates the significant impact of color temperature on consumers' food perception. Besides Hallez et al., Van Rompay et al. (2016) employ the color dimension to create packaging designs that convey a "healthy" impression using cold colors, and an "unhealthy" and "tasty" appearance through warm colors. As such, this study will examine the color dimensions of warmth, represented by red, and coldness, represented by green.

3.3.1. Focus group for Stimuli Co-Creation

Within the focus group seven participants were invited to share their preferences and their assessment regarding specific packaging elements, such as logo position and images depicting raw strawberries and processed strawberry yogurt. Each participant was presented with three choices for each attribute/level and was asked to rank the images according to their preferences. (see Appendix 1).

In terms of the logo position all participants preferred the logo at the top part of the yogurt cup, which indicated a clear preference for the logo placement. Further details about the findings and regarding the participants' rankings can be found in Appendix 2. According to the aggregated preferences from the focus group, Image 2 was identified as the most appropriate representation of imagery of raw fruits, while image 1 was chosen for imagery of processed food.

Based on these insights from the focus group and the literature, the stimuli were created in Adobe Photoshop and Illustrator. The use of Adobe Photoshop and Illustrator enabled the creation of visually appealing and accurate representations of the packaging elements. The eight different Stimuli can be found in Figure 2, and in larger version and higher quality in Appendix 4.

Figure 2: Eight packaging design stimuli

3.3.2. Interviews for Stimuli Validation

To test and assess the interpretation and manipulation of the stimuli, five 1-to-1 interviews were conducted. During these interviews, participants were asked to describe the yogurt packages and their elements in detail. The main purpose of these interviews was to ensure the intended interpretation and perception of the stimuli used in the study. A total of six 1-to-1 interviews were conducted online. The participant's data and the detailed findings and insights from the focus group can be explored in Appendix 3. First, the interviewees were asked to state what they saw on this packaging, and everyone identified the product as yogurt. Afterwards, they were asked to describe the similarities and differences between the two attribute levels. This aimed to evaluate their ability to differentiate and recognize the unique attributes of each design, ensuring that the intended variations were noticeable and distinguishable.

Regarding colors, participants were asked to give a description of the colors they noted on the packaging and their associations with those colors. In terms of images, participants were shown two images of either processed strawberry yogurt or raw strawberries. To determine to which extent the photos represented the intended qualities and associations connected to these elements, their feedback was gathered. In the Nutri-Score manipulation, participants were given two Nutri-Score values and asked to assess the product's perceived healthiness based on these values. This made it possible to assess whether the Nutri-Score effectively conveyed the required information and hence affected participants' assessments of the nutritional content of the product.

Overall, the focus group's findings confirmed the intended interpretation of the stimuli and enhanced the reliability and validity of the data collected in the following stages of the research.

3.4. Main Study

3.4.1. Data Collection

For this study, the platform Qualtrics was chosen to publish the questionnaire. A random sample was recruited, ensuring an equal chance of selecting each sample unit (White & Rayner, 2014). Due to the eight different scenarios/conditions (Table 2) and according to the Central Limit Theorem (CLT) a minimum of 30 responses per stimuli, resulting in 400 people in total, were required to participate in the survey to ensure adequate quality and representativeness of the survey in terms of sample size.

The questionnaire for this study was published online and distributed via various social media channels, such as WhatsApp, Instagram, and LinkedIn. The survey was published in English to reach the widest possible audience. The questionnaire, consisting of exclusively closed-ended questions, took approximately 3-4 minutes to complete.

The online questionnaire was divided into five sections: packaging design, purchase intention, brand image and consumers' attitude towards healthy lifestyle and respondent's demographics. A detailed view of the survey flow, including the instances of randomization in Qualtrics, is provided in Appendix 5.

After a brief introduction, the survey begins with two screening questions regarding respondent's yogurt eating and purchasing behavior to target only yogurt consumers and buyers. All other variables of this thesis are based on a pre-existing and proven constructs from the literature (see Table 3 on the following page).

At the end of the survey, respondents are asked regarding their demographic characteristics, such as age, gender, education level and income. This information is used to ensure that the sample is representative of the population and to identify any differences in the impact of packaging design on purchase intent based on demographic characteristics.

Overall, this method helps ensure that the data collected is reliable and valid. In addition, an online survey allows for large sample size and efficient data collection, while Qualtrics as a consumer panel helps to ensure the quality of the data collected.

3.4.2. Measurement / Indicators

The constructs utilized to measure each variable have been carefully selected based on their relevance to the thesis' research objectives and their established presence in the existing literature. Using these proven measurement constructs allows a comprehensive evaluation of the relationships between the variables while ensuring their validity and reliability. All constructs used in this study exhibit Cronbach's Alpha values between 0.84 and 0.91, indicating good or even excellent reliability.

The moderator, brand image, is measured with a framework from Martínez & De Chernatony (2004) and has a Cronbach's Alpha of 0.84, which indicates good reliability. The framework consists of 6 items. ("*This brand provides good value for money", "There is a reason to buy the brand instead of others.", "The brand has personality.", "The brand is interesting.", "I*

have a clear impression of the type of people who consume the brand.", "This brand is different from competing brands.".) As for the mediator, the construct, health interest, has been utilized, reflecting a consumer's interest in eating healthily. This variable is measured by using Roininen et al. (2001) construct, and has a Cronbach's Alpha of 0.86, demonstrating strong reliability. It measures the respondent's agreement with the following statements ("*I am very particular about the healthiness of food.", „I always follow a healthy and balanced diet", „It is important for me that my diet is low in fat.", „It is important for me that my daily diet contains lot of vitamins and minerals.", „I eat what I like and I do not worry about healthiness of food.", „I do not avoid any foods, even if they may raise my cholesterol.", „The healthiness of food has little impact on my food choices.", „The healthiness of snacks makes no difference for me.").* Lastly, the dependent variable, purchase intention, is measured with 6 items, following Putrevu & Lord's (1994) framework, which has a Cronbach's Alpha of 0.91, indicating excellent reliability. This construct contains of three items *("It is very likely that I will buy (brand).", "I will purchase (brand) the next time I need a (product).", "I will definitely try (brand).").*

All items presented in the survey are measured using a seven-point Likert scale from "strongly disagree" to "strongly agree".

Operational model

Table 3: Operational model

Framework	Measurement	Items	Scale	Reference	Cronbach α
IV	Packaging Design	Stimuli	n/a	n/a	n/a
Moderator	Brand Image	6	7-point Likert Scale	(Martínez & De Chernatony, 2004)	0,84
Mediator	Health interest	11	7-point Likert Scale	(Roininen et al., 2001)	0,86
DV	Purchase Intention	6	7-point Likert Scale	(Putrevu & Lord, 1994)	0,91

3.5. Data Analysis

The data collected from the online survey will be analyzed using SPSS software. With the quantitative information gathered from the survey and the appropriate statistical tests the hypothesis from Chapter 2 can be tested and a deeper understanding of the impact of packaging

design on purchase intention and the moderating and mediating effects of health-conscious attitudes and brand image will be provided.

First, the data were prepared for the analysis, including removing invalid answers and excluding participants that did not align with the target group specifications. Before analyzing the hypothesis, Cronbach's alpha reliability of the measurement constructs was tested, followed by the determination of suitability of the analysis by assessing the assumptions of normality and homogeneity of the variances for the variables. Then, Independent T-samples tests were used to investigate the direct effects of the independent variables color, image, and Nutri-Score on the purchase intention and specially to analyze their differences between the different levels. To explain the mediation effect of consumers' healthy eating attitudes on the relationship between different packaging design elements and purchase intention Hayes' PROCESS model 1 (Figure 3) was utilized. For analyzing the mediating effect of brand image on packaging design and purchase intention, Hayes' PROCESS macro model 4 (Figure 5) was used. Lastly, a full model test was conducted using Hayes' PROCESS macro model 5 (Figure 4), to test the moderating effect of brand image and the mediating effect of consumer's healthy eating attitude on the relationship between packaging design and purchase intention simultaneously.

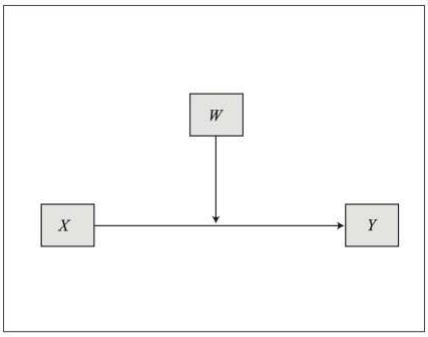


Figure 3: Hayes PROCESS model 1

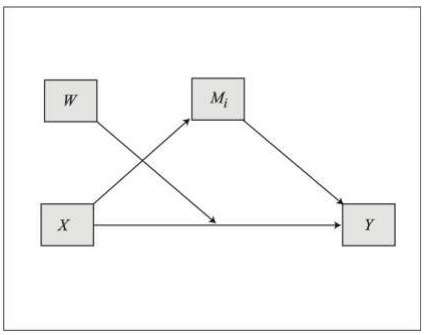


Figure 4: Hayes PROCESS model 5

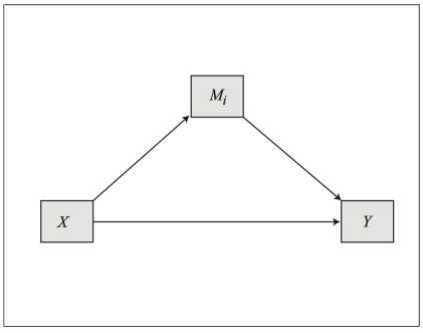


Figure 5: Hayes PROCESS model 4

4. CHAPTER: RESULTS AND DISCUSSION

4.1. Data preparation process

Initially, a total of 590 responses were recorded in Qualtrics. Upon further analysis, a few participants had to be dropped due to duplicated IP-addresses. Moreover, after a preliminary review only 493 answers were valid. From these invalid responses, 44 people did not finish the survey and 43 people were excluded due to misalignment with the target group specification. Two screening questions, implemented at the beginning of the survey, ensured that only answers from the target audience were considered. As such, respondents indicating that they neither consumed nor purchased yogurt were promptly directed to the end of the survey.

A further condition for being included in the analysis was answering all three manipulation questions correctly. This step ensured that responses were excluded where the stimuli were not correctly understood. Therefore, the sample size was reduced from 493 to 309. Despite this sample size reduction, all stimuli maintained a sample above 30, except scenario 8 which had a sample size of 29. A comprehensive summary of the answers to the three manipulation check questions is provided in Table 4. To prepare the data set for the analysis, scenario variables and IV identifiers were created.

Table 4: Table of number of correct manipulation questions across scenarios

		Count of correct Manipulation questions				Total
		0 Correct	1 Correct	2 Correct	3 Correct	
Stimuli	**1**	0	1	15	**48**	64
	2	0	5	16	**43**	64
	3	0	1	15	**43**	59
	4	0	6	15	**43**	64
	5	0	4	26	**30**	60
	6	1	6	22	**34**	63
	7	0	6	13	**39**	58
	8	0	9	23	**29**	61
Total		**1**	**38**	**145**	**309**	**493**

Each packaging design stimuli had its own block of questions regarding brand image and purchase intention. Therefore, firstly the questions from each stimulus were merged. Secondly, new variables for average purchase intention, average brand image and average healthy-eating attitude were computed. It is necessary to note that the healthy eating measurement scale included negatively phrased questions, which needed to be recorded for accurate analysis.

4.2. Sample Characterization

The total valid sample of this study consists of 309 participants. In relation to the samples' yogurt consumption habits, it can be said that 34% of the respondents reported eating yogurt 3 times a week, followed by 30% who eat yogurt 2-3 times a month. Regarding purchase habits, almost half of the sample (44%) buy yogurts 2-3 times per month and 29% indicated purchasing yogurt 1-3 times each week (see Appendix 6).

Participants' characteristics and demographic composition per each stimulus can be found in Appendix 7. The sample was categorized by several demographic variables across the eight scenarios, including nationality, gender, age, highest degree of education, occupation, and income. In terms of gender, females made up a majority of the sample, constituting 58% of the total respondent, while males made up 40%. Regarding age, 43% of the total respondents were between 25-34 years old, followed by the 18-24 age group, which accounted for 28% of the sample. In terms of nationality, most of the respondents were Austrians, representing 43% of the sample, followed by Portuguese (20%), Germans (15%), Italians (9%).

Furthermore, it can be said that the respondents are well-educated and most of them held an undergraduate degree (39%), followed by those holding a postgraduate degree (26%). Regarding occupation, half of the sample were employed (50%), 20% were students and 13% were student workers. As for monthly gross income, the distribution was quite diverse, whereas 31% had a monthly income from 500-1.499€, 43% stated an income of 2.000€ or above and around 15% were earning less than 500€. However, it should be considered that the sample might not be a representation of the total population due to the use of non-probability sampling technique (Saunders et al., p. 213).

4.3. Measure Reliability

Although the constructs of purchase intention and brand image were validated previously by proven authors (see Table 3), it is essential to check their reliability within the current survey sample. Before conducting the reliability test for consumers' health interests, the four negatively worded questions had to be inverted. Subsequently, an analysis of the Cronbach's alpha coefficient was conducted to emphasize the internal consistency of the measures (Table 5). The initial Cronbach's alpha for *Brand Image*, including 6 questions, was 0,826. When item 5 was removed, this resulted in a higher Cronbach's alpha. Consequently, question 5 was excluded from the analysis, resulting in a Cronbach's alpha of 0,841 (Appendix 13). The Cronbach's alpha coefficient for *Health interest* is 0,828, while *Purchase Intention* yielded a

Cronbach's alpha coefficient of 0,924 (Appendix 14 & 15). According to George & Mallery, the Cronbach's alphas observed for all these constructs, ranging from 0,841 to 0,924, can be considered as good to excellent (2009).

Table 5: Cronbach's alphas

Construct	Items	Cronbach α	Quality
Brand Image	5 (before that 6)	0,841 (before that 0,826)	Good
Health interest	11	0,828	Good
Purchase Intention	6	0,924	Excellent

4.4. Determining the method of analysis

Before starting with the analysis and validation of the hypotheses, the variables purchase intention, brand Image and healthy-eating attitude were analyzed with respect to their distributional properties to determine the suitable method of analysis.

To examine whether there is a difference in *purchase intention* depending on the levels of color, image, and Nutri-Score, we first examine the prerequisites for an analysis of variance. The residuals of purchase intention (M = 3,91, SD = 0,091) were not normally distributed according to the Shapiro-Wilk test (p = .001 < .05) (Appendix 12) while variance homogeneity across all groups according to Levene's test was present (p = .480 >.05) (Appendix 9). Furthermore, to ensure the independence of observations, each participant was exposed to only one packaging design stimulus, with no overlap or exposure to multiple packages. The distribution of purchase intention with an approximated normal distribution is shown in Figure 6.

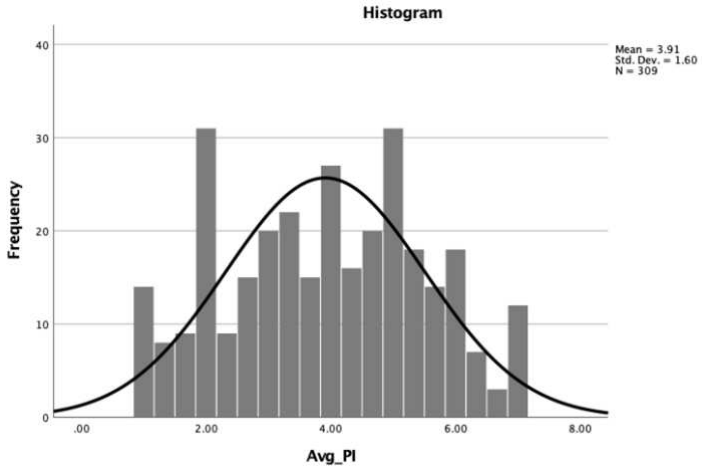


Figure 6: Distribution of Average Purchase Intention

The requirements for an analysis of variance are not met with these results. But according to the Central Limit Theorem, the analysis of variance is robust to violation of the normal distribution requirement if the sample is large enough (n > 30), which is given in my case (Kothari, 2004, p. 157f).

Next, for brand image (M = 4,29, SD = 0,061) the Shapiro-Wilk test for normality was met (p = .241 > .05), and the Levene's test for homogeneity of variances was met as well (p = .692 > .05) (Appendix 10 & 12). For health attitude (M = 4,63, SD = 0,056) the assumption of normality was met (p = .138 > .05), while the assumption of homogeneity was met as well (p = .178 > .05) (Appendix 11 & 12).

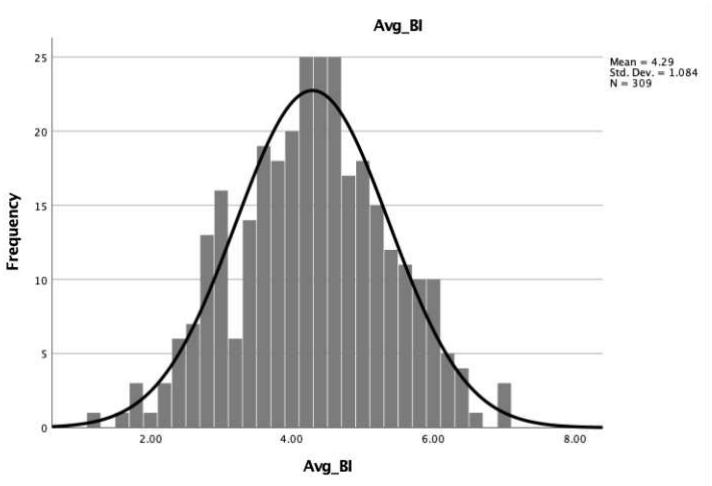


Figure 7: Distribution of Average Brand Image

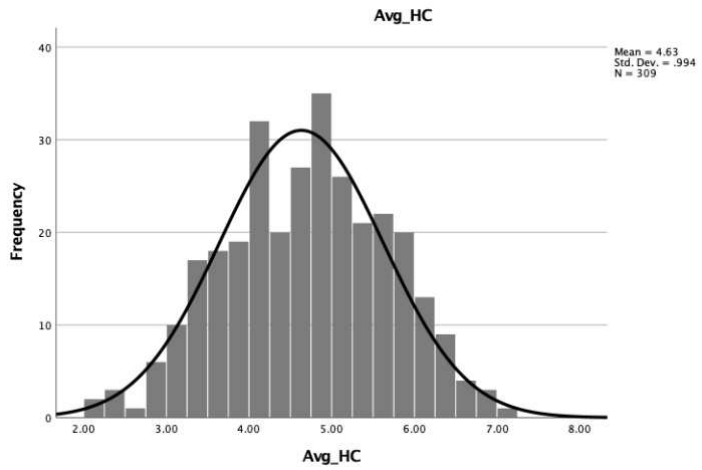


Figure 8: Distribution of Health-Conscious Attitude

4.5. Hypothesis Testing

As all three scales fulfill the prerequisites for a parametric test, an independent samples T-test was chosen to validate hypotheses H1a, H2a and H3a. With this method, the three main effects are examined. To analyze hypotheses H1b, H2b, H3b as well as H4, the PROCESS macro from Hayes was chosen to analyze these effects. First, the PROCESS model 1 is chosen to interpret the effect of health-conscious attitude on the relationship between the factors and purchase intention. Then, to analyze the H4, the PROCESS model 4 was utilized with brand image as a mediator. Lastly, the full model test was conducted with PROCESS model 5 considering all IV, mediator, moderator, and DV. As the results of model 4 and model 5 were barely different, the full model 4 output was omitted in the appendix. However, the results of model 4 were reported in the evaluation of H4.

4.5.1. Effect of color on purchase intention

H1a: Warmer packaging colors lead to higher purchase intention overall than colder colors.

In order to compare the means of warmer and colder packaging colors and to evaluate this hypothesis, an Independent Samples T-test was utilized to assess the impact of packaging color on consumers' purchase intention (Appendix 16). This comparison involved the purchase intentions associated with warm colors, represented by red, versus colder colors, represented by green. The mean purchase intention for the red color was 3.7422 (SD = 1.57826), and for the green color, it was 4.0692 (SD = 1.60917). The Levene's test for equality of variances resulted in a p-value of 0.885 ($p > .05$), confirming the assumption of homogeneity of variances. Moreover, the results of the Independent Samples T-test showed a two-sided p-value of .072 ($p > .05$), which indicates no statistically significant difference in purchase intention between the color levels. Contrary to the hypothesis, the purchase intention is higher for colder colors than for warmer colors, just not on a significant level.

In conclusion, the data does not support hypothesis H1a, since it appears that in this sample, colder colors (Green) led to a higher purchase intention than warmer colors (Red).

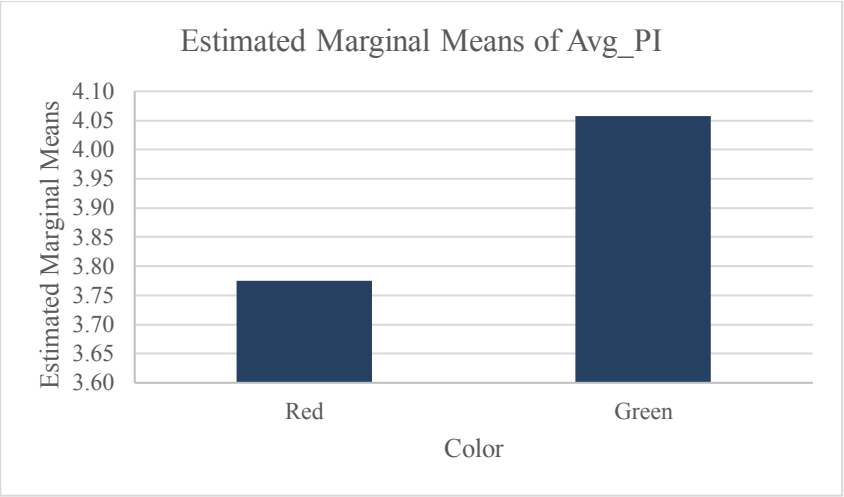


Figure 9: Main effect of Color on Purchase Intention

H1b: Attitude towards healthy eating moderates the relationship between packaging colors and purchase intention.

The following hypothesis H1b is analyzed with the PROCESS macro. Model 1 was performed to explain the effect of color on purchase intention under the influence of consumers' healthy eating attitudes. The interaction effect between color and healthy eating attitude was not statistically significant. The coefficient of .2445 (p = .1811) represents the interaction effect between color and healthy eating attitude on purchase intention and shows statistical significance at the 95% confidence level. Consequently, this shows that the influence of color (cold versus warm) on purchase intention does not significantly depend on the level of healthy eating attitude. The detailed SPSS output can be found in Appendix 19. Consequently, the data **does not support the hypothesis** that cooler packaging colors lead to higher purchase intention for health-conscious consumers.

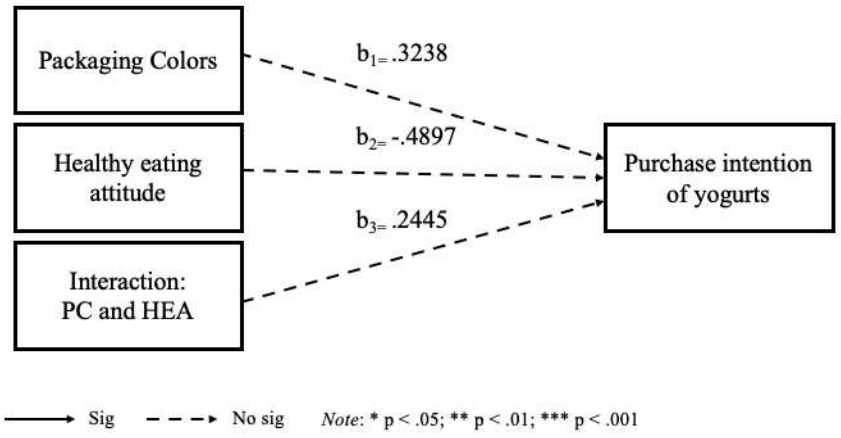


Figure 10: Statistical model 4 (Colors)

4.5.2. Effect of image on purchase intention

H2a: Image of processed food leads to higher purchase intention (vs. image of raw ingredients).

In exploring the hypothesis about the influence of varied packaging images (raw fruits versus processed fruits) on purchase intent, an Independent Samples T-test was carried out (Appendix 17). The image depicting raw strawberries (raw ingredients) demonstrated a mean purchase intention of 3.8267 (SD = 1.57517), slightly less than the image showing strawberry yogurt (processed food), which had a mean purchase intention of 4.0227 (SD = 1.63205). The outcome of Levene's test for equality of variances generated a p-value of 0.704, exceeding the traditional alpha level of .05, which backs the presumption of equal variances between the two images. However, the T-test produced a two-tailed p-value of 0.288, suggesting that the difference in purchase intention between the two image groups does not hold statistical significance. The effect size was estimated by Cohen's d as -0.123, signifying a minor effect size. This implies that while there is a detectable difference in purchase intention between the two groups, it is not substantial.

Concluding, the results suggest that there is no significant difference in the purchase intention between the image of raw fruits image and processed food image. The practical significance of this difference is also small, according to the calculated effect size. In summary, while the results showed a trend in the expected direction, the difference was not statistically significant. Therefore, the evidence from this sample does not provide strong support and therefore **rejected hypothesis H2a**.

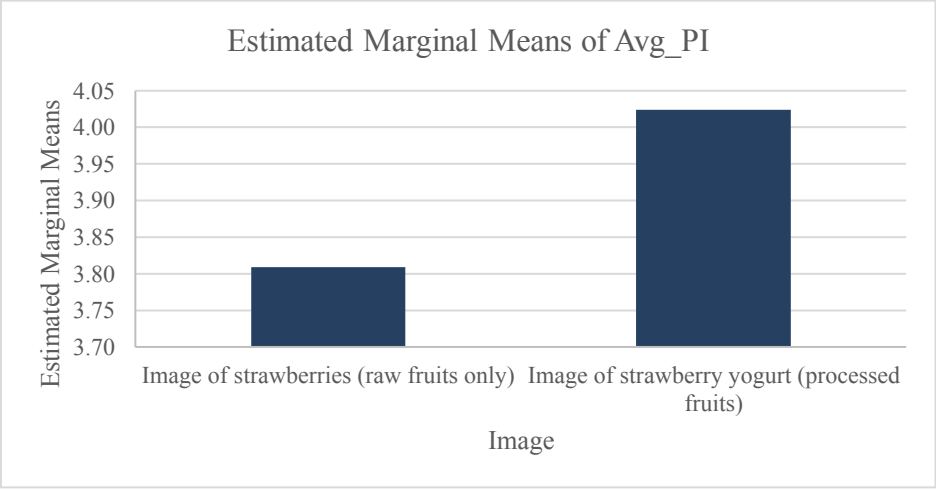


Figure 11: Main effect of Image on Purchase Intention

H2b: Attitude towards healthy eating moderates the relationship between packaging image and purchase intention.

Once again, PROCESS macro model 1 is used to examine this hypothesis by assessing the impact of image on purchase intention under the influence of consumers' healthy eating attitude. Model 1 was utilized to determine the interaction effect between image and healthy eating attitudes. The coefficient of the interaction effect between image and health-conscious attitude was found to be -.0649 (p = .7308), which is not statistically significant (Appendix 20). This result implies that the link between image (processed food versus raw ingredients) and purchase intention does not significantly vary based on the levels of healthy eating attitude. Therefore, the data does not provide evidence to support the hypothesis that images of processed food lead to higher purchase intentions among consumers with a healthy eating attitude.

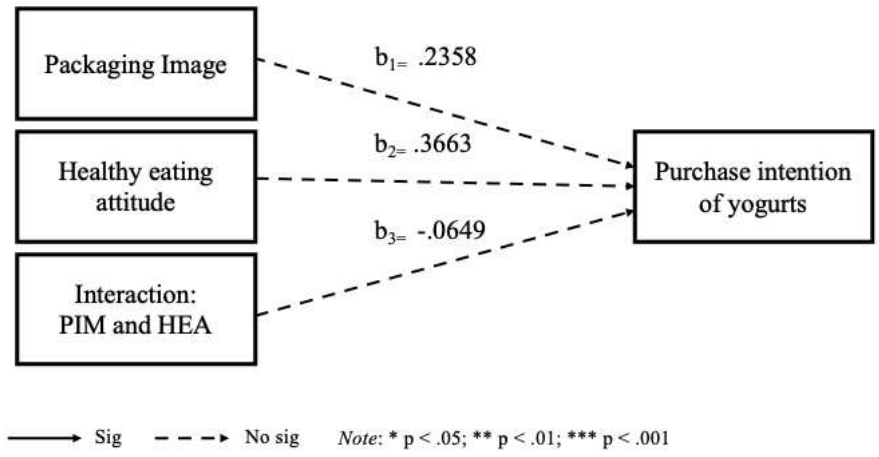


Figure 12: Statistical model 4 (Imagery)

4.5.3. Effect of Nutri-Score on purchase intention

H3a: A healthy Nutri-Score leads to higher purchase intention than an unhealthy Nutri-Score.

In examining the differences in purchase intention between the Nutri-Score A and Nutri-Score D, an Independent Samples T-test was conducted (Appendix 18). The mean purchase intention for Nutri-Score A was found to be 4.2833 (SD = 1.46050), and for Nutri-Score D, it was 3.5101 (SD = 1.65062). The mean difference is 0.77327, indicating that the purchase intention for Nutri-Score A products was 0.77327 units higher in comparison to those with a Nutri-Score D. The Levene's test for equality of variances resulted in a p-value of .070 (p > .05), suggesting the assumption of equal variances between the groups holds true.

The T-test showed a two-tailed p-value of less than 0.001, indicating a strong statistically significant difference in purchase intention between the two Nutri-Scores.

Regarding the mean values, Nutri-Score A (M= 4.2833) showed a higher purchase intention than Nutri-Score D (M= 3.5101). According to Cohen's d, the effect size of this difference was .497, which is considered as a medium effect size and indicates a moderate practical importance in the difference between the two groups.

In summary, the sample data indicate that there is a strong significant difference in purchase intention between the two Nutri-Scores, while Nutri-Score A results in higher purchase intention. Therefore, it can be concluded that sample data strongly supports hypothesis H3a.

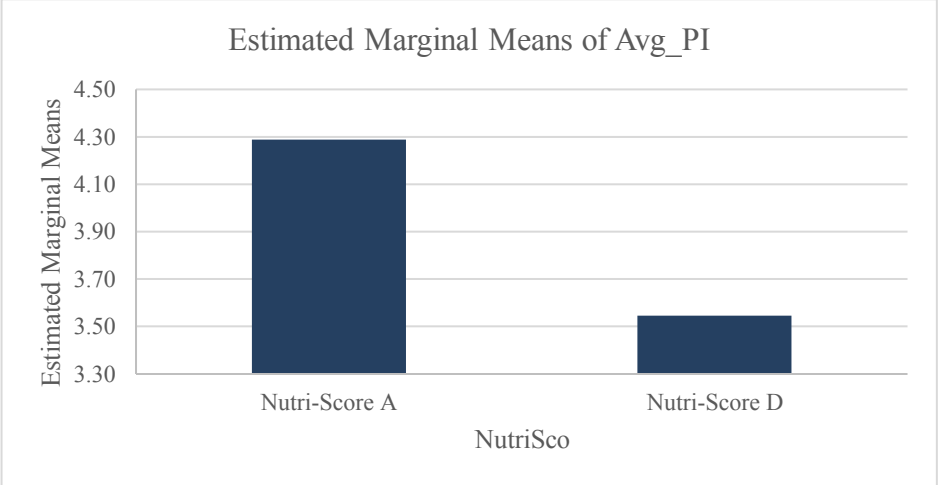


Figure 13: Main effect of Nutri-Score on Purchase Intention

H3b: Attitude towards healthy eating moderates the relationship between Nutri-Score and purchase intention.

The interplay between Nutri-Score and the health-conscious attitude of consumers was explored utilizing the PROCESS macro model 1. A significant interaction effect on purchase intention was found between Nutri-Score and health-conscious attitude (coefficient: -0.3895, p = .0293), suggesting that the level of health consciousness can influence the effect of Nutri-Score on purchasing decisions.

To investigate this hypothesis, an analysis of the effect of Nutri-Score on the purchase intention at different levels of health-conscious attitude. The output presents three levels of health-conscious attitude: the 16th percentile (low), 50th percentile (medium), and 84th percentile

(high). These percentiles demonstrate how varying levels of health consciousness affect the impact of Nutri-Score on purchasing intention. At a low level of health-conscious attitude, the effect of Nutri-Score on purchase intention is not significant (effect: -0.3834, p = .1280). Consequently, for consumers with low health-conscious attitudes, a healthy Nutri-Score does not have a significant impact on their purchase intention. Contrarily, at a medium or even a high level of health-conscious attitude, the impact of Nutri-Score on purchase intention is significant (effect: -0.7729, p < .0001; effect: -1.2111, p < .0001). This suggests that for consumers with medium and high healthy eating attitudes, a healthy Nutri-Score significantly affects their purchase intention (Appendix 21).

To conclude, the data **supports and accepts hypothesis 3b,** indicating that a healthy Nutri-Score leads to higher purchase intention for health-conscious consumers.

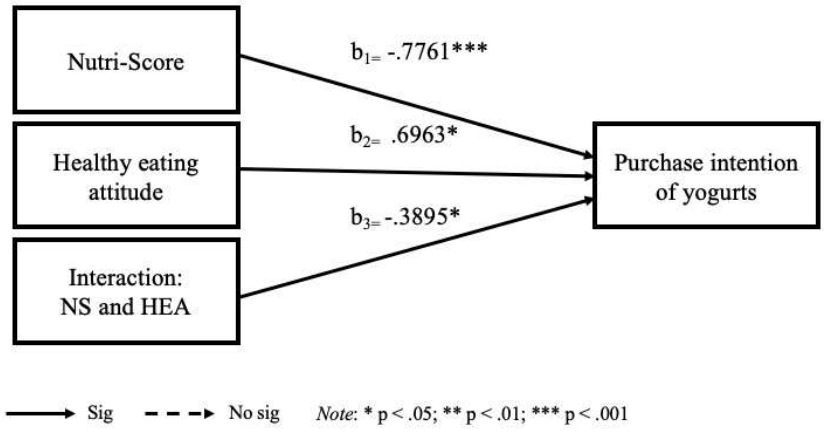


Figure 14: Statistical model 4 (Nutri-Score)

H4: Brand image mediates the relationship between packaging design and purchase intention, such that the effect of packaging design on purchase intention is stronger for products with a strong brand image.

Based on the analyses conducted on the three independent variables, namely Color, Image, and Nutri-Score, it is not possible to fully accept this hypothesis proposing that brand image acts as a mediator between packaging design and purchase intention, resulting in a stronger effect of packaging design on purchase intention for products with a strong brand image. In order the mediation effect to be considered as significant, it is essential for the indirect effect to be

significantly different from zero, which is indicated when bootstrapping values (BootCI) do not cross zero.

Hypothesis 4 was answered by using PROCESS model 4. However, the resulting effect sizes and bootstrapped confidence intervals barely differed from the output of model 5, where health-conscious attitude as moderator was included. Therefore, the full PROCESS outputs were omitted in the appendix. The results of PROCESS model 4 are still reported in parenthesis below.

When considering the *Color* variable, the indirect impact of Color on purchase intention, mediated by brand image, did not exhibit statistical significance (effect = .2153, BootCI = -0.0462 – 0.4862). This observation suggests that brand image does not significantly mediate the relationship between color and purchase intention.

As for the *Imagery* variable, the indirect influence of Image on purchase intention, as mediated by brand image, also lacked statistical significance (effect = .1142, BootCI = -.1492 – .3829). Consequently, it can be inferred that brand image does not act as a significant mediator in the relationship between image and purchase intention.

In the case of *Nutri-Score*, the indirect effect of Nutri-Score on purchase intention through brand image was found to hold statistical significance (effect = -.6318, BootCI = -.8994 – -.3745). This finding indicates that brand image significantly mediates the relationship between Nutri-Score and purchase intention. However, given that Nutri-Score is not a direct measure of packaging design, it prevents complete affirmation of the hypothesis. In conclusion, the full model analysis does not fully support the hypothesis for any of the independent variables.

4.6. Full model test

The full model test was conducted with the PROCESS Macro tool from Hayes with model 5. Given the 2x2x2 design, the analysis was performed three times with the independent variables Color, Imagery, and Nutri-Score (Appendix 22, 23 & 24).

Firstly, the effect of *Color*, brand image, health-conscious attitude, and their interaction on average purchase intention is examined. The model explains 54.86% of the variance in purchase intention ($r^2 = .5486$, $p < .0001$). The direct influence of Color on purchase intention was shown to be statistically insignificant (coefficient = .1123, p = .3646). Also, a healthy eating attitude did not show a significant effect (coefficient = -.2391, p =.4537). On the other hand, brand

image did exhibit a significant impact on average purchase intention (coefficient = 1.0848, p < .0001). The interaction effect of Color and health-conscious attitude on purchase intention is not significant (coefficient = .0914, p = .4633). The effect of Color on the mediator, brand image, is not statistically significant (coefficient = .1982, p = .1084), suggesting that Color does not influence brand image. Additionally, because the bootstrapped confidence interval contains zero, the indirect impact of color on average purchase intention through brand image is not statistically significant. Therefore, it can be stated that the association between color and purchase intention is not mediated by brand image.

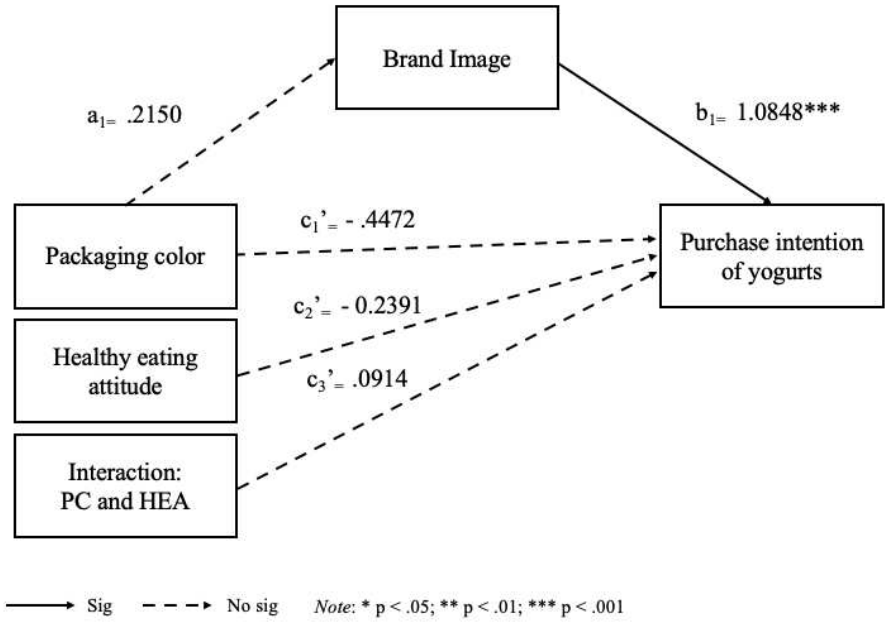


Figure 15: Statistical model 5 with regression coefficients (Color)

For of the impact of *Image*, brand image, and health-conscious attitude, along with their combined interaction, on purchase intention, it could be determined that the model explained around 54.75% of the variability in purchase intention. The influence of image on purchase intention was revealed to be statistically insignificant (coefficient = 0.0777, p = .5394). The same applies for the effect of a healthy eating attitude (coefficient = 0.2163, p = .6236). In contrast, the brand image showed a significant correlation with purchase intention (coefficient = 1.0898, p < .0001). Lastly, the interaction between image and a healthy eating attitude did not show a statistically significant impact on purchase intention (coefficient = -0.0644, p = .6149).

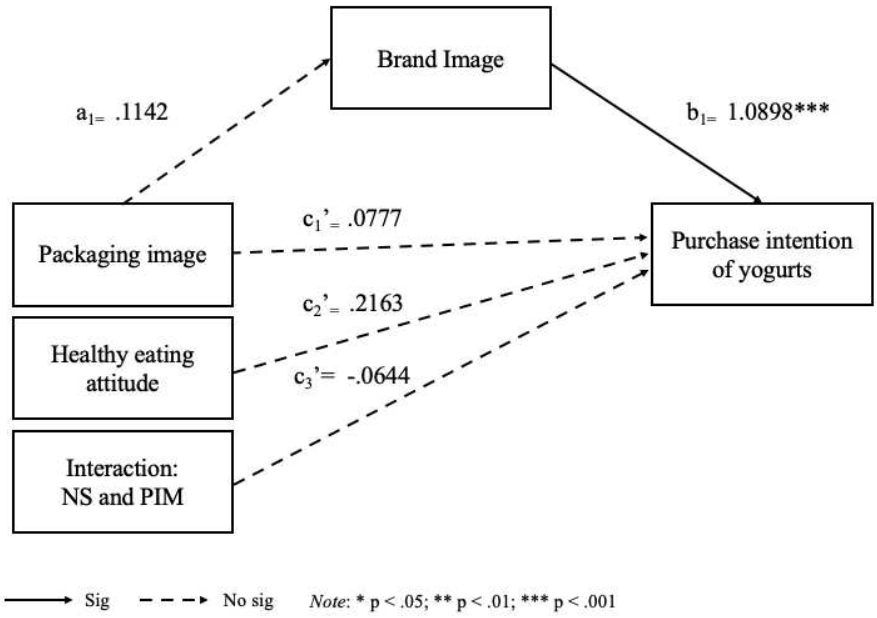


Figure 16: Statistical model 5 with regression coefficients (Image)

Moreover, a strong inverse link between *Nutri-Score* and brand image was discovered when examining the interactions between Nutri-Score and the other factors (coefficient = -0.5885, p .0001). This means that an increase in Nutri-Score results in a decrease in brand image. The relationship between Nutri-Score and purchase intention, however, is not statistically significant (coefficient = -0.1452, p = .2559). In contrast to this, the impact of brand image on purchase intent is considerable (coefficient = 1.0663, p .0001), whereas the impact of a health-conscious attitude is not (coefficient = 0.3111, p = .1050). The interaction between Nutri-Score and health-conscious attitude nearly reaches statistical significance in its influence on purchase intention (coefficient = -0.2185, p = .0804). The indirect effect of Nutri-Score on purchase intention via brand image is measured as -0.6275, with a bootstrapped 95% confidence interval excluding zero (-0.8919 to -0.3725), which confirms the statistical significance of the indirect effect.

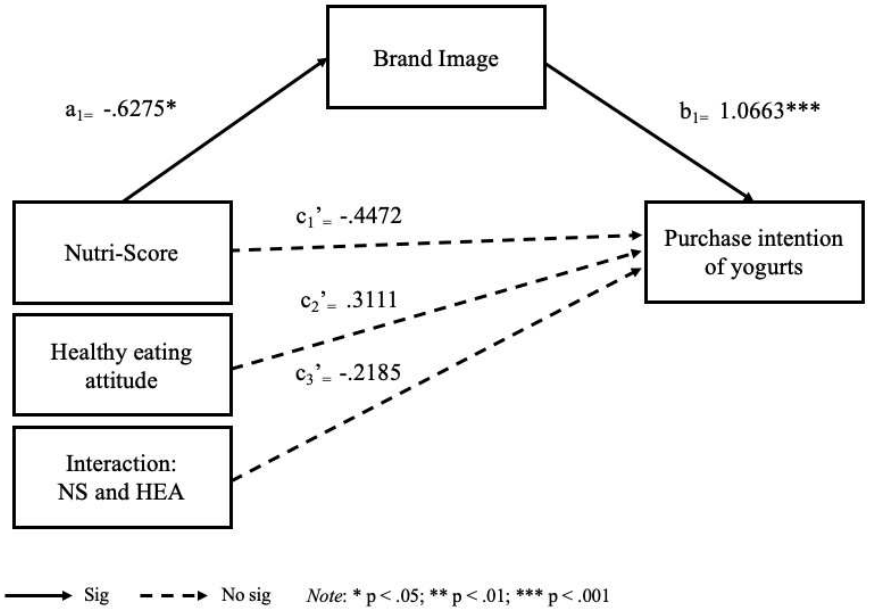


Figure 17: Statistical model 5 with regression coefficients (Nutri-Score)

4.7. Overview Hypothesis

Table 6: Hypothesis Overview

Hypothesis	Description	Results
H1a	Warmer packaging colors lead to higher purchase intention overall than colder colors.	Rejected
H1b	Attitude towards healthy eating moderates the relationship between packaging colors and purchase intention.	Rejected
H2a	Image of processed food leads to higher purchase intention than image of raw ingredients	Rejected
H2b	Attitude towards healthy eating moderates the relationship between packaging image and purchase intention	Rejected
H3a	A healthy Nutri-Score leads to higher purchase intention than an unhealthy Nutri-Score.	Accepted
H3b	Attitude towards healthy eating moderates the relationship between Nutri-Score and purchase intention	Accepted
H4	Brand image mediates the relationship between packaging design and purchase intention, such that the effect of packaging design on purchase intention is stronger for products with a strong brand image.	Rejected

5. CHAPTER: CONCLUSIONS AND LIMITATIONS

This final chapter provides an extensive summary of the main findings of this study and draws appropriate conclusions. In addition, the research questions are answered based on the analysis of the collected data. Afterwards, the managerial and academic implications are highlighted, followed by the identification of the study's limitations and the need for further research.

5.1. Main Findings & Conclusions

In order to provide a research framework, four research questions were developed at the outset, which were addressed throughout the survey. The findings are explained in more detail in the following section.

RQ1: What is the impact of packaging design on purchase intention yogurts?

The main purpose of this study was to investigate the impact of yogurt packaging designs comprising of the levels of color, image, and Nutri-Score on consumers' purchase intention. The study's findings revealed variations in the effect of these design elements. Particularly, Nutri-Score appeared as a strong predictor of purchase intention, showing that healthier ratings resulted in higher purchase inclinations. On the other hand, contrary to my expectations, the statistical analysis did not show a significant effect of color and image on purchase intention. Thus, while packaging design overall is crucial, it is evident that some packaging design components have a stronger impact than others within the context of the yogurt industry.

RQ2: Among packaging design elements, which element has the strongest effect on consumers' purchase intent?

Based on the study's findings, the Nutri-Score, which represents nutritional information, was discovered to be the element with the strongest effect on purchase intention. Contrary to other studies' findings, the visual components, whether color nor image, demonstrated no statistically significant impact on consumers' purchase intention in this study. Hence, this confirmed the dominant role that nutritional information, operationalized as Nutri-Score, plays in affecting consumers' buying decisions in the yogurt market. However, this observation might not be applicable to other product categories and calls for further research.

RQ3: How does consumers' attitude towards a healthy lifestyle affect the relationship between packaging design and purchase intention?

Furthermore, the current study investigated the moderating effects of consumers' attitude towards healthy eating on the relationship between the packaging design elements and purchase intention. The results highlight that the only significant moderating effect appeared for Nutri-Score. Among consumers with medium to high level of healthy-eating attitudes, a healthier Nutri-Score had a significant impact on their purchase intention. In contrast, for people with a low healthy-eating attitude, Nutri-Score had no significant effect on their purchase intention. For low health-attitude customers, the effect Nutri-Score therefore is more in line with the effects of color and imagery on a product, while the effect for customers with a high health-attitude is substantial.

Consequently, these findings imply that the effectiveness of Nutri-Score as a packaging design element in shaping consumers' purchase intention is contingent upon their individual healthy-eating attitudes.

RQ4: How does brand image influence the relationship between packaging design and purchase intention?

By using the Hayes PROCESS model, a complex relationship between brand image, packaging design and purchase intention was discovered. The findings show, that although brand image had a significant direct impact on consumers' purchase intention, uniformly significance between the packaging design elements, color, image, and Nutri-Score, could not be determined. Nevertheless, a strong mediation effect of brand image could be discovered for the link between Nutri-Score and purchase intention. In contrast, for color and image the mediating effect was not statistically significant. Therefore, it can be concluded that while brand image is important, its impact differs across different yogurt packaging design elements.

5.2. Managerial Implications

The findings of this study hold several important implications for businesses operating in the food industry. Firstly, while the study missed delivering significant results for most of the hypothesized relationships, it can be concluded that subtle implicit communication of healthiness of products through color or imagery is less effective than through explicit nutritional information. While classical nutritional facts surely have a considerable influence as

well, a high Nutri-Score is a highly salient attribute in a product design and can be specifically used as such.

What the study was able to indicate is that brand image plays a significant mediating role in the relationship between Nutri-Score and purchase intention. It is valuable for marketing managers to recognize the importance of maintaining a strong and positive brand image, especially in the market of health-conscious consumers.

These results also suggest that companies – especially in the yogurt industry – should consider emphasizing Nutri-Score on their packaging, particularly if the product has a healthy score. This attribute will be strongly perceived by consumers and can be expected to lead to a higher purchase intention and subsequently higher revenue – especially among health-conscious consumers.

5.3. Academic implications

Many studies have been conducted on packaging design, but the emphasis in past research has largely been either on visual elements or nutritional information on the packaging. This study builds upon and extends these previous works of research and inspects both elements together and examines and confirms the importance of Nutri-Score in affecting purchase intentions, more effectively than visual elements like color and imagery.

Moreover, the findings of this study contribute to a gap in the research as described as recently as 2023 by Hallez et al. Nonetheless, further studies into this topic are required to validate or disprove the results of this study.

5.4. Limitation and Further Research

Overall, the study provides valuable insights into the impact of packaging design on consumers' purchase intention of yogurts, but there are several limitations that should be considered, also regarding future research.

First, it is important to consider that these findings are not necessarily applicable to other scenarios. On the one hand, due to the utilization of the non-probability sampling method, the sample might not be representative of the larger population. Therefore, further research on a larger and more diverse study sample should be conducted in order to enhance the representativeness of these findings (Saunders et al., 2009). On the other hand, it is important

to consider that the survey was limited to the product category of yogurts and hence, results are not transferable to other product groups. Therefore, it would be valuable to apply the same study to other product categories.

As mentioned earlier, the findings that visual elements have no significant effect on purchase intention are contrary to many previous studies, which raises an intriguing point of consideration. One plausible reason for the results not showing up as expected could arise from the explicit nature of Nutri-Score as a packaging cue, contrasting with the implicit nature of color and image (Karnal et al., 2016; van Rompay et al., 2016). Hence, explicit packaging cues may have a stronger ability than implicit cues to influence and control purchase intention. Further research is necessary to fully understand the differential impacts of implicit and explicit packaging cues, more specifically of visual elements and Nutri-score, on consumers' purchase intention.

Building upon the positive effect of Nutri-Score on purchase intention observed, there could be a follow-up by expanding the survey by investigating whether a bad Nutri-Score leads to a higher or lower purchase intention than the absence of the Nutri-Score label at all. Moreover, the use of Nutri-Score as an expression of nutritional information in this study should be investigated as to whether nutritional tables or other nutrition labels lead to a different effect on purchase intention. Summarizing, alternative forms of nutritional information and the strategic absence of such could be investigated.

Moreover, the study could be expanded by including different additional variables. Due to the prevailing sustainability trend, the dimension of packaging design is gaining more and more in importance. However, it should be noted that by adding this variable, an alternative research approach should be considered due to the haptic aspect of packaging material (Rebollar et al., 2012).

Although it is quite common to use purchase intention as predictor for making strategic marketing decisions regarding existing products or new ones (Chandon et al., 2005; Morwitz et al., 2007), the stated purchase intention might differ from the actual buying behavior. Lindstrom (2010) argued the stated intention to act sometimes deviates from what the observed action. This phenomenon arises because of unconscious processes which have the potential to impact actual behavior in a way that may differ from intended actions.

In the context of purchase intention, an additional consideration could be if the purchase intention varies systematically in different individual circumstances. For instance, whether the

yogurt is intended for personal use or for a larger family can impact the perception of the product and the purchase intention. This aspect of limitation was already acknowledged by Kytö et al. (2019) and is worth further exploration.

Another limitation of the present study was in the creation of the packaging element "image" and in its manipulation. During the manipulation check analysis (see Table 4), it became apparent that a considerable number of participants had difficulties in answering the manipulation question regarding the image correctly, hinting at a comparatively more difficult understanding of the presented stimuli. To prevent potential errors in creating stimuli, a larger number of people in the focus group could have been beneficial to identify such problems beforehand. Apart from that, the co-creation of the stimuli could be done through a pre-survey to consider a larger number of answers and feedback about the stimuli design beforehand.

Additionally, it may be valuable to extend the conceptual model by adding the dimension of health perception, to better understand how the respondents perceive the different packaging design elements in terms of healthiness and then form their purchase intention about it. With this inclusion, it would be possible to gain a deeper understanding of how consumers interpret different packaging design components in relation to the product's perceived healthiness and the resulting purchase intention. By investigating the interplay between packaging design, health perceptions, and purchase intention a fuller understanding of consumer behavior can be achieved.

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APPENDICES

Appendix 1.: Focus Group – Stimuli Co-Creation

Introduction

Welcome everybody and thank you for joining today's focus group regarding the stimuli creation for my master thesis survey about the impact of packaging design elements on the purchase intention. I would also like to emphasize that there are no right, and no wrong answers and I am very pleased that together we are creating the stimuli for my survey today.
Thank you, a lot, for taking part. Now I would highly invite you to introduce yourself shortly and give us some information such as your age, origin, gender. Furthermore, please let us know how often do you purchase and eat yogurt? Let us start!

Logo position

1) Please rank which position of the logo you prefer the most (1/2/3)

Image raw fruits

1) Please rank which strawberry imagery you prefer the most (1/2/3).
2) Please rank the images as a representation of the attribute "imagery of raw ingredients" (1/2/3) on a yogurt cup.
3) Do you think one of these images is a good representation of "imagery of raw ingredients" and why? (Asked after giving ranking)

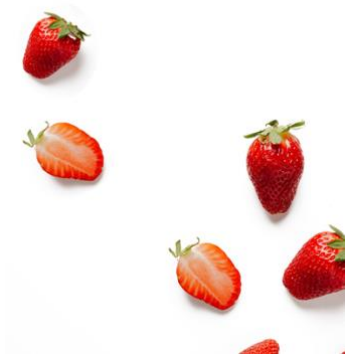
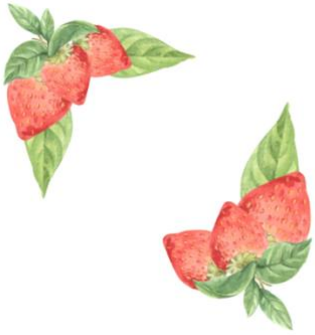
		

Image processed yogurt

1) Please rank which strawberry yogurt imagery you prefer the most (1/2/3).
2) Please rank the images as a representation of the attribute “imagery of processed food” (1/2/3).
3) Do you think one of these images is a good representation of “imagery of processed food” and why? (Asked after giving ranking)

Appendix 2.: Focus Group – Participant's data and results

Participant	Nationality	Gender	Age	Ranking		
1	Austrian	Female	34	*Logo position* 2-1-3		
				Raw Fruit Preference 1-2-3	*Raw Fruit Representation* 2-1-3	*Qualitative Raw fruit:* „Highlights the naturalness of the strawberries "
				Processed preference: 1-2-3	*Processed Representation:* 1-3-2	*Qualitative Processed:* „Captures the processed aspect, but appealing"
8	Spanish	Female	25	*Logo position* 2-1-3		
				Raw Fruit Preference 2-1-3	*Raw Fruit Representation* 2-1-3	*Qualitative Raw fruit:* „Strawberries look natural and healthy"
				Processed preference: 1-2-3	*Processed Representation:* 3-1-2	*Qualitative Processed:* "Third image represents processed food the best"
3	German	Female	27	*Logo position* 2-1-3		
				Raw Fruit Preference 2-1-3	*Raw Fruit Representation* 2-1-3	*Qualitative Raw fruit:* „Aligns with my preference for showing the naturalness "
				Processed preference: 1-2-3	*Processed Representation:* 1-2-3	*Qualitative Processed;* „Represents a creamy yogurt"
4	Austrian	Female	48	*Logo position* 2-1-3		
				Raw Fruit Preference 2-1-3	*Raw Fruit Representation* 2-1-3	*Qualitative Raw fruit:* "Real, unprocessed food"
				Processed preference: 1-2-3	*Processed Representation:* 1-3-2	*Qualitative Processed;* "Yes"
5	Portuguese	Male	21	*Logo position* 2-1-3		
				Raw Fruit Preference 2-1-3	*Raw Fruit Representation* 1-2-3	*Qualitative Raw fruit:* "Looks like fresh from the tree"
				Processed preference: 1-3-2	*Processed Representation:* 1-3-2	*Qualitative Processed;* "Shows the finished product, but also some elements of the original fruit"
6	Italian	Female	29	*Logo position* 2-1-3		
				Raw Fruit Preference 1-2-3	*Raw Fruit Representation* 1-2-3	*Qualitative Raw fruit:* "I like the way they are presented"
				Processed preference: 1-2-3	*Processed Representation:* 1-3-2	*Qualitative Processed;* "Yes, 1 looks creamy and tasty"
7	Austrian	Male	27	*Logo position* 2-1-3		
				Raw Fruit Preference 2-1-3	*Raw Fruit Representation* 2-1-3	*Qualitative Raw fruit:* "Yes, looks fresh and vibrant"
				Processed preference: 1-3-2	*Processed Representation:* 1-2-3	*Qualitative Processed;* "All of them look rather natural and fresh than processed"

A point system where the first place receives 3 points, the second place receives 2 points, and the third place receives 1 point, was utilized.

	Ranking results			
Attribute	**Option 1**	**Option 2**	**Option 3**	**Results**
Logo Position	7	21	14	=> Option 2
Raw Fruit Preference	15	16	11	=> Option 2
Raw Fruit Representation	13	18	11	=> Option 2
Processed Fruit Preference	21	14	7	=> Option 1
Processed Fruit Representation	19	10	14	=> Option 1

Appendix 3.: Interview moderator's guide and results:

Which product can you see here?

Everyone immediately recognized that it is a yogurt.

Do you know the brand?

Nobody knew the fictious brand "Slurp -> so far, no positive or negative associations with the brand

Image

1) (Image Raw fruit): What image do you see on this packaging?

   Participants provided descriptions such "*I see a painting of strawberries", "Strawberries that look very healthy, due to the leaves"*

2) (Image Processed fruit): What Image do you see on the packaging?

   The responses included descriptions, such as *"photo of a yogurt cup" and "an image of a yogurt with two halves of strawberries*."

3) What is the difference between these two packagings?

   They perceived variations in the level of naturalness.

4) Image 1: Do you think this image is a good representation of "raw ingredients" and why?

   The respondents considered the image as a good representation and explain their reasoning with *"Yes, the image accurately depicts the presence of fresh strawberries* "

5) Image 2: Do you think this image is a good representation of "imagery of processed food" and why?

Color

6) (Green packaging): Which color do you see on this packaging?

All participants were clear to see green.

7) (Red Packaging): Which color do you see on this packaging?

All participants agreed to see red.

8) What do you associate with these two colors?

Participants expressed associations of green with nature, organic and healthy and red was associated with sweetness, rich flavor.

E.g., *"The green reminds me of nature, and looks organic."*

9) Color Green: Do you think this image is a good representation of a cool color and why?

Participants generally agreed that the green color represented a cool color.

10) Color Red: Do you think this image is a good representation of a warm color and why?

Everyone agreed.

Nutri-Score

11) (Nutri-Score A): What do you see on this packaging in terms of nutritional information?

All participants recognized Nutri-Score A.

12) (Nutri-Score D): What do you see on this packaging in terms of nutritional information?

All participants recognized Nutri-Score D.

13) (Nutri-Score A): How healthy do you think is this Nutri-Score?

All participants were familiar with the Nutri-Score rating system. They said it is easy to understand, due to the color traffic light and noticed the healthiness of the yogurt.

E.g., *"looks like a healthy option"*

14) (Nutri-Score D): How healthy do you think is this Nutri-Score?

E.g., *"I notice the Nutri-Score indicates a lower nutritional value with the red color code."*

15) (Nutri-Score A): Do you think this Nutri-Score is a good representation of unhealthy food?

Yes, they associate Nutri-Score A with very healthy food.

16) (Nutri-Score D): Do you think this Nutri-Score is a good representation of unhealthy food?

Participants agreed and several participants said they would not buy it due to the Nutri-Score.

Appendix 4.: Main study – Online survey

Introduction

Dear survey participant,

Thank you in advance for participating in this survey. This study is being conducted as part of my master's thesis project for the Master Management with Specialization in Strategic Marketing at Católica Lisbon School of Business and Economics.

The survey will take about approximately **3-4 minutes** to complete and is completely anonymous. There are no right, or wrong answers and your responses will be kept confidential and will only be used for research purposes.

In case of any questions please do not hesitate to contact me: s-frenes@ucp.pt.

Thank you very much for your participation!

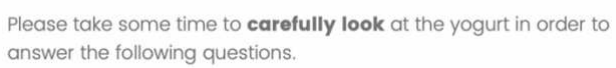
Larissa Frenes

Block 1: Screening Questions

If "never" is selected for Q1 or Q2, skip to the end of the survey.

Block 2: Stimuli + purchase intention + brand image

Randomly display on of the eight packaging stimuli and randomly display purchase intention or brand image block first.




SLURP
Fruit yogurt
Strawberry
SLURP
DAIRY PRODUCTS
Fruit yogurt
Strawberry
NUTRI-SCORE


SLURP
Fruit yogurt
Strawberry
SLURP
DAIRY PRODUCTS
Fruit yogurt
Strawberry
NUTRI-SCORE


SLURP
DAIRY PRODUCTS
Fruit yogurt
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DAIRY PRODUCTS
Fruit yogurt
Strawberry
SLURP
DAIRY PRODUCTS
Fruit yogurt
Strawberry
NUTRI-SCORE

Please indicate how you agree or disagree with the following statements about the brand SLURP.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
The brand SLURP provides good value for money	○	○	○	○	○	○	○
There is a reason to buy the brand SLURP instead of others.	○	○	○	○	○	○	○
The brand SLURP has personality.	○	○	○	○	○	○	○
The brand SLURP is interesting.	○	○	○	○	○	○	○
I have a clear impression of the type of people who consume the brand SLURP.	○	○	○	○	○	○	○
The brand SLURP is different from competing brands.	○	○	○	○	○	○	○

Considering the SLURP yogurt you saw earlier, please indicate to which extent you disagree or agree with the following statements.

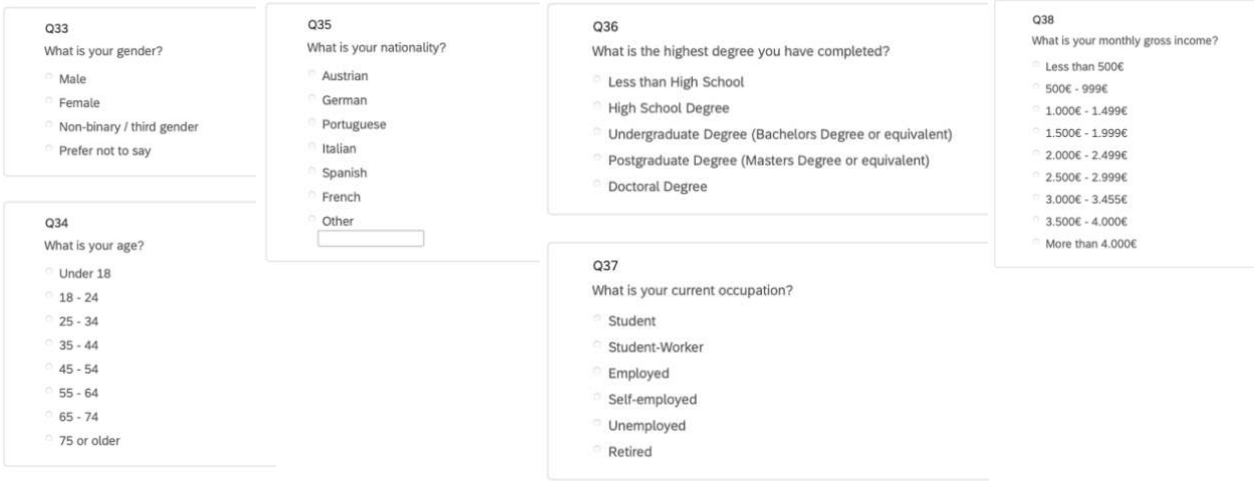
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is very likely that I will buy the brand SLURP.	○	○	○	○	○	○	○
I will purchase the brand SLURP the next time I need a fruit yogurt.	○	○	○	○	○	○	○
I will definitely try the brand SLURP.	○	○	○	○	○	○	○

Block 4: Health-conscious attitude

Please indicate to which extent you disagree or agree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I am very particular about the healthiness of food.	○	○	○	○	○	○	○
I always follow a healthy and balanced diet.	○	○	○	○	○	○	○
It is important for me that my diet is low in fat.	○	○	○	○	○	○	○
It is important for me that my daily diet contains a lot of vitamins and minerals.	○	○	○	○	○	○	○
I eat what I like and I do not worry about healthiness of food.	○	○	○	○	○	○	○
I do not avoid any foods, even if they may raise my cholesterol.	○	○	○	○	○	○	○
The healthiness of food has little impact on my food choices.	○	○	○	○	○	○	○
The healthiness of snacks makes no difference for me.	○	○	○	○	○	○	○

Block 5: Demographics



Q33
What is your gender?
- Male
- Female
- Non-binary / third gender
- Prefer not to say

Q34
What is your age?
- Under 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 - 74
- 75 or older

Q35
What is your nationality?
- Austrian
- German
- Portuguese
- Italian
- Spanish
- French
- Other

Q36
What is the highest degree you have completed?
- Less than High School
- High School Degree
- Undergraduate Degree (Bachelors Degree or equivalent)
- Postgraduate Degree (Masters Degree or equivalent)
- Doctoral Degree

Q37
What is your current occupation?
- Student
- Student-Worker
- Employed
- Self-employed
- Unemployed
- Retired

Q38
What is your monthly gross income?
- Less than 500€
- 500€ - 999€
- 1.000€ - 1.499€
- 1.500€ - 1.999€
- 2.000€ - 2.499€
- 2.500€ - 2.999€
- 3.000€ - 3.455€
- 3.500€ - 4.000€
- More than 4.000€

Appendix 5.: Main Survey – Survey flow

Appendix 6.: Main Survey – Frequencies yogurt consumption

How often do you usually eat yogurt?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	26	4.5	4.5	4.5
	Once a month or less	97	16.7	16.8	21.4
	2-3 times a month	166	28.6	28.8	50.2
	1-3 times a week	194	33.4	33.7	83.9
	4 times a week or more	93	16.0	16.1	100.0
	Total	576	99.3	100.0	
Missing	System	4	.7		
Total		580	100.0		

How often do you usually purchase yogurt?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	17	2.9	3.1	3.1
	Once a month or less	125	21.6	22.8	25.9
	2-3 times a month	243	41.9	44.3	70.1
	1-3 times a week	158	27.2	28.8	98.9

	4 times a week or more	6	1.0	1.1	100.0
	Total	549	94.7	100.0	
Missing	System	31	5.3		
Total		580	100.0		

Appendix 7.: Main Survey – Demographics

		Stimuli								Frequency	Percentage
		1	2	3	4	5	6	7	8		
Gender	Male	27	15	10	25	12	12	14	10	**125**	**40%**
	Female	21	27	32	18	16	22	24	19	**179**	**58%**
	Non-binary / third gender	0	1	1	0	1	0	0	0	**3**	**1%**
	Prefer not to say	0	0	0	0	1	0	1	0	**2**	**1%**
Total		48	43	43	43	30	34	39	29	**309**	**100%**

		Stimuli								Frequency	Percentage
		1	2	3	4	5	6	7	8		
Age	Under 18	1	0	0	0	1	1	0	0	**3**	**1%**
	18 - 24	7	13	13	14	8	8	14	8	**85**	**28%**
	25 - 34	21	19	20	17	16	15	14	11	**133**	**43%**
	35 - 44	6	5	2	4	3	2	2	3	**27**	**9%**
	45 - 54	6	2	0	2	0	4	4	4	**22**	**7%**
	55 - 64	7	4	6	6	2	4	3	3	**35**	**11%**
	65 - 74	0	0	2	0	0	0	2	0	**4**	**1%**
Total		48	43	43	43	30	34	39	29	**309**	**100%**

		Stimuli								Frequency	Percentage
		1	2	3	4	5	6	7	8		
Nationaility	Austrian	20	18	20	18	11	14	18	13	**132**	**43%**
	German	10	7	6	5	4	3	7	3	**45**	**15%**
	Portuguese	8	9	8	11	4	7	11	3	**61**	**20%**
	Italian	4	2	8	4	4	2	1	2	**27**	**9%**
	Spanish	0	1	0	2	0	1	0	1	**5**	**2%**
	French	1	1	1	1	0	0	0	1	**5**	**2%**
	Other	5	5	0	2	7	7	2	6	**34**	**11%**
Total		48	43	43	43	30	34	39	29	**309**	**100%**

		Stimuli								Frequency	Percentage
		1	2	3	4	5	6	7	8		
Highest degree	Less than High School	1	0	2	1	2	2	1	2	**11**	**4%**
	High School Degree	15	13	12	9	6	10	9	8	**82**	**27%**
	Undergraduate Degree (Bachelors Degree or equivalent)	18	16	17	16	13	12	18	10	**120**	**39%**
	Postgraduate Degree (Masters Degree or equivalent)	13	11	9	15	7	8	9	9	**81**	**26%**
	Doctoral Degree	1	3	3	2	2	2	2	0	**15**	**5%**
Total		48	43	43	43	30	34	39	29	**309**	**100%**

		Stimuli								Frequency	Percentage
		1	2	3	4	5	6	7	8		
Occupation	Student	5	11	9	10	5	8	6	7	**61**	**20%**
	Student-Worker	8	4	6	4	4	4	7	3	**40**	**13%**
	Employed	27	23	20	19	15	18	17	16	**155**	**50%**
	Unemployed	3	0	3	4	2	0	3	2	**17**	**6%**
	Retired	1	2	1	0	0	3	3	0	**10**	**3%**
	Self-employed	4	3	4	6	4	1	3	1	**26**	**8%**
Total		48	43	43	43	30	34	39	29	**309**	**100%**

		Stimuli								Frequency	Percentage
		1	2	3	4	5	6	7	8		
Monthly gross income	Less than 500€	5	5	6	9	4	6	6	5	**46**	**15%**
	500€ - 999€	7	7	5	8	3	6	7	6	**49**	**16%**
	1.000€ - 1.499€	6	9	5	4	8	6	8	2	**48**	**16%**
	1.500€ - 1.999€	8	2	3	4	3	4	4	4	**32**	**10%**
	2.000€ - 2.499€	5	7	5	2	6	2	6	3	**36**	**12%**
	2.500€ - 2.999€	5	2	8	3	3	1	0	3	**25**	**8%**
	3.000€ - 3.455€	1	3	3	4	0	3	1	1	**16**	**5%**
	3.500€ - 4.000€	2	0	5	3	1	4	1	3	**19**	**6%**
	More than 4.000€	9	8	3	6	2	2	6	2	**38**	**12%**
Total		48	43	43	43	30	34	39	29	**309**	**100%**

Appendix 8.: Main Survey – Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Color	309	2.00	3.00	2.5146	.50060
NutriScore	309	1.00	2.00	1.4822	.50049
Image	309	3.00	4.00	3.4272	.49547
Avg_Health-conscious attitude	309	2.13	7.00	4.6331	.99361
Avg_Purchase Intention	309	1.00	7.00	3.9105	1.60004
Avg_Brand Image	309	1.20	7.00	4.2900	1.08391
Valid N (listwise)	309				

Color

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Red	150	48.5	48.5	48.5
	Green	159	51.5	51.5	100.0
	Total	309	100.0	100.0	

Nutri-Score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nutri-Score A	160	51.8	51.8	51.8
	Nutri-Score D	149	48.2	48.2	100.0
	Total	309	100.0	100.0	

Image

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Image of strawberries (raw fruits only)	177	57.3	57.3	57.3
	Image of strawberry yogurt (processed fruits)	132	42.7	42.7	100.0
	Total	309	100.0	100.0	

Appendix 9.: Levene's test: Purchase Intention

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Avg_PI	Based on Mean	.480	7	301	.849
	Based on Median	.401	7	301	.902
	Based on Median and with adjusted df	.401	7	289.958	.902
	Based on trimmed mean	.445	7	301	.873

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Avg_PI

b. Design: Intercept + Color + NutriSco + Image + Color * NutriSco + Color * Image + NutriSco * Image + Color * NutriSco * Image

Appendix 10.: Levene's test: Brand Image

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Avg_BI	Based on Mean	.692	7	301	.679
	Based on Median	.651	7	301	.714
	Based on Median and with adjusted df	.651	7	275.897	.714
	Based on trimmed mean	.695	7	301	.676

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Avg_BI

b. Design: Intercept + Color + NutriSco + Image + Color * NutriSco + Color * Image + NutriSco * Image + Color * NutriSco * Image

Appendix 11.: Levene's test: Health-conscious attitude

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Avg_HC	Based on Mean	.178	7	301	.990
	Based on Median	.162	7	301	.992
	Based on Median and with adjusted df	.162	7	289.284	.992
	Based on trimmed mean	.177	7	301	.990

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Avg_HC

b. Design: Intercept + Color + NutriSco + Image + Color * NutriSco + Color * Image + NutriSco * Image + Color * NutriSco * Image

Appendix 12.: Test of normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Avg_PI	.085	309	<.001	.971	309	<.001
Avg_BI	.053	309	.038	.994	309	.241
Avg_HC	.047	309	.098	.993	309	.138

a. Lilliefors Significance Correction

Appendix 13.: Measurements of reliability - Brand Image

Before item deleting

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.826	.828	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Brand_Image_Q1	21.3819	30.094	.565	.403	.807
Brand_Image_Q2	21.5987	27.072	.635	.480	.790
Brand_Image_Q3	21.2039	25.403	.701	.661	.774
Brand_Image_Q4	21.2104	24.654	.734	.695	.766
Brand_Image_Q5	21.4498	29.372	.394	.245	.841
Brand_Image_Q6	21.5210	27.198	.575	.377	.802

After item deleting

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.841	.841	5

Appendix 14.: Measurements of reliability – Health interest

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.828	.831	8

Appendix 15.: Measurements of reliability – Purchase intention

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.924	.925	3

Appendix 16.: SPSS Outputs - Hypothesis Testing 1a

Group Statistics

	Color	N	Mean	Std. Deviation	Std. Error Mean
Avg_PI	Red	150	3.7422	1.57826	.12886
	Green	159	4.0692	1.60917	.12762

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Avg_PI	Equal variances assumed	.021	.885	-1.802	307	.036	.073	-.32696	.18146	-.68403	.03011

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval Lower	95% Confidence Interval Upper
Avg_PI	Cohen's d	1.59424	-.205	-.429	.019
	Hedges' correction	1.59815	-.205	-.428	.019
	Glass's delta	1.60917	-.203	-.427	.021

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control group.

	Equal variances not assumed			-1.803	306.532	.036	.072	-.32696	.18136	-.68383	.02991

Appendix 17.: SPSS Outputs - Hypothesis Testing 2a

Group Statistics

	Image	N	Mean	Std. Deviation	Std. Error Mean
Avg_PI	Image of strawberries (raw fruits only)	177	3.8267	1.57517	.11840
	Image of strawberry yogurt (processed fruits)	132	4.0227	1.63205	.14205

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Avg_PI	Equal variances assumed	.145	.704	-1.065	307	.144	.288	-.19599	.18397	-.55798	.16601
	Equal variances not assumed			-1.060	276.800	.145	.290	-.19599	.18492	-.56002	.16805

Independent Samples Effect Sizes

				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Avg_PI	Cohen's d	1.59969	-.123	-.348	.103
	Hedges' correction	1.60361	-.122	-.347	.103
	Glass's delta	1.63205	-.120	-.346	.106

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control group.

Appendix 18.: SPSS Outputs - Hypothesis Testing 3a

Group Statistics

	NutriSco	N	Mean	Std. Deviation	Std. Error Mean
Avg_PI	Nutri-Score A	160	4.2833	1.46050	.11546
	Nutri-Score D	149	3.5101	1.65062	.13522

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Avg_PI	Equal variances assumed	3.294	.070	4.368	307	<.001	<.001	.77327	.17704	.42490	1.12163
	Equal variances not assumed			4.349	296.015	<.001	<.001	.77327	.17781	.42333	1.12320

Independent Samples Effect Sizes

				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Avg_PI	Cohen's d	1.55506	.497	.270	.723
	Hedges' correction	1.55887	.496	.270	.722
	Glass's delta	1.65062	.468	.238	.697

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control group.

Appendix 19.: SPSS Outputs - Hayes' PROCESS Model 1: Hypothesis 1b

```
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  : 1
    Y  : Avg_PI
    X  : Color
    W  : Avg_HC

Sample
Size:  309

**************************************************************************
OUTCOME VARIABLE:
 Avg_PI

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .1492      .0223     2.5278     2.3146     3.0000   305.0000      .0759

Model
             coeff         se          t          p       LLCI       ULCI
constant    3.0947      .4640     6.6695      .0000     2.1816     4.0077
Color        .3238      .1810     1.7889      .0746     -.0324      .6799
Avg_HC      -.4897      .4677    -1.0471      .2959    -1.4101      .4306
Int_1        .2445      .1824     1.3403      .1811     -.1145      .6035

Product terms key:
 Int_1    :        Color    x        Avg_HC

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0058     1.7964     1.0000   305.0000      .1811

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

Level of confidence for all confidence intervals in output:
  95.0000

NOTE: The following variables were mean centered prior to analysis:
          Avg_HC

------ END MATRIX -----
```

Appendix 20.: SPSS Outputs - Hayes' PROCESS Model 1: Hypothesis 2b

```
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  : 1
    Y  : Avg_PI
    X  : Image
    W  : Avg_HC

Sample
Size:  309
```

```
**************************************************************************
OUTCOME VARIABLE:
 Avg_PI


Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .1095      .0120     2.5543     1.2345     3.0000   305.0000      .2973

Model
              coeff         se          t          p       LLCI       ULCI
constant     3.0975      .6436     4.8125      .0000     1.8310     4.3640
Image         .2358      .1861     1.2674      .2060     -.1303      .6020
Avg_HC        .3663      .6493      .5641      .5731     -.9114     1.6440
Int_1        -.0649      .1886     -.3443      .7308     -.4361      .3062

Product terms key:
 Int_1    :        Image    x        Avg_HC

Test(s) of highest order unconditional interaction(s):
       R2-chng           F        df1        df2          p
X*W      .0004      .1186     1.0000   305.0000      .7308

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

Level of confidence for all confidence intervals in output:
  95.0000

NOTE: The following variables were mean centered prior to analysis:
          Avg_HC

------ END MATRIX -----
```

Appendix 21.: SPSS Outputs - Hayes' PROCESS Model 1: Hypothesis 3b

```
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  : 1
    Y  : Avg_PI
    X  : NutriSco
    W  : Avg_HC

Sample
Size:  309

**************************************************************************
OUTCOME VARIABLE:
 Avg_PI

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .2824      .0797     2.3792     8.8094     3.0000   305.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     5.0633      .2747    18.4322      .0000     4.5228     5.6039
NutriSco     -.7761      .1756    -4.4189      .0000    -1.1216     -.4305
Avg_HC        .6963      .2723     2.5572      .0110      .1605     1.2321
Int_1        -.3895      .1779    -2.1891      .0293     -.7396     -.0394
```

```
Product terms key:
 Int_1    :        NutriSco x        Avg_HC

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0145     4.7921     1.0000   305.0000      .0293
----------
    Focal predict: NutriSco (X)
          Mod var: Avg_HC   (W)

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

     Avg_HC     Effect         se          t          p       LLCI       ULCI
    -1.0081     -.3834      .2513    -1.5261      .1280     -.8778      .1110
     -.0081     -.7729      .1756    -4.4007      .0000    -1.1185     -.4273
     1.1169    -1.2111      .2649    -4.5709      .0000    -1.7324     -.6897

************************ 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.

NOTE: The following variables were mean centered prior to analysis:
          Avg_HC

------ END MATRIX -----
```

Appendix 22.: SPSS Outputs - Hayes' PROCESS Model 5 - Color

```
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  : 5
    Y  : Avg_PI
    X  : Color
    M  : Avg_BI
    W  : Avg_HC

Sample
Size:  309

**************************************************************************
OUTCOME VARIABLE:
 Avg_BI

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .0915      .0084     1.1688     2.5932     1.0000   307.0000      .1084

Model
              coeff         se          t          p       LLCI       ULCI
constant     3.7917      .3155    12.0184      .0000     3.1709     4.4125
Color         .1982      .1231     1.6103      .1084     -.0440      .4403

**************************************************************************
OUTCOME VARIABLE:
 Avg_PI

Model Summary
```

```
          R       R-sq        MSE          F        df1        df2          p
      .7406      .5486     1.1710    92.3480     4.0000   304.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    -1.0263      .3843    -2.6710      .0080    -1.7825     -.2702
Color         .1123      .1237      .9080      .3646     -.1311      .3557
Avg_BI       1.0848      .0576    18.8256      .0000      .9714     1.1982
Avg_HC       -.2391      .3186     -.7503      .4537     -.8660      .3879
Int_1         .0914      .1244      .7344      .4633     -.1535      .3363

Product terms key:
 Int_1    :        Color    x        Avg_HC

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0008      .5394     1.0000   304.0000      .4633
****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Conditional direct effects of X on Y
     Avg_HC     Effect         se          t          p       LLCI       ULCI
    -1.0081      .0202      .1756      .1150      .9086     -.3253      .3657
     -.0081      .1116      .1237      .9020      .3677     -.1318      .3550
     1.1169      .2144      .1867     1.1484      .2517     -.1530      .5817

Indirect effect(s) of X on Y:
           Effect     BootSE   BootLLCI   BootULCI
Avg_BI      .2150      .1344     -.0404      .4861

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

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

NOTE: The following variables were mean centered prior to analysis:
          Avg_HC

------ END MATRIX -----
```

Appendix 23.: SPSS Outputs - Hayes' PROCESS Model 5 - Image

```
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  : 5
    Y  : Avg_PI
    X  : Image
    M  : Avg_BI
    W  : Avg_HC

Sample
Size:  309

**************************************************************************
OUTCOME VARIABLE:
 Avg_BI

Model Summary
          R       R-sq        MSE          F        df1        df2          p
```

```
      .0479      .0023     1.1760      .7062     1.0000   307.0000      .4014

Model
              coeff         se          t          p       LLCI       ULCI
constant     3.9308      .4318     9.1024      .0000     3.0811     4.7805
Image         .1048      .1247      .8404      .4014     -.1406      .3502

**************************************************************************
OUTCOME VARIABLE:
 Avg_PI

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7400      .5475     1.1736    91.9669     4.0000   304.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    -1.0358      .4877    -2.1239      .0345    -1.9954     -.0761
Image         .0777      .1264      .6145      .5394     -.1711      .3264
Avg_BI       1.0898      .0575    18.9686      .0000      .9768     1.2029
Avg_HC        .2163      .4402      .4913      .6236     -.6500     1.0825
Int_1        -.0644      .1279     -.5037      .6149     -.3160      .1872

Product terms key:
 Int_1    :        Image    x        Avg_HC

Test(s) of highest order unconditional interaction(s):
       R2-chng           F        df1        df2          p
X*W      .0004      .2537     1.0000   304.0000      .6149


****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Conditional direct effects of X on Y
     Avg_HC     Effect         se          t          p       LLCI       ULCI
    -1.0081      .1426      .1760      .8102      .4185     -.2037      .4889
     -.0081      .0782      .1264      .6188      .5365     -.1705      .3268
     1.1169      .0057      .1954      .0294      .9765     -.3787      .3902

Indirect effect(s) of X on Y:
          Effect     BootSE   BootLLCI   BootULCI
Avg_BI      .1142      .1371     -.1506      .3820

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

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

NOTE: The following variables were mean centered prior to analysis:
          Avg_HC

------ END MATRIX -----
```

Appendix 24.: SPSS Outputs - Hayes' PROCESS Model 5 - Nutri-Score

```
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  : 5
    Y  : Avg_PI
    X  : NutriSco
    M  : Avg_BI
    W  : Avg_HC
Sample
Size:  309
**************************************************************************
OUTCOME VARIABLE:
 Avg_BI

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .2717      .0738     1.0917    24.4782     1.0000   307.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     5.1623      .1861    27.7454      .0000     4.7962     5.5284
NutriSco     -.5885      .1190    -4.9475      .0000     -.8226     -.3545

**************************************************************************
OUTCOME VARIABLE:
 Avg_PI

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7435      .5529     1.1598    93.9698     4.0000   304.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     -.4472      .3622    -1.2346      .2179    -1.1599      .2656
NutriSco     -.1452      .1276    -1.1383      .2559     -.3962      .1058
Avg_BI       1.0663      .0595    17.9350      .0000      .9493     1.1833
Avg_HC        .3111      .1913     1.6261      .1050     -.0654      .6876
Int_1        -.2185      .1246    -1.7540      .0804     -.4637      .0266

Product terms key:
 Int_1    :        NutriSco x        Avg_HC

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0045     3.0764     1.0000   304.0000      .0804
----------
    Focal predict: NutriSco (X)
          Mod var: Avg_HC   (W)
Conditional effects of the focal predictor at values of the moderator(s):
     Avg_HC     Effect         se          t          p       LLCI       ULCI
    -1.0081      .0751      .1773      .4235      .6722     -.2738      .4239
     -.0081     -.1434      .1275    -1.1245      .2617     -.3944      .1076
     1.1169     -.3893      .1906    -2.0426      .0420     -.7643     -.0142
****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************
Conditional direct effects of X on Y
     Avg_HC     Effect         se          t          p       LLCI       ULCI
    -1.0081      .0751      .1773      .4235      .6722     -.2738      .4239
     -.0081     -.1434      .1275    -1.1245      .2617     -.3944      .1076
     1.1169     -.3893      .1906    -2.0426      .0420     -.7643     -.0142
Indirect effect(s) of X on Y:
          Effect     BootSE   BootLLCI   BootULCI
Avg_BI     -.6275      .1336     -.8919     -.3725
************************ ANALYSIS NOTES AND ERRORS ************************
Level of confidence for all confidence intervals in output:
  95.0000
Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000
W values in conditional tables are the 16th, 50th, and 84th percentiles.
NOTE: The following variables were mean centered prior to analysis:
         Avg_HC
------ END MATRIX -----
```