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Navn: Celine Ning Jensen og Moa Amanda Bengtsson Frøberg

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Influencing consumers through packaging design: a study on perceptions of healthiness and naturalness

*“How does the visualization of the ingredient vs the final product influence consumers’
perception of healthiness and naturalness, and their likeliness-to-buy?”*

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Summary

This thesis explores the relationship between product packaging visualization on consumers' perceived healthiness and naturalness, and in turn their purchase intentions. The research also includes the influence of consumers' health consciousness and the healthiness of the product. Based on previous research, we hypothesize that the visualization of an ingredient on the product packaging leads to higher perceived healthiness and naturalness, compared to when the final product is visualized. We also hypothesize that the increased perceived healthiness and naturalness leads to increased likeliness-to-buy. Further, the effect of product visualization on perceived healthiness and naturalness is hypothesized to be stronger for unhealthy products, and increased health consciousness is hypothesized to have a positive effect on both perceived healthiness and naturalness, and on likeliness-to-buy.

The effects are tested through a 2x2 design where data is collected from an online survey about two different packaging designs for two different products. One product is healthy whereas the other is unhealthy, and one design for each shows the ingredient and one shows the final product.

The study finds limited statistically significant results, but the overall data indicates effects similar to those of previous research. The most important effect found by the study is the statistically significant difference between healthy and unhealthy products that supports the hypothesis that the visualization has a stronger effect on unhealthy products.

The findings of the study suggests that although product packaging design influences consumers, the visualization alone has a limited effect, and many other aspects may play an additional role in attitude formations. However, the nature of the product should be taken into account when considering using such marketing cues. The results also indicate a need for additional research on the topic to explore variations between different types of products and various packaging cues.

1 Introduction

Marketing has become increasingly complex and the various vehicles used by companies are increasing in number. New media channels are emerging and different channels interact in marketing communication (Batra & Keller, 2016). However, one vehicle of marketing communication that has a large influence on the purchase decision is packaging, particularly in food marketing (Silayoi & Speece, 2007). The food and drinks market is highly competitive, and as more products are introduced to the market, the importance of packaging as a marketing tool for differentiation increases (Rettie & Brewer, 2000; Rundh, 2009, 2016; Wang, 2013). As a result, research has been conducted on the influence of various packaging attributes such as the colors, claims made on the package, and the visual presentation of the products (Mai et al., 2016; Mohebbi, 2004; Spence, 2016).

As consumers are becoming increasingly concerned about making healthy food purchases, packaging design is one of several aspects that can influence a consumer's perception about the healthiness of the product (Annunziata & Vecchio, 2011; Bigliardi & Galati, 2013; Goetzke & Spiller, 2014; Grunert, 2006). Common aspects mentioned when discussing what constitutes a healthy diet are fresh fruits and vegetables, less processed foods, and reduced levels of fat, sugar, and salt (Fischer & Garnett, 2016; Willett & Stampfer, 2013; Wirt & Collins, 2009). Furthermore, there is a preference among consumers for natural food products (Román et al., 2017), where food products should be clean and free from additives (Mintel, 2021). This is also found to correlate with healthiness (Mai & Hoffmann, 2015; Rozin et al., 2004; Steptoe et al., 1995). When it comes to food products and other fast moving consumer goods, consumers commonly make purchase decisions at the point of purchase, often based on attitudes formed through the peripheral route of the Elaboration Likelihood Model (ELM). As the decision making process happens quickly and through subconscious cues, deciding which packaging cues to use is becoming increasingly important in order to appeal to consumers, becoming their preferred choice, and ultimately staying competitive in the market (Nancarrow et al., 1998).

Although research has explored the influence of various packaging cues, both verbal and visual, there is a need for additional research on how packaging cues may influence the perceived healthiness and naturalness of food products. As healthiness and naturalness is becoming increasingly important and packaging

plays a proven role in consumers purchasing decisions, the current paper explores the interaction between the two topics. Furthermore, the research on the visualization of products on the package is scarce in comparison to researched cues such as colors and verbal claims on packages. Hence, the aim of this paper is to investigate how the visualization of the final product compared to the visualization of the ingredient influences the perceived healthiness and naturalness of the product. Furthermore, the influence of the perceived healthiness and naturalness on consumers' likeliness to buy a product is also explored. Lastly, the moderating effects of consumers' health consciousness and the healthiness of the product is also analyzed.

First, we will examine previous literature related to healthy and natural food as consumer drivers, as well as the importance of packaging design and packaging cues in purchase decisions. Based on previous research, we formulate our research question and several hypotheses regarding the relationship between packaging, perceived healthiness and naturalness, and consumers' likeliness-to-buy. This is followed by a methodological section, outlining the study design. We then present the results with an accompanying analysis and discussion, followed by a conclusion including recommendations, implications, limitations of the study, and suggestions for future research.

2 Literature Review

In the following literature review we will present previous research related to the influence of product packaging on consumer perceptions for food products in relation to healthiness and naturalness. Thus, we explore the subjects of healthy and unhealthy food, packaging relevance in marketing, and various packaging elements that influence consumers in their product purchase decisions. The section will also explore research on health consciousness among consumers and how this influences their purchase behavior. The literature review builds up towards our main research question and the hypotheses formulated around the discussed subjects. Lastly, we present the conceptual framework that guides our research.

2.1 Healthy and Natural Food

In 2022, the European food industry is expected to generate \$1,861 billion in revenue (Statista, 2022). The extensive market for various food products makes it difficult for consumers to navigate, and with an increasing number of alternatives

available there is an information overload. Many aspects are taken into account when making a purchase decision, and combined with increasing demand for healthy alternatives, the landscape becomes difficult to navigate. Hence, in the following section we will explore the definitions of healthy and natural food, and the demand for such products in the market to show the opportunity for brands to distinguish themselves as healthy and natural.

Over the past few decades the world has witnessed increasing obesity where the body-mass-index (BMI) of the population has increased drastically (Flegal & Troiano, 2000). In 2016, an estimated 39% of the world population were overweight (World Health Organization, 2021). Although the numbers are alarming, they are accompanied by a trend of more health consciousness among consumers. Various diets have gained popularity both due to health benefits and environmental benefits. However, many people struggle to maintain a healthy diet (de Ridder et al., 2017). De Ridder et al. (2017) suggests that one of the main aspects underlying people's difficulty in adhering to such a diet is their lack of knowledge of what constitutes a healthy diet.

The definition of a healthy diet may be difficult to determine as many sources present different recommendations. However, the characteristics of an unhealthy diet are generally agreed upon as including more processed food, saturated fats, and added sugar and salt, while lacking fresh fruits and vegetables, and grains (Willett & Stampfer, 2013; Wirt & Collins, 2009). Additionally, governments' dietary guidelines commonly mention reduced salt, more fresh fruits and vegetables, and reduced intake of fat as part of a healthy diet (Fischer & Garnett, 2016). These aspects were found in 96%, 94%, and 93% respectively out of the 83 nations that have official dietary guidelines (Fischer & Garnett, 2016). A study from the European Commission (2006) also shows that 59% of European citizens consider a variety of foods important for a healthy diet, and 58% consider fresh fruits and vegetables important.

It is especially the focus of non-processed foods which drives the increasing consumer interest for fresh, natural, less processed, and additive-free foods (Lavilla & Gayán, 2018). As a result, how food production companies market their products becomes of increasing importance in influencing consumer perception of a product in relation to the healthiness and naturalness of a product.

In many countries, it is common, and in some cases mandatory, for packaged food products to declare the nutritional values of the product (Food Standards Australia New Zealand, n.d.; Mattilsynet, 2015; NHS, 2022; FDA, 2022). For example, in Norway the values that must be declared are energy, fat, saturated fat, carbohydrates, sugar, protein, and salt (Mattilsynet, 2015). Thus, if a consumer possesses the knowledge about what a healthy product contains and is motivated to consume more healthy or non-processed foods, they are able to find the best alternative based on this information. However, not all consumers read the nutritional values of all the products they purchase as those decisions often are made spontaneously (Nancarrow et al., 1998), and health perceptions of products are commonly inferred by other cues (Capelli & Thomas, 2021; Tijssen et al., 2017). Hence, health cues may be both visual and verbal. For example, various health claims on packaging can be used, although this has been found to generate varying responses among consumers (Ares et al., 2018; Lehmann et al., 2017; Leroy et al., 2016). Furthermore, healthiness perceptions may also be influenced by aspects such as the color of the package or the ingredients shown (Capelli & Thomas, 2021; Lidón et al., 2018; Tijssen et al., 2017).

In addition to healthiness, there is a proven preference for natural food products among consumers (Román et al., 2017; Rozin et al., 2004), where Rozin et al. (2004) suggest that a common argument for this preference is in the health benefits of such products. The relation between naturalness and healthiness is strengthened by Mai & Hoffmann (2015), as well as Steptoe et al. (1995) who report positive correlations between health consciousness and the importance of naturalness in food. Additionally, consumers have shown a willingness to pay a premium for products with natural claims (Migliore et al., 2018). However, the definition of natural food is generally difficult to agree upon. One definition can however be drawn from the FDA (2021) who has a policy stating that natural claims require that the product does not contain any artificial ingredients, no added color, no chemical preservatives, and is not more than minimally processed. They further describe a minimally processed food to include food processed in a manner that does not fundamentally alter the food.

Although the content and components of healthy and natural food may be difficult to define, research finds that they have a proven influence on consumers. As we find an increasing demand for healthy and natural food in the market, as well as a

positive influence on consumers' likeliness to buy such products, we will further explore the influence that various marketing aspects have on this perception.

2.2 Packaging Relevance in Marketing

Despite consumers' willingness to consume healthy and natural products, based on the inherent nature of the food market and its products, marketing plays a significant role in influencing consumer perception of various products and can make them seem more healthy than they are. As decisions are often made at the point of purchase, packaging becomes vital in the communication for various products. Thus, we will explore the role packaging has in influencing consumer perceptions and purchase decisions.

In today's market, a lot of products come in packaging of some variation. This is especially true for food or drink products which in 2021 account for approximately USD 338 billion (Fortune Business Insights, 2021) of the total packaging industry which is valued at USD 1,003 billion (Mordor Intelligence, 2022). Thus, the food and beverage market accounts for almost 34% of the total packaging industry. Although packaging makes the storing and transportation of products easier and more convenient (Prendergast & Pitt, 1996), it also has a relevant role as a means of communication with influence on product evaluations and ultimately purchase decisions (Kuvykaite et al., 2009; Rundh, 2009; Silayoi & Speece, 2007; Underwood, 2003).

The competitive environment in the food industry has only become fiercer over the years with a multitude of brands and products competing for the consumers' attention. Due to the small actual differences in products and product benefits, the packaging has become a vital marketing tool to convince and influence buyer decisions (Kuvykaite et al., 2009). Brands therefore need to differentiate themselves and stand out based on carefully thought out packaging designs, varying from the colors used, shape, design, message, and symbols (Nancarrow et al., 1998). According to Nancarrow et al. (1998), consumers delay purchase decision making of groceries and fast moving consumer goods (FMCG) until they are in stores, and it is shown, as many as 73% of consumers make purchase decisions at the point of sale (Connolly & Davison, 1996). Although consumers' intention to purchase is influenced by whether they believe a product can satisfy their needs and wants (Kupiec & Revell, 2001), many consumers find themselves not having reflected on this before entering the store. It is important to note however that consumers do not

necessarily have the time nor skills to analyze or understand each packaging element upon purchase. Kuvyaite (2009) finds that purchase decisions are highly influenced by the consumer's own involvement level, time pressure, and other individual characteristics of the consumer. Consumers will also filter information based on past experiences and current motives (Schiffman et al., 2012) in addition to being influenced by sensory cues.

Thus, intention to purchase is determined by what is communicated at the point of purchase and packaging takes a central role in this process. The communication elements on the packaging is therefore key in influencing consumers' purchase decisions (Silayoi & Speece, 2007). According to Silayoi & Speece (2007) the packaging communicates implied meaning about the product. Hence, the packaging can be seen as a form of communication tool towards consumers in addition to having the functional benefits of protecting the products, supporting ease of carrying, and conveying important legal and practical product attributes (Rettie & Brewer, 2000).

As packaging is proven to have several benefits in not only protecting the products, but also in communicating brand and product benefits, our research will explore the influence of packaging cues on the mentioned healthiness and naturalness perceptions. The nature of the industry further enhances the role that packaging has in influencing consumers and thus there is a need to further explore certain aspects of packaging cues and its influence on consumer perception.

2.3 Packaging Elements Influencing Purchase Decisions

The proven influence of packaging on consumers' perceptions and purchase decisions include many aspects. There are various cues that can be used on packaging to influence these perceptions that will be discussed in the following section. We will explore various cues and their influence, as there is proof that consumers often make purchase decisions at the point of purchase for food products, and hence are strongly influenced by these cues. Although previous research, among other things, has considered the influence of the number of ingredients visualized on packaging, there is a research gap in comparing visualizations of final products and ingredients alone related to healthiness and naturalness.

Previous research has shown that purchase decisions are heavily influenced by package design, affecting consumer's product expectation and their implicit associations related to healthiness and taste (Tijssen et al., 2017; Underwood et al., 2001). Marketers rely on these implicit cues in order to convince consumers and influence purchase decisions. Researchers divide packaging elements into various groups, depending on their own definitions (Kotler, 2006; Rettie & Brewer, 2000; Underwood, 2003). Similarly to Kuvyaite and colleagues (2009), we will consider packaging elements as two main blocks of elements which can be identified as visual and verbal elements. Visual elements include graphics, color, size, form, and material, while verbal elements are considered in relation to product information, producer, country-of-origin and brand (Kuvykaite et al., 2009).

As decisions are often made at the point of purchase for food products (Nancarrow et al., 1998), they are generally perceived as low involvement products. Additionally, as lack of motivation is mentioned by de Ridder et al. (2017) as one of the aspects restraining people from adhering to a healthy diet, it is also likely that motivation to elaborate on the marketing communication about healthiness is low. This implies that consumers are likely to take the peripheral route to attitude formation as suggested by the Elaboration Likelihood Model (ELM) (Nancarrow et al., 1998; Petty & Cacioppo, 1984). When the peripheral route is taken, cues such as strength of arguments are less important and cues such as visuals instead have a stronger influence on the attitude of consumers (Petty & Cacioppo, 1984). Furthermore, Pham & Avnet (2004) found that affective attitude formations, which are more common when consumers take the peripheral route, often dominate when the goal is an ideal rather than a duty or obligation. The findings from de Ridder et al. (2017) support the assumption that many consumers wish to adhere to a healthy diet but are unsuccessful in doing so as it is a desire rather than an obligation. Thus, it is safe to assume that attitudes towards food products are mostly formed through the peripheral route of the ELM and as a consequence that packaging cues have a significant influence on consumers' attitude formations.

Research has found positive effects of adding product images to packaging as well as using product depictions on the front of packages (FOP) to assist consumers in their product evaluation and expectation stage (Underwood & Klein, 2002). This is especially helpful when the final product can not be seen through the packaging. Underwood et al. (2001) suggest that consumers are more likely to imagine aspects

such as taste when pictures of the product are present on the package. Furthermore, ingredient images help consumers make informed decisions related to product composition which in turn influence their expectations in terms of healthiness as well as assisting them in product categorization (Rettie & Brewer, 2000; Schoormans & Robben, 1997). Thus, the FOP image can clearly affect factors such as perception of healthiness and naturalness, as well as purchase intentions amongst consumers.

We know that color preference has an effect on consumers' overall subjective perception, which again can affect consumer behavior (Kauppinen-Räsänen, 2014; Schloss & Palmer, 2010). A study by Luo et al. (2019) found that while color of the packaging did influence consumer perception of the products, where red was associated with tastiness and green was associated with healthiness, product images could further enhance these effects. Studies have also found that in general, warmer, saturated and brighter packaging are perceived as tasty while lighter or more watered-down colors are perceived as healthier (Mai et al., 2016; Tijssen et al., 2017).

An important factor to consider for marketers is that imagery has a stronger influence on expectation of a product than perception of the product during tasting (Fenko et al., 2018). Rebollar et al. (2016) showed that the serving suggestion on the packaging can influence consumer expectation and willingness to buy a soft cheese. Consumers expected the product packaging depicting a soft cheese with a salad would be saltier and healthier than the soft cheese depicted with quince which in turn increased their willingness to buy. Showing a green versus red apple on a jar of applesauce influenced sweetness expectations (Lidón et al., 2018), and providing images of raw versus processed food can be beneficial in terms of perceived naturalness and health as long as the ingredient is edible raw (Machiels & Karnal, 2016; Rebollar et al., 2017; Szocs & Lefebvre, 2016). However, an important note for all of these findings is that the findings have been shown to be true only in subsets of consumers, these tend to be the ones who are more health-conscious (Machiels & Karnal, 2016). Additionally, Zhu et al. (2019) have found that images of healthy ingredients on the packaging of food leads to a decrease in calorie estimation when the base product is unhealthy. On the contrary, when the base food was healthy, the visualization of the ingredient led to increased calorie estimation regardless if the ingredient was healthy or unhealthy (Zhu et al., 2019).

While previous research has looked at effects related to showing products themselves on the packaging, there is little research related to the visual images alone and comparing them against each other. Lancelot Miltgen et al. (2016) did research on the congruence between a sole ingredient image of the flavor of the product on the packaging and the product, however this was in the perspective of sensory expectations and perception of newness of the product. Thomas and Capelli (2021) studied the effect of the number of ingredients on packaging evaluation and product choice. However, in another study they depicted the final product along with the natural ingredients vs final product and no ingredient images (Capelli & Thomas, 2018). The conclusion from these studies is that showing the ingredient with fewer depictions and in general showing the natural ingredient on the product packaging, stimulating mental imagery of the products, makes them appear more pleasant, innovative, healthier, and tastier (Capelli & Thomas, 2018, 2021; Lancelot Miltgen et al., 2016). The perceived healthiness is also found to affect consumer purchase intentions and behavior (DiPietro et al., 2016; Trivedi et al., 2016).

In addition to the research on healthiness of products based on packaging design, there are several studies on perceived naturalness (Binninger, 2017; Labbe et al., 2013; Marckhgott & Kamleitner, 2019; Skubisz, 2017). Both Binninger (2017), and Marckhgott and Kamleitner (2019) find increased perceived naturalness to have a positive influence on consumers' likeliness-to-buy which is similar to what Lidón et al. (2018) found for healthiness. Furthermore, as perceived naturalness and healthiness appear to be correlated (Rozin et al., 2004; Sanchez-Siles et al., 2019; Steptoe et al., 1995), we expect to see similar relationships for perceived naturalness as for perceived healthiness. There is however a lack of research looking at both naturalness and healthiness simultaneously in the context considered in our research. Hence, this research aims to consider both aspects in one study. Furthermore, we will direct the focus to the visualization of ingredient vs final product on the packaging.

2.4 Health Consciousness Influencing Perceptions and Purchase Decisions

In addition to the research on how attitudes and purchase decisions are formed through packaging cues, the aspect of consumers' health consciousness has also been studied. In the following section we will explore the influence of health consciousness on perceptions about healthiness and naturalness, as well as on purchase decisions. This plays a significant role as consumers who are more

concerned with their health will consider healthiness and naturalness aspects to a larger extent.

Consumers' awareness about the benefits of a healthy diet and their motivation to adhere to such a diet will influence their behaviors, but also the extent to which they are influenced by various cues. However, research has found varying evidence for in which direction health consciousness influences attitudes and purchase intentions (Her & Seo, 2017; Machiels & Karnal, 2016; Mai et al., 2016; Mai & Hoffmann, 2015).

Mai & Hoffmann (2015) find that increased health consciousness leads to a stronger effect of product labeling on healthiness perceptions. The study examined consumers' perceptions about various versions of yogurt that were manipulated in terms of fat- and sugar labeling. On the contrary, Her & Seo (2017) find that health conscious consumers are less likely to be influenced by so called health halos where their awareness makes them more resistant to aspects that create pitfalls for less health conscious consumers. This is further supported by Kuvykaite et al. (2009) who find that low involvement consumers are more influenced by visual elements on the packaging. As visual cues on the packaging are generally processed through the peripheral route, when consumers are more conscious about healthiness and naturalness, meaning they process cues centrally, these cues are less likely to influence attitudes (Petty & Cacioppo, 1984).

Previous research shows that the health consciousness of consumers is significant in influencing their perceptions and purchase decisions. Thus, we find this important to consider in our research, especially when looking into perceptions of healthiness and naturalness.

2.5 Research Question

Based on the existing research on healthiness, naturalness, and packaging design, the aim of this research paper is to further explore the effects of using visual cues on product packaging. Since research has found that healthiness and naturalness is increasingly important to consumers in their purchase decisions about food products, the aim of this research is to explore this topic further. Additionally, research has also found that packaging cues specifically have a significant influence on product perceptions and purchase intentions. Thus, we will investigate the relationships between product visualizations on packaging, healthiness and naturalness perceptions, and likeliness-to-buy. More specifically we aim to investigate the following research question:

How does the visualization of the ingredient vs the final product influence consumers' perception of healthiness and naturalness, and their likeliness-to-buy?

Based on this research question we have formulated ten hypotheses; five relating to healthiness and five relating to naturalness. Through our hypotheses we will answer the research question while also exploring the moderating influence of consumers' health consciousness and the healthiness of the product.

The results of our research will assist marketers in package design decisions, by better understanding the potential impact on consumers' perceived healthiness and naturalness, and in turn their product choice. Furthermore, it will provide insights for consumers about the cues used by marketers and how they might avoid being misled by cues that may or may not reflect the actual characteristics of the products.

2.6 Hypotheses

Based on previous research we have formulated the following ten hypotheses related to the research question. Each hypothesis is led by an introduction to the topic and argumentation for the hypothesis drawn from previous findings.

Our first hypothesis regards the effect of product packaging visualization on consumers' healthiness and naturalness perceptions. Previous research has found that showing a natural ingredient stimulates mental imagery leading to increased perceptions of healthiness and tastiness (Capelli & Thomas, 2018, 2021; Lancelot Miltgen et al., 2016). Szocs & Lefebvre (2016) find that mechanical processing of foods leads to lower perceived healthiness and higher calorie estimations. They

tested the perceived healthiness of a fruit and yogurt bowl compared to a blended smoothie, as well as a bowl of peanuts compared to peanut butter. Combined with the fact that visualizations of products on packaging has an effect on product evaluation, this indicates that the visualization of less processed food, i.e. more natural food in terms of ingredients, would lead to higher perceived healthiness. Furthermore, Capelli and Thomas (2018) find that the addition of ingredient visualization on the packaging of food products has a positive influence on mental taste imagery, which in turn is correlated with perceived healthiness. In their study, this holds true when the consumer is processing the cues peripherally, such as when they handle the product but do not eat it. However, when the consumer eats the product and processes the perceived taste centrally, the packaging design does not have a significant influence. Hence, the study suggests that packaging design is able to influence perceived taste and healthiness at the point of purchase where the consumer is not able to taste the product.

As naturalness is found to be related to healthiness (Binninger, 2017), the visualization of the ingredient on the packaging is likely to also affect the perceived naturalness of the product in similar manners. Furthermore, the findings of Lidón et al. (2018) and Rozin et al. (2004) indicate that healthiness and naturalness tend to move in the same direction where one of the reasons for preferring natural products is their health benefits. Skubisz (2017) also found that naturalness claims lead to higher perceived healthiness, supporting the idea that perceived healthiness and naturalness would be affected similarly. Thus, we hypothesize as follows:

H1a: The perceived healthiness of a product is higher when the ingredient of the product is visualized on the packaging, compared to when the final product is visualized.

H1b: The perceived naturalness of a product is higher when the ingredient of the product is visualized on the packaging, compared to when the final product is visualized.

In addition to the findings that ingredients on the packaging leads to higher perceived healthiness, Zhu et al. (2019) suggests there are differences in perceived healthiness depending on whether the product in itself is considered healthy or unhealthy. Thus, our second hypothesis relates to the influence of a product's healthiness on consumer perceptions. According to Zhu et al. (2019), when the

product is unhealthy, in their case potato chips, the depiction of a healthy ingredient shown on the packaging leads to higher perceived healthiness and lower calorie estimation. For healthy food, the adding of an ingredient does not have a significant effect on perceived healthiness (Zhu et al., 2019). This reasoning is further supported by Giner-Sorolla (2001), suggesting that when the product itself is healthy, consumers are not inclined to find excuses for their consumption. Hence, the perceived healthiness is not increased by peripheral cues such as the visualization of ingredients to the same extent. A possible explanation for the increased importance of product visualization is the dilemma of tasty vs healthy that faces the consumer as they purchase unhealthy products (Zhu et al., 2019). When the food is unhealthy, consumers have a stronger incentive to find indications that the product is healthier to minimize the conflict presented by this dilemma. Again, as there is a relationship between healthiness and naturalness (Lidón et al., 2018; Rozin et al., 2004; Skubisz, 2017), we expect to see similar results for the perceived naturalness of products and hypothesize that:

H2a: The effect of product visualization leading to higher perceived healthiness based on showing the ingredient is stronger for unhealthy products than for healthy products.

H2b: The effect of product visualization leading to higher perceived naturalness based on showing the ingredient is stronger for unhealthy products than for healthy products.

Building on the previous hypotheses, we predict a moderation of the internal factor health consciousness based on the study by Machiels & Karnal (2016). In their research, they find that the product evaluation for juice is influenced by, among other things, the consumer's health consciousness. Although the result of research on health consciousness shows varying results, indicating that perceived healthiness and naturalness may be both positively and negatively influenced (Her & Seo, 2017; Machiels & Karnal, 2016; Mai et al., 2016; Mai & Hoffmann, 2015), Kuvykaite et al. (2009) find that the influence of visual elements on the packaging is stronger for low involvement consumers. In the context of the healthiness of food, this may be represented by consumers' level of health consciousness. Furthermore, Her & Seo (2017) also suggest that consumers with higher health consciousness are less likely to be misled by peripheral marketing cues, indicating that the product visualization

would be less effective in influencing their perceived healthiness and naturalness. As consumers are more aware and conscious about their decision, they are likely to process cues centrally rather than peripherally, indicating that cues such as visualizations on the packaging will be of less importance (Petty & Cacioppo, 1984). This may explain why, in contrast, health consciousness influences the perceived healthiness positively in the study by Mai & Hoffmann (2015) as they manipulate labeling which is a less peripheral cue than product visualization. Based on these findings, we hypothesize that:

H3a: The influence of product visualization, ingredient vs final product, on perceived healthiness is higher for less health conscious consumers.

H3b: The influence of product visualization, ingredient vs final product, on perceived naturalness is higher for less health conscious consumers.

In addition to the influence that packaging design has on perceived healthiness and naturalness, research has also found that healthiness and naturalness influences consumers' likeliness to buy a product (Binninger, 2017; Capelli & Thomas, 2018; Rebollar et al., 2016). Hence, we formulate a hypothesis that considers the influence of perceived healthiness and naturalness on consumers' likeliness-to-buy, given the product visualization on the packaging.

In a study about packaging design of soft cheese, Rebollar et al. (2016) find strong correlation with consumers' evaluation of perceived healthiness, calories estimation, and likeliness-to-buy, such that they are more likely to purchase a product perceived as healthy and low in calories. This is further supported by Capelli & Thomas (2018) who find that the addition of ingredients on packaging leads to increased mental taste imagery, and in turn higher purchase intentions. Furthermore, in a study on rice packaging, Binninger (2017) found that there is a strong positive correlation between perceived naturalness of packaging and consumers purchase intentions such that packaging perceived as more natural is related to higher purchase intentions. Hence, we hypothesize that:

H4a: *The likeliness-to-buy is higher when the perceived healthiness is higher based on the visualization shown on the packaging, ingredient vs final product.*

H4b: *The likeliness-to-buy is higher when the perceived naturalness is higher based on the visualization shown on the packaging, ingredient vs final product.*

Extending the idea that higher perceived healthiness and naturalness leads to increased likeliness-to-buy, research also suggests that consumers' health consciousness affects this relationship (DiPietro et al., 2016; Trivedi et al., 2016) which leads us to our final hypothesis. DiPietro et al. (2016) find that purchase intentions are higher for health conscious consumers when healthy options are available, indicating that it would also have a positive effect on products that are perceived as healthy, regardless where that perception comes from. Furthermore, Trivedi et al. (2016) find that consumers' reported health consciousness indeed is reflected by their purchase patterns. Thus, their intended purchase behavior is likely to also be affected by their health consciousness, where more health conscious consumers are more likely to buy a product they perceive as healthy. Additionally, the relationship between healthy and natural food suggests that this would also increase their likeliness to buy a product that is perceived as natural. Thus, we finally hypothesize that:

H5a: *The likeliness-to-buy is higher when the consumer is health-conscious, and the perceived healthiness is higher.*

H5b: *The likeliness-to-buy is higher when the consumer is health-conscious, and the perceived naturalness is higher.*

2.7 Conceptual Framework

For better understanding of the relationships between the previously presented hypotheses, the following frameworks illustrate the hypothesized relationship between the consumer's likeliness-to-buy based on the visualization on the packaging (ingredient vs final), mediated by perceived healthiness (Figure 1) or perceived naturalness (Figure 2) of the products. This along with the moderating effects of health consciousness of consumers, as well as whether the product is categorically healthy or unhealthy.

Although there is a likely relationship between the perceived healthiness and naturalness, the two mediators are analyzed separately. The reason for this is limitations in the scope of the study and time restrictions, but also the attempt in finding statistical evidence for each variable separately as a foundation for future research.

Figure 1 - Conceptual framework with perceived healthiness as mediator

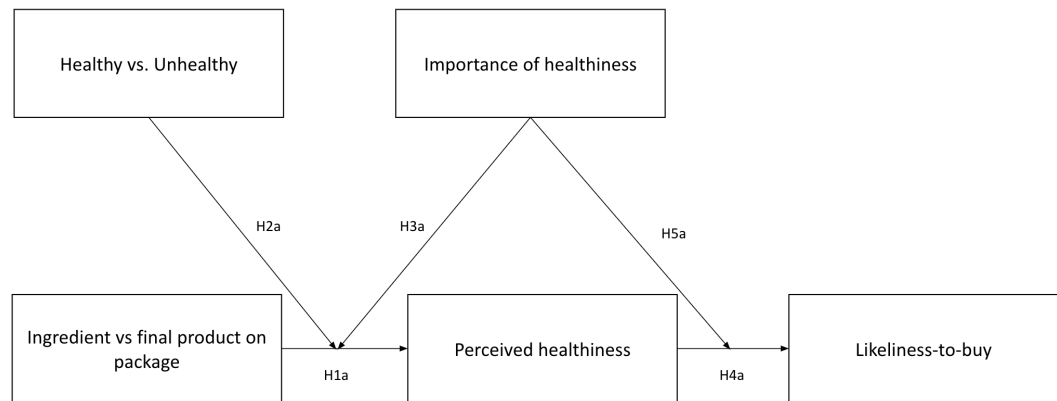
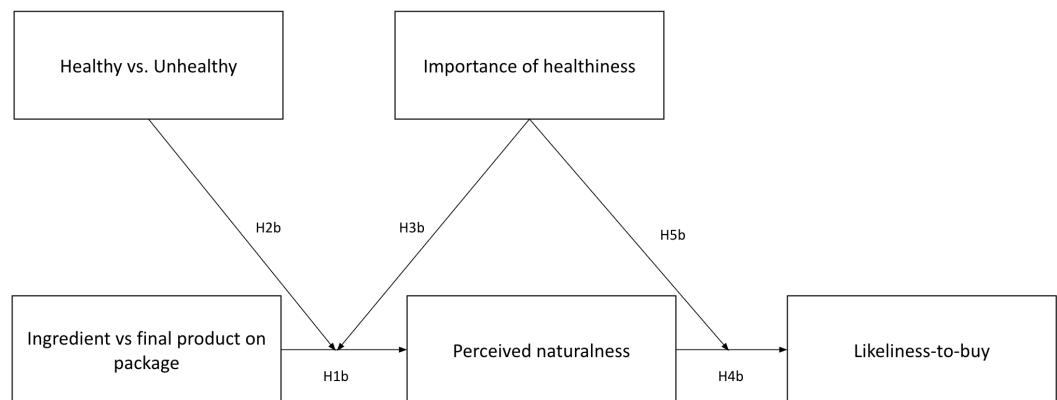


Figure 2 - Conceptual framework with perceived naturalness as mediator



3 Research Methodology

In the following section we will outline the design of our research. We present the data collection procedure, the participants, our chosen stimulus, the measures, and the methods of analysis. Throughout these sections we also discuss the robustness of the chosen method.

3.1 Overall Study Design

The study is a quantitative online experiment with the aim of gathering primary data in order to test the various hypotheses. A quantitative study takes a deductive approach where hypotheses are formulated based on existing theory and research

(Bryman & Bell, 2011). Furthermore, quantitative research typically takes a positivist approach, including empirical testing of the hypotheses (Greener, 2008). The hypotheses are presented previously in the paper and the testing will follow the methodological section.

The study aims to investigate whether the visualization of the ingredients instead of the final product generates a perception of increased healthiness and naturalness of the products and in turn increases consumers' likeliness-to-buy. The study has a 2x2 factorial design where we manipulate the visualization on the packaging, as well as for whether the product is healthy or unhealthy. Hence, the independent variable in the study is the packaging design, the dependent variable is consumers' likeliness-to-buy, which is mediated by the perceived healthiness or naturalness of the product. Furthermore, the research includes two moderators; consumers' health consciousness, and the healthiness of the product. Data about perceived healthiness and naturalness are collected simultaneously for each product, but tests are conducted separately.

The study tests for the differences between two packaging designs, one visualizing the ingredient and one visualizing the final product, for two different products. One product is expected to be healthy, and one is unhealthy as to test the moderating value of the nature of the product. The chosen products are orange juice as the healthy option and chocolate as the unhealthy option. Participants are presented with one version of each product in a between-participant study design. Whether the ingredient or final product is shown is randomized for both products, meaning the packaging version shown of one product is independent of the packaging version of the other. This design is chosen to retrieve as many responses as possible while avoiding the participants being influenced by the previously shown packaging design of the same product. This way, it is less likely that the participants figure out the purpose of the study and answer accordingly.

Lastly, the study also asks a set of questions to determine the participants' health consciousness as this is hypothesized to have a moderating influence on both the product perception and the willingness to buy.

3.2 Data Collection Procedure

The study was presented through an online questionnaire, using Qualtrics Survey Software. The first section of the questionnaire begins with asking for participants' consent to collect data in accordance with the GDPR regulations, followed by an introduction to the survey. The questionnaire then contains a set of questions about a shown packaging design. These questions include evaluations of the product's attractiveness, perceived healthiness, perceived naturalness, and perceived tastiness. The full survey can be seen in Appendix A. Although the purpose is to examine the effects on perceived healthiness and naturalness, questions about attractiveness and tastiness work to distract the respondents from the true purpose of the study. This allows us to explore the possible influences on and of the attractiveness and tastiness variables, and their interaction with other variables. Each participant is presented with two packaging designs, one showing the orange juice package and one showing the chocolate bar package in accordance with the between-participant design. This is followed by a section about the health consciousness of the participant. Lastly, the questionnaire contains a set of demographic questions that will allow for possible additional behavioral patterns to be explored based on aspects such as age, gender, or educational level.

Convenience sampling was used in order to generate the maximum number of participants within the given time for data collection during April and May 2022. The questionnaire is completely anonymous where only the answers of the respondents were collected, and participants were also informed of this.

3.3 Participants

A total of 207 responses were collected over a three-week period, through an online survey experiment using Qualtrics Survey Software. Participants were recruited through personal networks being friends, family, and further acquaintances of the authors utilizing the convenience sampling method. The survey was shared on Facebook, Instagram and LinkedIn where participants were encouraged to take the survey. In addition, survey exchange forums were used to generate additional responses from other students and researchers. The purpose of the chosen sampling method is to generate the maximum number of responses. Given the financial and time restrictions of this study, this method was deemed most appropriate.

3.3.1 Valid Responses

Out of the total 207 responses collected, 2 participants did not agree to the data collection terms and several participants ended the study prematurely. 156 participants completed the survey to the extent that the results are deemed usable, meaning they responded to the questions about product attitudes and health consciousness. However, the mean response time was 504 seconds for those 156 participants, and when excluding two outliers of 17 899 and 6 242 seconds the mean response time is 354 seconds. We concluded that respondents spending less than 180 seconds (3 minutes) to complete the survey should be excluded as they could not have read nor considered the information to a large enough extent, as it takes around 7.5 seconds per simple question in a survey (Versta Research, 2011). Assuming respondents do not answer the demographics section, they respond to 39 questions, meaning they would require 292.5 seconds. However, as many questions are part of matrix tables, meaning they are likely quicker to respond to, we conclude that 180 seconds is sufficient. Hence, 12 more responses were excluded from the analysis. The final number of valid responses is thus 144.

3.3.1.1 Effect Size

In a meta analysis of effect sizes in international marketing research, Wang & Yang (2008) found that 52 percent of the research has an effect size (r) between 0.01 and 0.19. This corresponds to Cohen's d between 0.02 and 0.39, meaning it is relatively small as Cohen (1988) suggests that $d = 0.2$ is small, $d = 0.5$ is medium, and $d = 0.8$ is large. Wang & Yang (2008) also find the mean r of international business marketing research to be 0.19, and the mean for international consumer marketing research to be 0.17. Both these means are small per the definitions made by Cohen (1988). Hence, we expect the effect size in our research to be relatively small as well.

Assuming an effect size of $d = 0.39$, a power of 0.8, and a confidence interval of 0.95, we would require a sample of 105 participants in each group, and 210 participants in total. As our sample consists of 207 responses out of which only 144 are usable, we must consider the possibility that the results of this research may not fully reflect the population.

By calculating the effects sizes of product visualization on perceived healthiness for both our products we find that for our sample the effect size for juice is $d = 0.055$ and the effects size for chocolate is $d = 0.408$. For the effect of product

visualization on perceived naturalness we find effect sizes of juice to be $d = 0.169$, and of chocolate to be $d = 0.220$. Although the effect sizes vary between products, they are all within the lower range which aligns with the findings of previous research and the expected values.

3.3.2 Demographics

Out of the 144 usable responses collected, 121 respondents provided complete demographic data, and 142 respondents provided demographic data excluding their age. From this data, the mean age was 27.79 years old with a range from 16 to 69 and a standard deviation of 7.661. Furthermore, the majority of the respondents were male (63.4%), whereas 36.6% of respondents were female. In terms of educational level, 63.4% of respondents have at least a bachelor's degree as their highest level of education, and 33.1% have a master's degree. Additionally, 23.2% of the households consist of only 1 person, 34.5% consist of 2 persons, 20.4% consist of 3 persons, 11.3% consist of 4 persons, and 10.5% consist of 5 or more persons. Only 14.1% of respondents are not involved in the food purchase decisions in their household, whereas 39.4% are fully responsible, and 46.5% share the responsibility with another person. Lastly, the majority of respondents (62%) perceive their financial situation as comfortable to some extent, while 26% perceive it as neither comfortable nor strained, and 12% perceive it as strained to some extent. The complete table of demographic data can be found in Appendix B.

3.4 Stimulus

In order to manipulate the stimuli, four product packaging labels were created, two for each product category, healthy and unhealthy. The use of two different products allows for testing the differences in results between a healthy and an unhealthy product, but also assists in increasing reliability as all other hypotheses are also tested for two different products. For the hypotheses that do not consider the differences between the two products, we get to test whether we see similar results for both products. This allows us to ensure that the results are not only true for one product, but rather that the results hold true in several cases.

The packaging label designs were created using Canva, an online graphic design tool. The designs portray the front of the package as a two-dimensional version. One version of each product is portraying the final product and one is portraying an

ingredient of the product. For the juice, the ingredient shown is the flavor of the juice, in this case orange, and for the chocolate, the ingredient shown is cocoa beans.

For both packaging designs of each product, all other things that may influence purchase intentions are kept equal. For example, coloring, size, form, brand, and verbal cues are all constant across both versions of the product packaging. Additionally, a hypothetical brand is used to control for previous brand perceptions and feelings.

3.4.1 Product Choice

Since we are testing the difference between healthy and unhealthy products, we have chosen one product to represent each product category. The products chosen are orange juice and chocolate, where the orange juice is predicted to be a healthy product and chocolate is predicted to be an unhealthy product. Chocolate is commonly referred to as an unhealthy food product in research (see e.g. (Benford & Gough, 2006; Schee, 2009; A. P. Smith & Rogers, 2014; C. Smith, 2002)). Furthermore, as chocolate is relatively high in sugar and fat it is often referred to as unhealthy in accordance with dietary recommendations. Orange juice on the other hand, is widely accepted by consumers as healthy and part of a healthy diet with nutritional benefits (Gonçalves et al., 2017; Poulsen, 1999; Tuorila & Cardello, 2002). The intake of fresh orange juice also contributes to the recommended daily intake of fruit (O'Neil et al., 2012). Thus, we consider it safe to assume this is the general perception of the population without further testing.

3.4.2 Fictive Brand Creation and Design

As brand attitudes and perceptions are proven to have an influence on product perceptions and evaluations, we have chosen to create fictive brands for our research to control for this variable. The chosen brand names are Naturo Orange Juice for the juice, and Chocolato for the chocolate. As they are neutral, unknown, and fictitious they should not have been an influential factor on product perception. The color schemas were chosen based on market research where we found that packaging for orange juice tends to be brightly coloured (typically orange to appeal to tastiness with a mix of white or a pop of green), often showing the fruit, glasses of orange juice and images illustrating the consistency of the juice. Thus, the chosen design has an orange base with white and green text to reflect what consumers are used to seeing. Chocolate packaging, however, often uses various shades of brown and natural colors. While some designs focus on the artistic impression on the

packaging for an elevated or hip look, most of the packaging offer visualization either in terms of texture, final product and/or added ingredients in the chocolate bar. The chosen design for this study has also used shades of brown as well as off-white, reflecting what you often see in the market today. Hence, the color schemes of the designs will seem natural to the participants in terms of what they are used to seeing in the market. Finally, verbal elements are kept constant across both packaging designs for each product for consistency. Verbal elements such as “Not from concentrate” and the percentage level of cocoa were included in the designs in order to replicate commonly used product elements and to seem the most natural in order not to reveal the purpose behind the study to the partaking participants. Based on the mentioned aspects, we are confident that we have controlled for additional variables that could influence consumers.

Figure 3 - Orange Juice packaging design: ingredient vs final product



Figure 4 - Chocolate packaging design: ingredient vs final product



3.5 Measures

Table 1 shows the variables used for the survey along with their scale measurement.

Table 1 - Overview of variables and measurements

Variable	Scale	Measurement
Product perceptions		
<i>Product associations</i>	N/A	Please write down the first three words that come to mind when seeing this product
<i>Product attractiveness</i>	1-7	Item 1 - This product is attractive for me Item 2 - This product is attractive for my family Item 13 - This product has an attractive packaging
<i>Product healthiness</i>	1-7	Item 3 - This product is healthy Item 4 - This product is low in fat Item 5 - This product is low in calories Item 6 - This product is low in sugar Item 7 - This product is high in nutrients
<i>Product naturalness</i>	1-7	Item 8 - This product is natural Item 9 - This product is pure Item 10 - This product is unprocessed
<i>Product tastiness</i>	1-7	Item 11 - This product is tasty Item 12 - This product flavourful
Health Consciousness	1-7	I pay a lot of attention to my health I believe my health is influenced by the food I eat I compensate unhealthy food one meal with healthier food the next meal I consider my intake of various nutrients regularly I frequently do things good for my health I try to eat healthy food I think I know a lot about healthy food
Product Premiumness	1-5	How premium do you perceive this products to be?
Willingness-to-pay	1-5	How much would you be willing to pay for this product considering the average price of juice?
Likelihood-to-buy	1-5	How likely is it you would buy this product?

3.5.1 Product Perceptions

Consumers' attitudes towards the products were tested through one open-ended question, and a set of 13 statements on a 7-point Likert scale (1= strongly disagree - 7 = strongly agree). The open-ended question asked respondents to write down the first three words that came to mind when seeing the product. The statements following were related to attractiveness, healthiness, naturalness, and tastiness of

the product and were based on measures we find representative for the chosen products and are a modified version of the scales used by Hagen (2021). A Likert-scale ranges the survey answer with equal distances making it possible to easily analyze and compare results.

3.5.2 Purchase Intentions

Following the attitude statements, participants were also asked to indicate their purchase intention through three different questions. They were asked about the perceived premiumness, their willingness-to-pay given the average price of similar products, and their likeliness-to-buy the product. These questions were all tested on a 5-point Likert scale where participants rated answers from (1= low budget - 5 = premium), (1= significantly less - 5 = significantly more) and (1= extremely unlikely - 5 = extremely likely).

3.5.3 Health Consciousness

For testing the participants' health consciousness, we used a set of 7 questions. These questions are a modified version of the scale used by Kutnohorská & Tomšík (2013) where we chose to not include all statements due to relevance. Furthermore, we tested the questions on a 7-point Likert scale instead of a 4-point Likert scale in order to generate more accurate responses where the alternatives ranged from (1= strongly disagree - 7 = strongly agree).

3.6 Method of Analysis

In order to test all the hypotheses, we analyzed the collected data using SPSS ver 28. Based on a KMO and Bartlett's test we found factor analysis to be appropriate for health consciousness and product perception statements. Hence, before testing the hypotheses we conducted the factor analyses using varimax rotation. This provided us with three factors for health consciousness that are used in the analysis. For the product perception statements, we initially expected 4 factors: attractiveness, healthiness, naturalness, and tastiness. However, the analysis provided 3 factors: attractiveness and tastiness, healthiness, and naturalness. Thus, these were used in the further analysis.

For all the following tests, we created a dummy variable where final product = 0 and the ingredient = 1 as we hypothesize that the mediators and dependent variables are higher for the ingredient design. Thus, positive b indicates an increase when the ingredient is shown for all tests.

Hypotheses 1a, 1b, 2a, and 2b were tested through an independent sample t-test, given the between participant study design for the ingredient vs final variable. The test was done both for each individual statement about the product perceptions, and for the healthiness and naturalness factors previously derived. Additionally, the open-ended question was coded to give a score for healthiness, and a score for naturalness given the chosen words. Participants were asked to write down associations related to the given product, “*Write down the first three words that come to mind when you see this product*”. When the first out of the three words was *natural*, or related to naturalness such as *pure*, the respondent got a naturalness score of 3. Further, for the second word the score was 2, and for the third word the score was 1. The same principle was used for *healthy* and related words. The mean difference of these scores was also tested through an independent sample t-test given the visualization of the product.

For hypotheses 3a and 3b, as well as for hypotheses 5a and 5b, we used PROCESS macro, model 1, v4.1 (Hayes, 2013) for SPSS. We used Model 1 to test the moderation of health consciousness on perceived healthiness and naturalness given the visualization of the product, as well as on willingness-to-pay and likeliness-to-buy given the perceived healthiness and naturalness.

Lastly, we used Model 4 of PROCESS macro, model 4, v4.1 (Hayes, 2013) for SPSS to test hypotheses 4a and 4b. This tests for the mediation of perceived healthiness and naturalness on the consumer’s willingness-to-pay and likeliness-to-buy given the visualization of the product on the packaging.

4 Results

4.1 Response Distributions

Respondents were randomly assigned to two of the four product package designs where each participant was exposed to one version of the juice package design, and one version of the chocolate package design. Hence, all respondents saw both the juice and the chocolate package. The distribution between whether respondents saw the design with the ingredient or the final product was random. This resulted in 71 respondents (49.3%) being exposed to the juice package picturing the ingredient and 73 (50.7%) to the juice package picturing the final product. Further, 74 respondents (51.4%) were exposed to the chocolate package picturing the ingredient, and 70 (48.6%) to the chocolate package picturing the final product.

4.2 Health Consciousness

All respondents replied to a set of 7 questions about their health consciousness which were all tested on a 5-point Likert scale. Overall the participants are relatively health conscious, showing high means for most statements. However, there is some variation in responses as indicated by the standard deviations. 74.3% state that they agree to some degree with the statement '*I pay a lot of attention to my health*' ($\mu = 3.89$, $SD = .87$). Furthermore 57.7% consider their intake of nutrients regularly ($\mu = 3.41$, $SD = 1.208$), and 65.7% agreed to some extent with the statement '*I often do things good for my health*' ($\mu = 3.92$, $SD = .901$). 97.2% of respondents also state that they to some extent believe that their health is influenced by the food they eat ($\mu = 4.59$, $SD = .572$), and the majority (66.1%) claim to have at least some knowledge of what constitutes a healthy diet ($\mu = 3.58$, $SD = .979$). Additionally, 86.1% state that they try to eat healthy food ($\mu = 4.18$, $SD = .772$), whereas 52.8% compensate unhealthy food during one meal with healthier food in another to some extent ($\mu = 3.4$, $SD = 1.053$). In Appendix B, a full table of frequencies, means, and standard deviations of the health consciousness statements can be found.

4.3 Factor Analysis

Before testing the hypotheses we conducted several factor analyses to derive factors for health consciousness and product perceptions. However, for purchase intentions we decided not to conduct a factor analysis as the questions test separate aspects of purchase intention. Furthermore, a KMO-test indicated a factor analysis was not appropriate for the variables together. Hence, the variables are tested separately in the analysis, where likeliness to buy is the main variable considered given the hypotheses. For robustness of analysis we also tested the data for normal distribution using Q-Q plots and found that all relevant variables and factors are approximately normally distributed.

4.3.1 Health Consciousness Factors

Through a KMO and Bartlett's test we found a factor analysis to be appropriate for the health consciousness statements. The KMO measure for sampling adequacy gave a score of 0.785 and the Bartlett's test of sphericity had a significance of $p < 0.001$. A factor analysis of the statements around health consciousness provided us with three factors explaining 68.9% of the variation and a Cronbach's alpha of 0.753 for factor 1 which is deemed as acceptable (Bonett & Wright, 2015; Vale et

al., 1997). Factor 1 included all statements except *'I believe my health is influenced by the food I eat'* and *'I compensate unhealthy food one meal with healthier food the next meal'*. These statements made up one factor each. Hence, we proceeded to focus on factor 1 in our analyses of the moderation of consumers' health consciousness while still testing for the influence of the other two factors.

4.3.2 Product Perception Factors

Based on KMO measures of sampling adequacy of 0.898 for juice and 0.834 for chocolate we concluded a factor analysis was appropriate for the product attitude statements for both products. Furthermore, both products showed significance of $p < 0.001$ for Bartlett's test of sphericity. The factor analysis of the statements regarding product attitudes provided 3 factors for chocolate; attractiveness and tastiness (variables 1-2 and 11-13), healthiness (variables 3-7), and naturalness (variables 8-10) as seen in Table 2. This explained 74.6% of the variance and the Cronbach's alphas for the factor were 0.907, 0.891, and 0.869 respectively. Further, the analysis provided 2 factors for juice; attractiveness and tastiness (variables 1-2 and 11-13), and healthiness and naturalness (variables 3-10). This explained 65.9% of the variation with a Cronbach's alpha of 0.882 for the attractiveness and tastiness factor, and 0.912 for the healthiness and naturalness factor. For consistency in analysis we tested the statements for juice using 3 factors as well which gave the same factors as for chocolate as seen in Table 3. These factors explained 73.5% of the variance with the respective Cronbach's alphas of 0.882, 0.849, and 0.914. Hence, the increased variation explained and the increased alphas led us to conclude these factors were most appropriate for the following analysis of perceived healthiness and perceived naturalness.

Table 2 - Rotated Component Matrix for Chocolate

	Attractive & Tasty	Healthy	Natural
Statement 1	.882	.154	.059
Statement 2	.814	.160	.112
Statement 3	.096	.791	.276
Statement 4	.145	.841	.126
Statement 5	.064	.881	.178
Statement 6	-.047	.766	.378
Statement 7	-.088	.673	.362
Statement 8	.085	.321	.849
Statement 9	.227	.263	.837
Statement 10	.056	.383	.759
Statement 11	.839	-.107	.031
Statement 12	.827	-.075	.141
Statement 13	.889	.083	.030

Table 3 - Rotated Component Matrix for Juice

	Attractive & Tasty	Healthy	Natural
Statement 1	.294	.841	.107
Statement 2	.270	.811	.221
Statement 3	.654	.382	.275
Statement 4	.480	-.105	.724
Statement 5	.798	.087	.173
Statement 6	.854	.093	-.007
Statement 7	.713	.296	.219
Statement 8	.704	.398	.166
Statement 9	.727	.467	.147
Statement 10	.714	.401	.157
Statement 11	.075	.452	.772
Statement 12	.083	.527	.716
Statement 13	.320	.761	.256

*Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.^a a. Rotation converged in 5 iterations.

4.4 Healthy and Unhealthy Products

As part of our research, specifically hypotheses 2a and 2b, tests for the differences between healthy and unhealthy products, we conducted a paired sample t-test to establish whether the overall perceived healthiness of juice is higher than that of chocolate. Our results show that this holds true for the chosen products as the mean score of the perceived healthiness factor is significantly higher for juice than for chocolate ($b = 1.628$, $t = 14.235$, $p < .001$). Furthermore, for the individual statements about perceived healthiness we found them all to be statistically significant ($p < .001$) with a higher mean for juice.

4.5 Packaging Designs Influence on Perceived Healthiness and Naturalness

Before testing the mean differences through an independent sample t-test we assured the data met all the required assumptions. First, each subject is only exposed to one of the conditions, meaning there is independence of observations. Second, we checked for significant outliers through a box plot graph. This showed five outliers in total, but this is deemed to not have a significant effect on the results. Third, through Q-Q plots we find that the data for all groups is approximately

normally distributed. Lastly, as the sample sizes of each group are approximately equal, with 71 participants in one group and 74 in the other, we assume equal variances.

Through an independent sample t-test with the product visualization as the independent variable and the perceived healthiness as the dependent variable we found the following. For juice, the mean of the perceived healthiness factor is higher for the ingredient design, although not statistically significant ($b = .065$, $t = .330$, $p = .742$). Furthermore, for the five individual statements, the mean differences are all small and insignificant at a 95% confidence level ($p > .05$). Furthermore, for the coded values of the open-ended question, the ingredient design shows a higher mean, but is again not significant ($b = .095$, $t = .929$, $p = .355$).

On the contrary, for chocolate we find a significantly higher mean of the perceived healthiness factor for the ingredient design ($b = .438$, $t = 2.440$, $p = .016$). Furthermore, there are significant differences in the means of three of the individual statements. *'This product is healthy'* is significantly higher for the ingredient design ($b = .513$, $t = 2.148$, $p = .033$), *'this product is low in calories'* is significantly higher for the ingredient design ($b = .422$, $t = 2.242$, $p = .026$), and *'this product is high in nutrients'* is significantly higher for the ingredient design ($b = .470$, $t = 2.199$, $p = .029$). The other individual statements do not show significant differences in means. Additionally, the coded open-ended question indicates higher mean for the ingredient design, although not statistically significant ($b = .069$, $t = 1.664$, $p = .098$).

Figure 5 - Mean perceived healthiness with confidence intervals for juice

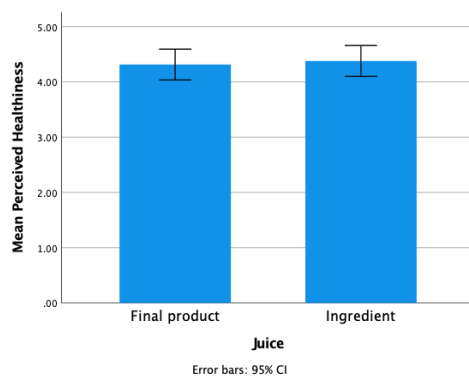
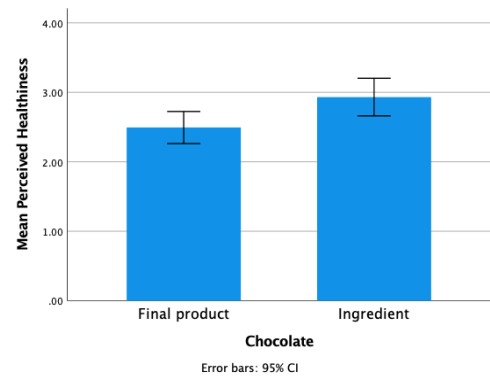


Figure 6 - Mean perceived healthiness with confidence intervals for chocolate



Although the means are higher for the ingredient design for all measures of perceived healthiness, as several of them are not statistically significant, there is only partial support for hypothesis 1a. More specifically, as there is no significant effect on the perceived healthiness factor for juice, we reject the hypothesis. However, as we find a significant difference in mean between the visualization of the ingredient vs the final product for chocolate but not for juice, we find support for hypothesis 2a, suggesting that the effect is stronger for unhealthy products. Additionally, there are significant effects of three of the individual statements on chocolate, but not for juice, which provides additional support for the difference in effects between the healthy and unhealthy products.

To test hypothesis 1b, the same tests were conducted but with perceived naturalness as the dependent variable. The results show that for juice, the ingredient design gives a higher mean of the perceived naturalness factor, although not significant ($b = .266, t = 1.016, p = .312$). Additionally, both individual statements about perceived naturalness show no significant mean difference ($p > .05$). For the coded open-ended question the final product design gives a higher mean for naturalness, but is not statistically significant ($b = -.128, t = -1.095, p = .275$).

For the perceived naturalness factor of chocolate, the mean is higher for the ingredient design, but is not significant ($b = .297, t = 1.315, p = .191$). Furthermore, neither of the individual statements about naturalness show significant differences in mean for chocolate ($p > .05$). The coded open-ended question variable shows a higher mean for the ingredient design, but is again not significant ($b = .178, t = 1.694, p = .093$).

Figure 7 - Mean perceived naturalness with confidence intervals for juice

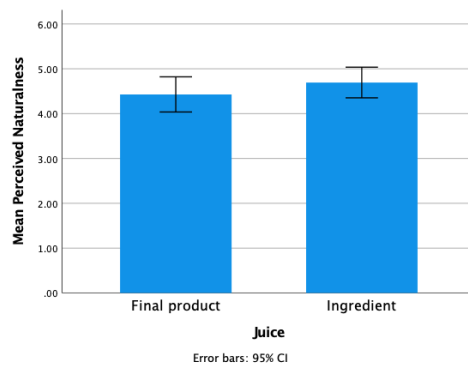
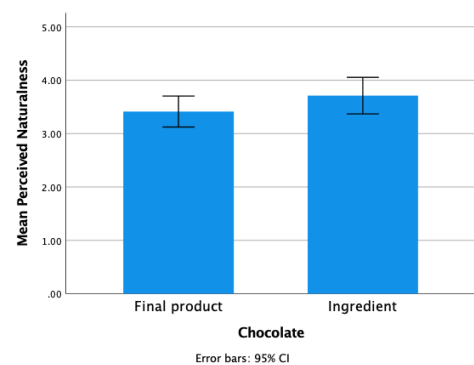


Figure 8 - Mean perceived naturalness with confidence intervals for chocolate



For all variables indicating perceived naturalness, except the coded open-ended question for juice, the mean is higher for the ingredient design. However, as none of them are statistically significant, we reject hypothesis 1b. Additionally, the lack of significant effects also leads us to reject hypothesis 2b as we cannot see any significant statistical differences between the healthy and unhealthy products.

4.6 Moderation of Consumers Health Consciousness on Perceived Healthiness and Naturalness

To test the moderating effect of consumers' health consciousness on the perceived healthiness, we used PROCESS macro, model 1, v4.1 (Hayes, 2013) for SPSS with 95% confidence intervals ($n = 5000$). We tested the influence of the three different health consciousness factors.

For juice, the analysis shows perceived healthiness is not moderated by the health consciousness factor 1 as the interaction effect is non-significant ($b = -.318$, $t = -1.105$, $p = .271$). Neither is the perceived healthiness for chocolate ($b = -.042$, $t = -.155$, $p = .877$). Furthermore, the interaction effect of health consciousness factor 1 and product visualization on perceived naturalness is not statistically significant, thus not moderated for neither juice ($b = -.161$, $t = -.414$, $p = .680$), nor chocolate ($b = -.389$, $t = -1.150$, $p = .252$). Although less relevant, we also found that all interaction effects of the other health consciousness factors were statistically insignificant ($p > .05$).

As there is not sufficient evidence to prove a moderating effect of consumers' health consciousness on neither perceived healthiness nor perceived naturalness, we reject both hypotheses 3a and 3b.

4.7 Healthiness and Naturalness Perception's Influence on Likelihood-to-Buy

As previously mentioned, the perceived healthiness and naturalness is approximately normally distributed, as well as the likelihood-to-buy for both products. However, as the willingness-to-pay deviates to some extent from a normal distribution, the main focus of the following analysis is on likelihood-to-buy although we test for willingness-to-pay as well. Additionally, the hypotheses are formulated around likelihood-to-buy.

To test the mediating effect of perceived healthiness and naturalness on consumers' likelihood-to-buy, given the visualization of either the ingredient or final product we

used PROCESS macro, model 4, v4.1 (Hayes, 2013) in SPSS with 95% confidence intervals ($n = 5000$).

For juice, the analysis indicates that perceived healthiness significantly predicts likeliness-to-buy ($b = 0.526$, $t = 7.906$, $p < 0.001$). The positive b indicates that higher perceived healthiness leads to higher likeliness-to-buy. However, the packaging design is not significant in predicting perceived healthiness of juice ($b = .065$, $t = .330$, $p = .742$), nor does it directly predict likeliness-to-buy ($b = .120$, $t = .762$, $p = .447$). Furthermore, the indirect effect of packaging design on likeliness-to-buy is not significant as the bootstrapped confidence interval includes 0 ($b = .034$, 95% CI [-.168, .250]).

Similarly to likeliness-to-buy, juice also shows a significantly higher willingness-to-pay when perceived healthiness is higher ($b = .326$, $t = 4.640$, $p < .001$). However, the packaging design does not significantly predict perceived healthiness ($b = .065$, $t = .330$, $p = .742$) or willingness-to-pay ($b = .004$, $t = .023$, $p = .982$). The indirect effect of packaging design on willingness-to-pay is not significant either ($b = .021$, 95% CI [-.103, .169]).

Considering chocolate, perceived healthiness is significantly higher for the ingredient design ($b = .438$, $t = 2.440$, $p = .016$) and likeliness-to-buy is significantly higher when the perceived healthiness is higher ($b = .223$, $t = 2.510$, $p = .013$). Thus, the indirect effect shows a higher likeliness-to-buy for the ingredient design when perceived healthiness is higher at a significant level ($b = .098$, 95% CI [.003, .242]). However, the direct effect of packaging design on likeliness-to-buy is not significant ($b = -.130$, $t = -.671$, $p = .503$).

On the contrary, although the ingredient design has a positive effect on perceived healthiness ($b = .438$, $t = 2.440$, $p = .016$), the effect of perceived healthiness on willingness-to-pay is not significant ($b = .213$, $t = 1.924$, $p = .056$). The direct effect of the packaging design on willingness-to-pay is also insignificant ($b = -.281$, $t = -1.162$, $p = .248$). Lastly, the indirect effect of the packaging design on willingness-to-pay is not significant ($b = .093$, 95% CI [-.004, .257]).

We find significant effects of the mediator on the dependent variable likeliness-to-buy for both products, where increased healthiness leads to higher likeliness-to-buy. Hence, there is partial support for hypothesis 4a. Furthermore, as chocolate shows a significant positive indirect effect of product packaging design on likeliness-to-buy with perceived healthiness as a mediator, but the same does not hold true for

juice, we only find partial support for the hypothesis. Thus, we cannot prove significant statistical support for hypothesis 4a with a confidence level of 95% for both products.

Considering the same relationships with the perceived naturalness as the mediator gives the following results. For juice, likeliness-to-buy is higher when perceived naturalness is higher ($b = .450, t = 9.569, p < .001$). However, the packaging design does not significantly predict the perceived naturalness ($b = .266, t = 1.016, p = .312$) or the likeliness-to-buy ($b = .034, t = .232, p = .817$). Further, the indirect effect of packaging design on likeliness-to-buy is not significant ($b = .120, 95\% \text{ CI } [-.112, .359]$). Similarly, higher perceived naturalness leads to higher willingness-to-pay ($b = .273, t = 5.214, p < .001$). However, the packaging design does not significantly predict the perceived naturalness ($b = .266, t = 1.016, p = .312$) or the willingness-to-pay ($b = -.047, t = -.289, p = .773$). Hence, the indirect effect of packaging design does not have a significant effect on willingness-to-pay ($b = .072, 95\% \text{ CI } [-.066, .229]$).

For chocolate, increased naturalness has a positive effect on likeliness-to-buy ($b = .206, t = 2.951, p = .004$). However, the packaging design does not significantly predict the perceived naturalness ($b = .297, t = 1.315, p = .191$) or the likeliness-to-buy directly ($b = -.094, t = -.495, p = .641$). Further, the indirect effect of packaging design on likeliness-to-buy is not significant ($b = .061, 95\% \text{ CI } [-.027, .195]$). Similarly, increased naturalness has a positive effect on willingness-to-pay ($b = .293, t = 3.422, p < .001$). Additionally, the packaging design does not have a significant effect of perceived naturalness ($b = .297, t = 1.315, p = .191$) or directly on willingness-to-pay ($b = -.275, t = -1.184, p = .239$). Thus, the indirect effect of packaging design does not significantly predict the willingness-to-pay ($b = .087, 95\% \text{ CI } [-.038, .275]$).

While we find significantly higher outcomes of likeliness-to-buy and willingness-to-pay for both products based on perceived naturalness, we do not find any other significant effects for the mediation. Hence, with a confidence level of 95%, we reject hypothesis 4b since packaging design does not have significant direct or indirect effects for either product.

4.8 Moderation of Consumers' Health Consciousness on Likelihood-to-Buy

To test hypotheses 5a and 5b we used PROCESS macros, model 1, v4.1 (Hayes, 2013) for SPSS with 95% confidence intervals ($n = 5000$). This way we test the moderating effect of consumers' health consciousness on their willingness-to-pay and likelihood-to-buy, given the perceived healthiness and naturalness. For this hypothesis we have only tested for health consciousness factor 1 as it is deemed most representative of actual health consciousness.

For juice, health consciousness does not significantly moderate the relationship between perceived healthiness and likelihood-to-buy ($b = .149$, $t = 1.857$, $p = .065$). However, the individual effect of health consciousness on likelihood-to-buy is significant ($b = .229$, $t = 1.977$, $p = .05$). On the contrary, we find the moderation of health consciousness on the relationship between perceived healthiness and willingness-to-pay to be significant ($b = .264$, $t = 3.153$, $p = .002$).

For chocolate, there is no significant moderating effect of health consciousness on the relationship between perceived healthiness and likelihood-to-buy ($b = .229$, $t = 1.822$, $p = .071$). However, there is a significant individual effect of perceived healthiness on likelihood-to-buy ($b = .198$, $t = 2.285$, $p = .024$). Further, health consciousness does not significantly moderate the relationship between perceived healthiness and willingness-to-pay ($b = .202$, $t = 1.274$, $p = .205$).

Although we see a significant moderating effect of health consciousness on willingness-to-pay for juice, the results for the other conditions are insignificant. More specifically, since the hypothesis is that there is a moderating effect on the relationship between perceived healthiness and likelihood-to-buy we reject hypothesis 5a although there are individual effects of health consciousness on likelihood-to-buy.

For juice, the moderating effect of health consciousness on the relationship between perceived naturalness and likelihood-to-buy is not significant ($b = .041$, $t = .638$, $p = .525$). However, there is a significant individual effect of perceived naturalness on likelihood-to-buy ($b = .452$, $t = 9.498$, $p < .001$). Similarly, health consciousness does not moderate the relationship between perceived naturalness and willingness-to-pay ($b = .082$, $t = 1.144$, $p = .255$). The perceived naturalness also has a significant individual effect on willingness-to-pay ($b = .254$, $t = 4.182$, $p < .001$).

Considering chocolate, health consciousness does not significantly moderate the relationship between perceived naturalness and likeliness-to-buy ($b = .160$, $t = 1.464$, $p = .146$). Similarly to juice, there is a significant individual effect of perceived naturalness on likeliness-to-buy ($b = .168$, $t = 2.336$, $p = .021$). Further, health consciousness does not significantly moderate the relationship between perceived naturalness and willingness-to-pay ($b = .046$, $t = .337$, $p = .737$), but again there is a significant individual effect of perceived naturalness on willingness-to-pay ($b = .274$, $t = 3.070$, $p = .003$).

As there are no significant moderating effects of health consciousness on likeliness-to-buy or willingness-to-pay for either product, hypothesis 5b is also rejected with a confidence level of 95%. However, it should be noted that we find significant individual effects of perceived naturalness on both dependent variables for both products although this does not affect the hypotheses.

5 Discussion

The study testing the five different hypotheses about healthiness and naturalness has given insights into the factors influencing purchase decisions based on the packaging design of food products. Specifically, we have aimed to answer the research question '*How does the visualization of the ingredient vs the final product influence consumers' perception of healthiness and naturalness, and their willingness to buy?*' by also exploring the moderating roles of health consciousness among consumers and whether the product is seen as healthy or unhealthy.

First, our research did not find significant statistical support for the hypothesis that product visualization influences the perceived healthiness or naturalness of the product. This contradicts the findings of Capelli & Thomas (2018). However, although the results to a large extent are statistically insignificant which may be attributed to limitations of the study, we find that the beta coefficients indicate relationships similar to those of previous research. One hypothesis that we do find statistically significant support for is hypothesis 2a, suggesting that the effect of product visualization on perceived healthiness is stronger for unhealthy products. Hence, the difference between healthy and unhealthy products found by Zhu et al. (2019) is supported on a significant level, since we find significant effects of visualizations on perceived healthiness for chocolate but not for juice. However, in

regards to naturalness, the difference in coefficients is very small and insignificant, and the same conclusion cannot be drawn for that case.

Secondly, the idea that health consciousness moderates the relationship between packaging design and perceived healthiness and naturalness does not find statistical support in this research. The contradicting results of previous research have shown that the moderation in some cases appears to increase perceived healthiness and naturalness for health conscious consumers, and to decrease it in other cases (Her & Seo, 2017; Kuvykaite et al., 2009; Machiels & Karnal, 2016; Mai et al., 2016; Mai & Hoffmann, 2015). Hence, the lack of significant results regarding this hypothesis is less surprising although the product visualization cue is peripheral and that health consciousness was thus expected to have a negative effect on perceived healthiness and naturalness. However, as the insignificant beta coefficients found from the moderation analysis are all negative, they indicate a move in the predicted direction where increased health consciousness has a negative effect on the relationship between packaging design and perceived healthiness and naturalness.

Our study found that there is a significant effect of perceived healthiness on the likeliness-to-buy for both the healthy and the unhealthy product. This supports previous research which has found that healthiness and naturalness can influence a consumer's purchase intention (Binninger, 2017; Capelli & Thomas, 2018; Rebollar et al., 2016). Our study did not however find support for the hypotheses in which there is a mediating effect of perceived healthiness and naturalness on consumers likeliness-to-buy, based on the visualization of the packaging (ingredient vs. final product). Since we did not find support for our first hypothesis that packaging design influences perceived healthiness, this result is not unexpected. Similarly in terms of naturalness the study found that higher perceived naturalness leads to higher likeliness-to-buy and willingness-to-pay for both the healthy and unhealthy product, it could not support that there is a mediating effect when taking the visualization of ingredient or final product on the packaging into account for both products. The indirect effect is significant for chocolate, but not for juice, which leads to rejection of the hypothesis but also indicates there might be effects for some products. This could again be influenced by the limitation of our study (section 6.3), but another possible theory is that the impact of this type of visualization alone is not enough to make an impact on consumer perception in terms of changing perception of healthiness or naturalness. When making a

purchase decision the consumer is influenced by the total impression of the product, taking all brand elements into account, thus when using generic designs for each product which do not support this notion of healthiness and naturalness, the visualization of ingredient or final product on the front of the packaging is not enough to shift brand/product perception. Additionally, the lack of mediating effect for naturalness is also influenced by the lack of effect of packaging design on perceived naturalness. Furthermore, it is also possible that the findings of Zhu et al. (2019) extends past the influence on perceptions, and since we find significant effects of visualizations on perceptions for unhealthy products it is not surprising that we see similar results for likeliness-to-buy.

Lastly, as we find no significant influence of health consciousness on the relationship between perceived healthiness or perceived naturalness and consumers' likeliness-to-buy we rejected both hypotheses 5a and 5b. This contradicts the findings of previous research that suggests that health consciousness influences purchase behaviors such that increased health consciousness will increase likeliness-to-buy (DiPietro et al., 2016; Trivedi et al., 2016). The lack of significant moderating effects is however not surprising as we did not find significant results to support the hypotheses that perceived healthiness and naturalness influences purchase decisions. Furthermore, another reason for the lack of moderating effect may be due to limitations in the measure of health consciousness as we did not find a moderating effect on the relationship between packaging design and perceived healthiness and naturalness either. It should also be noted that we did find significant individual effects of health consciousness on likeliness-to-buy which indicates that there might be value to it, although not in the hypothesized way as a moderator.

6 Conclusion and Recommendations

Based on all the hypothesis testing in the study we find weak statistical support for the findings of previous research. The only statistically significant support we find is for the hypothesis that suggests that *'The effect of product visualization leading to higher perceived healthiness based on showing the ingredient is stronger for unhealthy products than for healthy products.* In all other cases, the results indicate that the effect would be as expected but there is a general lack of statistical significance. The results are possibly due to various limitations of the study (section 6.3), but it may also be that product visualization in fact is too discrete as a cue to

have an influence on the perceived healthiness and naturalness, and in sequence also likeliness to buy. As all the hypotheses except hypotheses 5a and 5b include the visualization in the test, the lack of support for hypotheses 1a and 1b influences the results of the other.

6.1 Theoretical Implications

Based on our best knowledge, our research contributes and offers further insight to current marketing literature. Despite many insignificant results, the data overall indicate support to already established marketing theories around packaging design and visualization and how this can influence consumer perception of a product. More specifically how perceived healthiness or naturalness leads to higher likeliness-to-buy. It supports that packaging illustration is an important aspect when choosing the packing as a whole, especially for unhealthy products, however we could not find any support that health consciousness mediates the health or natural perception of a product based on the visualization of ingredient or final product. On the contrary, as we do not find statistically significant support for many of our hypotheses, there might be a need to reconsider the extent to which minor cues can influence perceptions and purchase intentions.

6.2 Managerial Implications

Due to the lack of significant findings of our research we cannot recommend marketers to rely on product visualizations to influence consumers' perception or their purchase intentions. However, as previous research has found that the depiction of ingredients has a significant influence on the discussed variables, we would not recommend marketers to completely disregard the possible influence that product visualizations may have. It may also be that product visualization together with other packaging cues can have a stronger influence and can then help enhance the effects of those cues to have an impact on perceptions and purchase intentions. Furthermore, as we find a significant effect of the visualization on the unhealthy product, the nature of the product should be taken into account when considering the visualization on packaging. Specifically, the influence is found to be larger for unhealthy products which indicates that marketers have more possibility in manipulating consumers' perception about healthiness for such products. Thus, marketers need to take their power over consumers into consideration and the ethical implications it brings as they can ultimately influence the health and lifestyle

of consumers at large. Should an unhealthy product brand be able to seem healthier than they are? Additionally, as we do find significant effects of perceived healthiness and naturalness on consumers' likeliness-to-buy for both healthy and unhealthy products, marketers should try and find various ways of enhancing these perceptions, although product visualization on packaging alone may not be strong enough to manipulate these intentions for healthy products.

6.3 Limitations and Future Research

Although the study provides some interesting suggestions and possible implications for marketing theory and practice, it is not without limitations. In the next section, we will present the possible limitations and suggestions for future research. One of our main limitations was due to time constraints and lack of funding that required us to rely on convenient sampling resulting in a rather homogenous sample. Also, by utilizing an online survey as the research method, this could have influenced the results as we did not test consumers on their actual purchase behavior, but rather their stated intention to buy. This could have been measured better through a more realistic experiment setting.

Despite that the study could only find statistical support for one of our hypotheses, some aspects of the various analysis were significant, indicating that if done differently, in setting up the study and getting a larger sample size, it could be worth looking into whether the visualization of ingredient versus final product, and possibly versus both final product plus ingredient together, can influence consumer perception in terms of perceived healthiness, naturalness and likeliness-to-buy. This is based on the fact that we did find indications (although insignificant) throughout the study where the ingredient design resulted in higher means than the visualization of the final product.

Due to time restrictions and limitation in resources we did not explore possible correlation effects between healthiness and naturalness where we believe higher perceived naturalness leads to higher perceived healthiness and thus a higher likeliness-to-buy a product. It would be interesting to take this concept and apply it to the framework of the influence of visualization on packaging, health consciousness and likeliness-to-buy.

Another limitation of the study is the strength of the manipulation that may explain some of the lack of significant results. The product visualization is a small aspect

of the packaging design and there are several other cues on the package that may influence the perceptions, although kept constant across the designs in the study. Possibly, the manipulation is also stronger for the chocolate design as the image is set against a white background, whereas the background on the juice packaging is orange. This may be the reason for why we found significant effects of packaging design on the perceived healthiness of chocolate but not of juice. A stronger manipulation might have generated stronger results for both products. We would thus recommend further research to be made on the difference in effect of packaging cues on healthiness and naturalness perceptions for healthy vs unhealthy products to explore whether this in fact has a significant effect.

One aspect of the product's nature, that to some extent is studied by (Zhu et al., 2019) but that is not considered to the same extent in our research, is whether the ingredient is considered healthy or unhealthy. For our research, it can be argued that both ingredients are considered healthy as orange is a fruit and higher cacao percentage often is associated with healthier chocolate. However, this is not something we have tested for and thus, it may limit the study further. Future research should hence explore the nature of the product in combination with the nature of the ingredient to conclude whether this may affect perceptions and attitudes. This could build on the findings in our research that indicates a stronger effect of product visualization on perceived healthiness for unhealthy products.

Although there are certain limitations to our research which may have led to the general lack of significant results, it does provide interesting insights and indications that could inspire future research. The aspect of packaging cues has previously been proven to have an influence on consumer perceptions and purchase intentions. Thus, further research on the subject is needed. Specifically, our research has provided additional support for the difference between healthy and unhealthy products which calls for further exploration of this research avenue and its associated variables.

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Appendix

Appendix A

Section 1 - Introduction

Hi!

Thank you for taking the time to participate in this study for our Master thesis in Strategic Marketing Management at BI Norwegian Business School. With this study, we are interested in understanding consumer's perception of various food products based on the packaging.

This survey will take approximately 5 minutes to complete. Please read the questions carefully, your honest opinion will be valuable for our thesis.

The survey is completely anonymous, and all answers will be treated with confidentiality. It will not be possible to identify you as an individual based on the information you provide in the survey, and all information will be analyzed at group level. All data will be permanently deleted by the end of the year. We appreciate you taking time and effort to help us finalize our thesis.

**For any questions regarding the survey, please do not hesitate to contact us at:
Moa.A.B.Froberg@student.bi.no
Celine.N.Jensen@student.bi.no**

I agree that data collected from this survey can be used in aforementioned Master thesis.

- Yes, I agree
 No, I do not agree

You will now be presented with the packaging designs of two different products with a set of questions following each design. Please pay close attention to the packaging and answer as honestly as possible.

Section 2 - Product 1, juice



OR



Please write down the first three words that come to mind when you see this product?

Please indicate to which degree you agree or disagree with the following statements. This product...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
... is attractive for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is attractive for my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is low in fat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is low in calories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is low in sugar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is high in nutrients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is natural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is pure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is unprocessed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is tasty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is flavourful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... has an attractive packaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How premium do you perceive this product to be?

- Low budget
- Somewhat low budget
- Neither low budget nor premium
- Somewhat premium
- Premium

How much would you be willing to pay for this product considering the average price of juice?

- Significantly less
- Somewhat less
- Neither less nor more
- Somewhat more
- Significantly more

How likely is it you would buy this product?

- Extremely unlikely
- Somewhat unlikely
- Neither likely nor unlikely
- Somewhat likely
- Extremely likely

Section 3 - Product 2, chocolate



OR

Please write down the first three words that come to mind when you see this product?

Please indicate to which degree you agree or disagree with the following statements. This product...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
... is attractive for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is attractive for my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is low in fat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is low in calories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is low in sugar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is high in nutrients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is natural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is pure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is unprocessed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is tasty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... is flavourful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... has an attractive packaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How premium do you perceive this product to be?

- Low budget
- Somewhat low budget
- Neither low budget nor premium
- Somewhat premium
- Premium

How much would you be willing to pay for this product considering the average price of juice?

- Significantly less
- Somewhat less
- Neither less nor more
- Somewhat more
- Significantly more

How likely is it you would buy this product?

- Extremely unlikely
- Somewhat unlikely
- Neither likely nor unlikely
- Somewhat likely
- Extremely likely

Section 4 - Health consciousness

How much do you agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I pay a lot of attention to my health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe my health is influenced by the food I eat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I compensate unhealthy food one meal with healthier food the next meal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider my intake of various nutrients regularly (e.g. calories, carbohydrates, protein etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I frequently do things good for my health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to eat healthy food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think I know a lot about healthy food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 5 - Demographics

How old are you?

What is your gender?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

What is your highest level of education achieved?

- High school or equivalent
- Bachelor degree
- Master degree
- Doctorate
- Other

How many people are there in your household?

- 1 person
- 2 persons
- 3 persons
- 4 persons
- 5 persons
- 6 persons +

Who is responsible for grocery shopping in your household?

- Me
- Another person
- I share the responsibility with another person

How do you perceive your own financial situation?

- Very strained
- Somewhat strained
- Neither strained nor comfortable
- Somewhat comfortable
- Very comfortable

Appendix B

Table - Summary of demographics

Variable	N	%
Age		
16-25	54	37,5
26-35	60	41,7
36-45	2	1,4
46-55	1	0,7
56-65	3	2,1
60+	1	1,1
Missing	23	
<i>Total</i>	144	
Gender		
Male	52	36,6
Female	90	63,4
Missing	2	
<i>Total</i>	144	
Level of Education		
Bachelor degree	69	47,9
Master degree	47	32,6
Doctorate	4	2,8
Other	1	0,7
Missing	2	
<i>Total</i>	144	
Number of people in your household		
1	33	22,9
2	49	34
3	29	20,1
4	16	11,1
5	11	7,6
6+	4	2,8
Missing	2	
<i>Total</i>	144	
Who is responsible for grocery shopping in your household?		
Me	56	38,9

Another person	20	13,9
I share the responsibility with another person	66	45,8
Missing	2	
<i>Total</i>	144	

How do you perceive your financial

situation?

Very strained	4	2,8
Somewhat strained	13	9,0
Neither strained nor comfortable	37	25,7
Somewhat comfortable	70	48,6
Very comfortable	18	12,5
Missing	2	
<i>Total</i>	144	

Table - Health consciousness frequencies

Variable	N	%
I pay a lot of attention to my health		
Somewhat disagree	13	9
Neither agree nor disagree	24	16,7
Somewhat agree	73	50,7
Strongly agree	34	23,6
<i>Total</i>	144	
<i>Mean</i>	3,89	
<i>Standard deviation</i>	0,870	
I believe my health is influenced by the food I eat		
Somewhat disagree	1	0,7
Neither agree nor disagree	23	2,1
Somewhat agree	50	34,7
Strongly agree	90	62,5
<i>Total</i>	144	
<i>Mean</i>	4,59	
<i>Standard deviation</i>	0,572	
I compensate unhealthy food one meal with healthier food another meal		
Strongly disagree	2	1,4
Somewhat disagree	35	24,3
Neither agree nor disagree	31	21,5
Somewhat agree	55	38,2

Strongly agree	21	14,6
<i>Total</i>	144	
<i>Mean</i>	3,4	
<i>Standard deviation</i>	1,053	
I consider intake of nutrients regularly		
Strongly disagree	13	9
Somewhat disagree	23	16
Neither agree nor disagree	25	17,4
Somewhat agree	58	40,3
Strongly agree	25	17,4
<i>Total</i>	144	
<i>Mean</i>	3,41	
<i>Standard deviation</i>	1,208	
I often do things good for my health		
Strongly disagree	1	0,7
Somewhat disagree	12	8,3
Neither agree nor disagree	22	15,3
Somewhat agree	71	49,3
Strongly agree	38	26,4
<i>Total</i>	144	
<i>Mean</i>	3,92	
<i>Standard deviation</i>	0,901	
I try to eat healthy food		
Somewhat disagree	6	4,2
Neither agree nor disagree	14	9,7
Somewhat agree	72	50
Strongly agree	52	36,1
<i>Total</i>	144	
<i>Mean</i>	4,18	
<i>Standard deviation</i>	0,772	
I think I know a lot about healthy food		
Strongly disagree	5	3,5
Somewhat disagree	15	10,4
Neither agree nor disagree	36	25
Somewhat agree	67	46,5
Strongly agree	21	14,6
<i>Total</i>	144	
<i>Mean</i>	3,58	
<i>Standard deviation</i>	0,979	