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Au Naturel: The impact of Natural Claims on Consumers' Judgments and Shopping Behaviour of Personal Care Products

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Dissertation Draft presented as partial requirement for obtaining the Master's degree in Information Management

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AU NATUREL: THE IMPACT OF NATURAL CLAIMS ON CONSUMERS' JUDGMENTS AND SHOPPING BEHAVIOUR OF PERSONAL CARE PRODUCTS

by

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Dissertation Draft presented as partial requirement for obtaining the Master's degree in Information Management, with a specialization in Marketing Intelligence

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ABSTRACT

Natural claims have been increasingly used by brands across a variety of product categories (e.g., personal care products) since consumers are becoming highly aware of what they consume and put into their bodies. The frequency of use of this type of claim suggests that they deliver strong competitive advantages. The main goal of this research is to investigate the influence of natural claims on consumers' judgments and purchase intentions of personal care products and understand the impact of individual differences (health and environmental consciousness) on the natural-is-better bias and the health halos evoked by natural claims. A pre-study and an online experiment were conducted, with a total of 425 products analysed and 256 respondents. Results suggest that natural claims influence consumers' product evaluations (perceived efficacy, perceived safety, and sensorial expectations), and perceived efficacy and sensorial expectations partially moderate the relationship between natural claims and purchase intentions. Furthermore, findings show that environmental consciousness moderates the effects of natural claims on consumers' judgments of perceived efficacy. The findings extend previous literature in consumer behaviour and the natural-is-better bias by proving the existence of a bias for personal care products with natural claims. The implications for brands and policy makers are discussed.

KEYWORDS

Natural Claims; Personal Care; Natural-is-better Bias; Halo Effects; Purchase Intentions; Products' Perceptions

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LIST OF ABBREVIATIONS AND ACRONYMS

GMO Genetically Modified Organism

SPSS Statistical Package for the Social Sciences

PCA Principal Component Analysis

KMO Kaiser-Meyer-Olkin

AVE Average Variance Extracted

CR Composite Reliability

1. INTRODUCTION

As the world evolves, individuals continue to change their consumption and shopping habits and are becoming even more mindful of what they put into their bodies and their skin (Nielsen, 2019; Nielsen, 2018). According to the Vice President of Client Consulting at Nielsen, people are more informed than ever before and are looking for "clean" and "natural" products that do not contain unwanted ingredients (Wolfe, 2019). A Nielsen's health and wellness study, which polled more than 30,000 consumers in 60 countries, found that 53% of respondents said that claims such as "all-natural" were "very or moderately important" to them and 46% of consumers would be willing to pay more than the average price for products with all-natural ingredients (Russo, 2015).

The increase of the frequency of natural claims on products' packaging (Cousté et al., 2012) has been following this trend of consumers' preference and demand for natural personal care items. Personal care and beauty products are directly in contact with the human body for various reasons, like cleaning or improving someone's appearance. This market is divided into two major sub-markets: (1) cosmetics, which encompasses decorative cosmetics and perfumes, and the (2) personal care market, which englobes haircare, skincare, oral care, and body care products, ranging from shampoos, soaps, to deodorants and toothpaste (Cosmetics Europe, n.d).

According to data from 1,500 retailers collected by Euromonitor International, "natural" was the top claim for beauty and personal care products, displayed on 3.3% of total online SKUs (Culliney, 2020). The growing demand for natural products has also been reflected in sales figures of natural personal care products. In Europe, sales of natural cosmetics grew by 7.2% in 2018 compared to the previous year (Gallon, 2019). For example, in France, one of the leading markets in Europe for cosmetics and personal care products, this growth was mainly seen in pharmacies and other distribution channels, like department stores and retailers (Culliney, 2021).

As a result, and since adding claims and labelling are voluntary, manufacturers have been strongly featuring "natural claims" on products' packaging, in order to enhance their position, inform the

consumers of the products' superiority and benefits and support their purchasing decision (Cousté et al., 2012; Hoek et al., 2013; Hussain & Lim, 2001). This is explained by the fact that the word "natural" is seen by individuals as a positive characteristic and consumers often associate other qualities to natural products (Rozin, 2005) due to halo effects. This involves cognitive bias and happens when "a particular characteristic of an item" affects the judgments of other attributes of the same item (Apaolaza et al., 2014; Berry et al., 2017; Gomez, 2015). In addition to this psychological effect, recent studies in the area have mentioned the existence of a natural-is-better bias. That is, when making product judgments or decisions, consumers prefer natural to non-natural entities, as they may operate under the default belief that products claimed as natural are better than synthetic items (Li & Chapman, 2012; Meier, Dillard & Lappas, 2019; Meier, Dillard, Osorio et al., 2019).

The above-mentioned effects are resultant of heuristics that consumers rely upon in order to reduce the effort associated with the decision-making process (Shah & Oppenheimer, 2008). Thus, rather than reflecting attentively on information, consumers may instead rely on specific claims or symbols as heuristics to simplify their daily choices (Hoek et al., 2013). Consumers are particularly liable to be affected by this when found in low-involvement situations, such as when buying personal care items (Laurent & Kapferer, 1985; Sundar et al., 2020). In fact, consumers reveal considered scepticism regarding natural claims, however, such claims still influence their judgments (Hoek et al., 2013). These effects are all congruent with the idea that the preference for naturalness is somewhat driven by evolutionary processes. Rozin (2005) claims that since our ancestors lived in nature and depended on it for survival, we humans have developed a preference for it.

Previous studies regarding food and health products found that natural claims affect consumers' attribute inferences, which in turn influences product evaluations (Berry et al., 2017; Gomez, 2015; Olsen et al., 2014) and consumers' purchasing behaviour (Aday & Yener, 2014; Boon et al., 2013; Cousté et al., 2012). However, to the best of our knowledge, there are no conclusive studies that have analyzed the impact of natural claims on products' perceptions and shopping behaviour in the personal

care sector. Furthermore, there have been some conflicting results in previous papers. For example, previous studies found evidence that consumers who are more concerned with the environment tend to be more biased regarding natural claims when in comparison to less concerned consumers, positively influencing their shopping behaviour and perceptions regarding products' attributes (Kim & Seock, 2009; Li & Cao, 2020; Schuldt & Schwarz, 2010). However, other studies have found that environmentally conscious consumers tend to engage in more information-seeking actions when shopping for products, and thus are less influenced by product claims (Lee et al., 2013; Lin & Chang, 2012).

A study by Berry et al. (2017), concluded that natural claims affect consumers' attribute inferences, which in turn influence product evaluations. Additionally, they offered several future research ideas to advance the state of the area. They established that the effects of natural claims should be tested in non-food product categories (Amos et al., 2014) while further examining the breadth of consumers' perceptions influenced by health halos that may be elicited by natural claims. A research review of the natural-is-better bias also disclosed some future research directions to develop a further understanding of the topic. In this paper, it is advised that perceived safety should be included in future research to understand how that variable influences the naturalness bias, and additionally, how individual differences influence this bias, in order to further understand it (Meier et al., 2019).

Therefore, the goal of this thesis is to, by addressing the previously identified gaps in the literature, and in line with the direction set by previous papers, understand the impact of natural claims in consumers' judgments and shopping behaviour. As a result, a set of research questions emerge. Firstly, how can natural claims influence consumers' product perceptions and shopping behaviours? Secondly, how do individual differences affect the halos and bias elicited by natural claims? More specifically, the objectives of this study are to (1) assess the impact of natural claims (e.g., natural origin) on consumer's product perceptions; (2) study the impact of such products' perceptions on consumers' shopping behaviour and lastly, (3) understand how individual differences influence those relationships.

Firstly, this thesis will contribute to extend the knowledge regarding product packaging and natural claims by exploring how the natural-is-better bias and health halos evoked by these elements influence consumers' personal care product perceptions and consequently, their shopping behaviour. Secondly, it will allow to draw conclusions regarding how individual differences may impact how consumers react and make inferences regarding products with natural claims. From a practical point of view, this thesis will provide valuable insights to brands/marketers, by recognizing if natural claims add more value to their products, and how to leverage such claims, which will contribute to a more sustainable strategy and bring in higher sales and profit. Additionally, it will bring new knowledge to the personal care sector and policy makers, by assessing how the health halos elicited by these claims are influenced by health and environmental consciousness, and how natural claims bias consumers, to create better legislation and fair competition between brands, while also increasing the sector's transparency.

This dissertation is organized into four main sections: introduction, literature review, an overview of the studies and conclusion. After the introduction of this thesis, where the contextualization of the present study and its objectives are outlined, the second chapter is the literature review, where the main theories and research studies are discussed. Moreover, the literature gaps are analyzed, followed by the development of the research questions and this study's research model. Next, we describe the methodologies used for each of the studies, followed by the results and discussion. Ultimately, the last part of this thesis provides the major conclusions of the research, as well as the limitations of the study, implications, and recommendations for future research.

2. LITERATURE REVIEW

2.1. CLAIMS ON PRODUCTS' PACKAGING

Packaging is the star of the marketing mix since it is amongst the most direct forms of communication between manufacturers and potential consumers (Cousté et al., 2012; Fajardo & Townsend, 2016; Gómez et al., 2015; Sundar et al., 2020). It is an important variable when consumers make shopping decisions (Aday & Yener, 2014; Gómez et al., 2015; Silayoi & Speece, 2007; Sundar et al., 2020; Togawa et al., 2019) as it communicates products' qualities and influences consumers' expectations (Newman et al., 2017; Sundar et al., 2020; Van Rompay et al., 2014; Yan et al., 2014). In fact, previous researchers consider packaging as the most important form of communication since it reaches almost all buyers, it is available at the decision-making moment and individuals are actively involved with this form of communication to get the information they need (Vila & Ampuero, 2006).

Packaging is generally divided according to two different categories: visual elements and informational elements. Visual elements refer not only to graphic aspects such as layout, colours, typography, and imagery but also sizes and shapes. Informational elements refer to packaging information such as product, brand, packaging technology and product information (Silayoi & Speece, 2007). While visual elements are crucial for attention capture and appeal purposes, which are extremely important in low-involvement situations and at the beginning of the decision-making process, informational elements are becoming more important for the process of shopping decision, to gather more information on the items and compare options (Silayoi & Speece, 2004).

However, consumers are exposed to millions of products every time they go shopping, and as such, they probably rely on stimuli such as claims - instead of extensively searching for information - as heuristics to simplify their daily choices and to make predictions regarding other product's attributes (Hoek et al., 2013). Packaging claims, a type of informational element of product packaging, are therefore highly important attributes since they represent a crucial element to convey products'

benefits (Cousté et al., 2012) to encourage purchase in an easy manner. Moreover, according to Fajardo and Townsend (2016), packaging claims are more believable than advertising claims, since the consumer's proximity to the claim positively influences its credibility and believability and decreases the perceptions of manipulative intent.

According to the European Parliament and Council of the European Union *on nutrition and health claims made on foods* (Regulation 1924/2006), claims are defined as any representation or message, which is not mandatory under the legislation, and that may include graphic, pictorial, or symbolic representation. A study from Cousté et al. (2012) identified four types of packaging claims: (1) environmental (e.g. "reusable", "safe for the environment"), (2) nutritional positive attributes (e.g. "high in antioxidants", "high in vitamins"), (3) nutritional negative attributes (e.g. "no alcohol", "low fat") and (4) production claims (e.g. "natural", "no chemicals"). These claims can be developed by third parties, especially in the case of environmental claims (Hoek et al., 2013) or by the brands themselves (self-declared claims) (Natrue, 2021), and they can be classified according to their placement in products' packaging – front-of-package and back-of-package claims.

Most studies in the area focused on nutritional claims in the food sector and how these claims influence the perceived quality, tastiness and healthiness of a food product (André et al., 2019; Ikonen at al., 2020; Medina-Molina et al., 2021) and purchase intentions (Ikonen et al., 2020; Medina-Molina et al., 2021). However, Cousté et al. (2012) found an increase in production claims, particularly "natural" claims being introduced in new products packaging. Such claims, as stated in other studies, may elicit consumers' products evaluations based on halo effects and lay theories (Berry et al., 2017; Rozin, 2006) and therefore, are extremely relevant to be studied.

For the purpose of this thesis, it is important to further understand how natural claims can be used in packaging to influence consumers' perceptions of products and their shopping behaviour. Thus, the following section provides a review of papers that investigate the role of natural claims on judgments formation and decision making, but also explains why such claims influence our intuition.

2.1.1. Natural Claims

Natural claims are declarations of how a product has been produced (Asioli et al., 2017; Chrysochou & Grunert, 2014). They have become one of the leading claims on new products introduced worldwide in the personal care market (Culliney, 2020; Gallon, 2019; Russo, 2015). This is because there is a preference of consumers for all that is natural, on the grounds that consumers are more knowledgeable about products' ingredients and strive to maintain a healthier lifestyle (Culliney, 2020). Rozin et al. (2004) showed that people have two forms of explanations for this "natural preference". The first are ideational reasons. They are essentially cognitive biases where consumers think of a natural entity as intrinsically better than a non-natural entity. This natural preference is referred to by Meier et al. as a "natural-is-better bias" (2019). Most of the research done regarding this bias was conducted in the food and medicine categories (Meier et al., 2019). For instance, studies have found that participants prefer to use natural versus non-natural products, even when they have a similar composition (Meier et al., 2019; Rozin et al., 2004). This may be explained by the fact that consumers hold positive imagery regarding nature (Amos et al., 2014) and believe that it is benevolent and superior (Rozin et al., 2004; Scott & Rozin, 2020).

The second explanation for this "natural preference" are instrumental reasons, that involve the specific advantages that consumers associate with products that claim to be natural, such as perceived healthiness and effectiveness (Rozin et al., 2004). Previous studies have shown that instrumental beliefs play a huge role in the preference for all that is natural (Li & Chapman, 2012). Other studies advocate that such reasons are caused by halo effects enticed by natural claimed products (Apaolaza et al., 2014; Berry et al., 2017; Gomez, 2015; Luchs et al., 2010) and lay theories consumers hold (Luchs et al., 2010; Siegrist et al., 2006; Wang et al., 2010). Halo effects are defined as the consumers' use of limited information regarding a product characteristic to infer other product attributes, biasing consumers' assumptions (Apaolaza et al., 2017; Ikonen et al., 2020). On the other hand, lay theories are core beliefs lay people hold to help them understand the world around them during their day to

day lives (Kramer et al., 2012). The later effects are distinct, since halo effects are fallacies caused by inferences, and lay theories are mainly popular beliefs of certain cultures, but they are both heuristics that individuals use to simplify their decisions and judgments' formation (Hoek et al., 2013; Shah & Oppenheimer, 2008).

Although the majority of previous research has focused on ideational reasons as the main explanation for a naturalness preference or as ideational and instrumental reasons as separate justifications, recent papers have found that ideational and instrumental reasons are equally important and are closely connected, which may even mean that one of them can be originated from the other (Li & Chapman, 2012). Indeed, Li and Chapman (2012) found that there is a possibility that instrumental reasons form prior to ideational reasons, and that those beliefs that natural items are safer, healthier, and more effective are what leads to the preference for natural entities, even when there is no evidence that natural items are in any way better than unnatural ones.

Source	Product Category	Type of Claims	Methodology	Key Findings
Berry et al. (2017)	Food (Peanut Butter)	All Natural	Questionnaire and Experiments	Natural claims influence consumers' attribute inferences, which in turn influence product evaluations.
André et al. (2019)	Food (Packaged Cereal)	Nature-Based claims Science-Based claims	Experiments	Claim type influences inferences about taste, healthiness, and dieting. Natural claimed products are perceived as healthier and less tasty than items with claims based on science.
Skubisz (2017)	Food (drinks, peanut butter, and snacks)	100% Natural All Natural	Experiment	Natural labelled products are evaluated as healthier and with fewer calories than non-natural items.
Lunardo and Saintives (2013)	Food (Chocolate cookies)	Naturland (claim from independent authority) 100% Natural (claim from the brand)	Experiments	Natural claims lead consumers to perceive products as more natural, depending on the point-of-purchase, salience of the claims and authority which claims the naturalness.

Apaolaza et al. (2014)	Fragrances	Perfumes made of 100% natural ingredients	Experiment	Natural claims influence hedonic sensory perception, acceptance, and purchase intention.
Hoek et al. (2013)	Household cleaning products	Eco-friendly Natural ingredients No animal testing	In-depth interviews and choice experiment	Consumers respond more positively to general rather than specific claims. These claims have a significant influence on consumers' choice behaviours, even though consumers are sceptical of said claims.
Amos et al. (2014)	Food and supplements	All Natural	Qualitative questionnaires and experiments	Natural claims evoke positive feelings and a pastoral view of nature, which in turn influences positive instrumental beliefs such as product safety and health advantages.

Table 1 – Previous literature regarding natural claims on products' packaging

While the effects of natural claims on consumers' perceptions and shopping behaviours have theoretical and practical contributions important to brands and marketers (Berry et al., 2017), little conclusive research has been conducted in the area, and most papers have focused only on the food and medicine categories (see Table 1), or have analysed natural products without researching natural claims. Therefore, such studies should be conducted in non-food categories (Berry et al., 2017), like the personal care sector. However, to this moment, only two studies were conducted concerning similar items. Apaolaza et al. (2014) showed that for natural fragrances, the existence of halo effects influences participants' hedonic sensory perception, acceptance, and purchase intentions. However, results cannot be generalized to the whole category and the dependent variables studied were limited. Kim and Seock (2009) conducted an exploratory study to understand the impact of health and environmental consciousness of young female consumers on their beauty shopping behaviour, which showed that individuals with high levels of consciousness had significantly more positive attitudes regarding natural products, however, the study did not investigate the impact of natural claims and used a convenience sample of university students at only one university in the United States, which means that the study cannot be generalized. Additionally, the exploratory nature of the study means that no conclusive results were provided. Therefore, we intend to answer these research gaps and

conduct a conclusive study to analyze the impact of natural claims on consumers' perceptions and shopping intentions regarding personal care products.

2.2. The Influence of Natural Claims on the Mediating Variables

In the beauty industry, a natural product is considered to be composed of natural substances from various origins – animal, mineral or botanical (Apaolaza et al., 2014). However, in the personal care category, the term "natural" is not regulated under the EU (European Union) Cosmetic Products Regulation (Culliney, 2020; Wolfe, 2019). Nonetheless, such claims must be legal, compliant, truthful, honest, fair, with evidential support and must inform decision-making, as standardized by the *Guidelines to Commission Regulation laying down common criteria for the justification of claims used in relation to cosmetic products* (Regulation 655/2013). Due to a lack of regulation of the term "natural" for self-declared claims and diversified definitions of what a natural product is, consumers may not have a clear idea of what entitles a product to be claimed "natural" (Rozin, 2005; Rozin et al., 2012). Therefore, previous studies have attempted to understand what the concept of naturalness is in individuals' minds, and what natural products entitle. In the following chapters, we present a discussion of previous studies and lay a base of theoretical knowledge to support this thesis.

2.2.1. What is "Natural"?

Rozin et al. (2012) found that people usually relate "natural" with an absence of additives (e.g. no chemicals, no preservatives). In reality, the divergence between "natural" and "chemical" is critical for consumers (Boon et al., 2013). Plus, individuals usually connect the word "natural" with the idea of no processing (e.g., no alterations, no industrial or human interventions) (Rozin et al., 2012). Furthermore, Berry et al. (2017) demonstrated that natural claims affect consumers' inferences regarding the genetically modified organism (GMO) content of products, their level of processing and organic nature. Nonetheless, research has shown that the process products undergo is of greater importance than its content in influencing consumers judgments of naturalness (Gomez, 2015; Rozin, 2005, 2006),

however, the addition of unnatural entities to products reduces their perceived naturalness significantly (Rozin, 2005; Rozin et al., 2012).

Natural claims are a great marketing tool to signal that a product is intrinsically better than other non-natural options available (André et al., 2019; Apaolaza et al., 2014; Berry et al., 2017; Kahraman & Kazançoğlu, 2019; Meier, Dillard & Lappas, 2019). However, and even though these claims are the most used on personal care products' packaging (Culliney, 2020; Gallon, 2019; Russo, 2015), it is still undetermined whether natural claims really lead consumers into perceiving a product as better than other alternatives. It is, therefore, crucial to understand the impact of natural claims on consumers' perceptions outside the food category, and in light of recent theories of consumer behaviour. Undeniably, when shopping at supermarkets, consumers are exposed to thousands of stimuli, and to simplify their daily lives, they may rely on heuristics, like claims, rather than reflecting thoughtfully on information, to make purchase decisions. Supermarkets and busy environments promote the use of cognitive shortcuts, since opportunities to reason in such settings are scarce (Hoek et al., 2013), which may suggest that front-of-package claims, such as natural labelling, may be crucial in such shopping locations, to guide consumers' judgment formation and shopping intentions.

2.2.2. Natural Claims on Perceived Efficacy

Products in the personal care category pledge to improve consumers' appearance, whether it is to make consumers' skin softer, improve the looks of their hair or eliminate face blemishes. Therefore, product efficacy is defined as the assessments consumers make regarding products' benefits, and they are generally based on expectations held by consumers regarding the product and its ingredients (Sundar et al., 2020). However, products in this category pledge to achieve something nearly impossible for individuals to evaluate before a product's purchase and pre-usage. Thus, for these categories, consumers may rely on cues in order to form efficacy beliefs (Sundar et al., 2020). In fact, since the benefits of the above-mentioned products are difficult to verify for the consumer without

actual testing, heuristics are usually adopted to aid and simplify the decision-making process (Hoek et al., 2013), particularly in retail settings.

Understanding how efficacy judgments are formed is crucial for businesses. The effectiveness of a product is extremely important for consumers when they consider buying personal care items (Sundar et al., 2020), even more so amid coronavirus pandemic concerns (Leggett, 2020). In truth, it is widely known that marketing activities are capable of influencing consumers' perceptions of a product, such as the efficacy of said item (Shiv et al., 2005). According to prior research conducted in the world of pharmaceuticals, perceived efficacy can be elicited by price information (Shiv et al., 2005), product's packaging claims (Boon et al., 2013) and lay theories regarding side-effects claims (Kramer et al., 2012). Indeed, Boon et al. (2013) and Meier, Dillard, Osorio et al. (2019) found that while consumers prefer natural products because they perceive them as lower in side-effects, they also associate them with ineffectiveness, thus, consumers try to balance these two priorities when making a purchase decision.

Lay theories have been used in the past to explain this interaction between naturalness and efficacy. Previous studies concluded that consumers hold lay theories regarding the idea that natural products are less potent than their equivalent synthetic products (Boon et al., 2013; Gomez, 2015; Kramer et al., 2012; Luchs et al., 2010; Scott, Rozin & Small, 2020). A study conducted by Kramer et al. (2012) documented that consumers infer that a pharmaceutical drug is more efficacious when it is associated with adverse attributes and side effects than when it is linked to fewer side-effects and more positive characteristics. This is referred to as the "no-pain, no-gain" lay theory. Indeed, Luch et al. (2010) and Gomez (2015) found that while in some categories naturalness is a positive asset, in other situations, the naturalness of a product can be perceived as a disadvantage, causing a negative halo that negatively impacts efficacy judgments. In fact, this "sustainability liability" is due to the fact that consumers judge sustainable products as less effective than non-sustainable products (Luchs et al.,

2010). Therefore, when consumers value strength in a product category, sustainability is considered a liability (Luchs et al., 2010).

A study conducted in the pharmaceutical category found that individuals believe that natural drugs are less effective when compared to synthetic alternatives (Meier & Lappas, 2016). However, a more recent study that was conducted to find ways to reduce the bias regarding natural drugs found evidence that when consumers are presented with rational evidence regarding natural drugs risks and dangers, the judgments of effectiveness of the drug increased (Meier et al., 2019), which may indicate that more knowledgeable consumers do not associate naturalness with less effectiveness. This study is also in line with the "no-pain, no-gain" lay theory

However, there is a lack of studies conducted in the personal care category, and therefore, results cannot be generalized. Indeed, to the best of our knowledge, only one study tried to understand how efficacy judgments are formed in this category. Sundar et al. (2020) found that packaging aesthetics inform beliefs of product performance, substituting evaluations made based on the product's ingredients. Withal, no other cues were analyzed, which also may impact consumers' judgments such as natural claims, as seen previously in other categories. Additionally, while Lin and Chang (2012) found that generally, consumers consider green products as less effective, and therefore, tend to increase the amount they consume, a more recent study from 2019 found no significant difference for effectiveness regarding natural and organic claimed deodorants in comparison to conventional deodorants (Amos et al., 2019). In this thesis, we expect that health halos and lay theories consumers hold will play a role in consumers' judgment formation regarding the efficacy of natural-claimed personal care products. Therefore, in line with previous research, it is hypothesized that natural claims will negatively impact the perceived efficacy of products claimed as natural. Accordingly, the following hypothesis is formulated:

H1a - Natural Claims will negatively influence consumers' Perceived Efficacy judgments

2.2.3. Natural Claims on Perceived Safety

Safety standards of products are becoming more important than ever in light of the COVID-19 outbreak (Leggett, 2020). Indeed, according to Euromonitor International, safety is one of the top concerns in the beauty and personal care market in 2020 (Culliney, 2020). According to the European Parliament (Directive 2001/95), product safety is defined as the ability of a product to, under normal conditions of use, not present any or minimal risk for the safety and health of consumers. Therefore, perceived safety is described as the level to which consumers believe that the use of a specific product will be harmless due to the lack of chemical and synthetic ingredients (Bauer et al., 2013).

A significant number of individuals may perceive that products with natural claims do not contain man-made chemicals or harmful substances (Hoek et al., 2013; Kahraman & Kazançoğlu, 2019; Rozin et al., 2012), and therefore, perceive them as a safer option than non-natural products (Amos et al., 2019; Kim & Seock, 2009; Li & Chapman, 2012; Meier, Dillard & Lappas, 2019; Meier, Dillard, Osorio et al., 2019; Meier & Lappas, 2016). In fact, lay people generally believe that natural entities are safer than synthetic ones, due to a popular belief that nature is benevolent and safe (Scott & Rozin, 2020), based on idyllic images individuals hold of a harmonious relationship between nature and man (Amos et al., 2014; Rozin et al., 2004).

In studies involving pharmaceutical drugs, consumers hold lay beliefs that natural products are safer than non-natural entities (Li & Chapman, 2012; Meier & Lappas, 2016; Scott et al., 2020) and are less likely to cause harmful side effects (Boon et al., 2013). Further, Amos et al. (2014) found that natural claims increase ratings of instrumental attributes for food and supplements, such as safety. The same effect also holds for vice goods. Indeed, natural labels on tobacco advertisements attenuate the impact of graphic health warnings by reducing the perceived risk of such products (Davis & Burton, 2019). However, it may be erroneous to assume that products with natural claims are safer than non-natural entities. In fact, many toxic substances are natural, such as arsenic (Meier, Dillard & Lappas, 2019).

Meier et al. (2019) found that, even though consumers usually associate natural products with fewer side-effects and safety, when they are presented with rational evidence regarding the lack of research about natural products being safer, the safety ratings are reduced. Indeed, a qualitative study conducted by Kahraman & Kazançoğlu (2019), composed by a sample of 20 interviews, found evidence that most people (55%) may not know the risks of 100% natural products (Kahraman & Kazançoğlu, 2019), and 54% believed that natural products may damage individuals' health. Therefore, it is crucial to understand how natural claims really influence consumers' safety judgment formation regarding personal care products. Thus, following previous literature, a halo effect elicited by the presence of natural claims is expected to extend to the personal care category, and that it will impact consumers' safety judgments. Accordingly, the following hypothesis is formulated:

H1b –Natural Claims will positively influence consumers' Perceived Safety judgments.

2.2.4. Natural Claims on Sensory Expectations

Sensory expectations are described as consumers' pre-consumption believes that a certain product will possess numerous sensory attributes (Deliza & MacFie, 1996). They are key for consumers when selecting personal care products since they look for strong sensory experiences and benefits when buying these types of items (Whitehouse, 2017). Therefore, during the decision-making process, everything that is known by us regarding products before consumption is used to create powerful expectations of what we would experience (Deliza & MacFie, 1996; Piqueras-Fiszman & Spence, 2015; Togawa et al., 2019). Past research has established that extrinsic elements of the product, such as packaging colour, imagery, aesthetics and claims may influence consumers sensory expectations (Apaolaza et al., 2017, 2014; Piqueras-Fiszman & Spence, 2015; Rozin, 2005; Schuldt & Hannahan, 2013; Schulte-Holierhoek et al., 2017; Spence & Velasco, 2018; Van Rompay et al., 2014).

Previous literature has focused on the effects of claims on sensorial expectations and perceptions, mainly in the food category. For example, individuals consider organic products as healthier than non-organic products, however, they judge them as less tasty (Schuldt & Hannahan, 2013). Withal, results

from other studies established contrasting conclusions. Investigations conducted in the food and wine markets found that when consumers were exposed to a natural or organic ingredient claim, their hedonic sensory perceptions were higher than the ones who had not been exposed to that claim before the tasting (Annett et al., 2008; Apaolaza et al., 2017; Nadricka et al., 2020). This seems to represent an example of a halo effect prompted by products' claims. Indeed, natural entities are often thought to be more appealing to the senses than non-natural products (Rozin, 2005), and these expectations are known to influence consumers sensory perceptions and purchase decisions (Deliza & MacFie, 1996).

However, to the best of our knowledge, there is a scarce number of papers that study the effect of claims on consumers' sensory expectations in non-food categories. Indeed, two papers were uncovered regarding this topic. Using an experimental study, Apaolaza et al. (2014) investigated the influence of natural ingredients on consumers' sensory perceptions of perfumes. Results revealed that when exposed to the natural claim, consumers sensory perceptions evaluations improved, when in comparison to evaluations made by participants who were not exposed to the claim. This confirms that the halo effect discovered regarding food claims may also hold in non-food categories. However, it only explicitly analyzed consumer perceptions, and not prior expectations, which are key for decision making when no prior product testing is possible. However, Amos et al. (2019) found no significant difference for deodorants with natural claims regarding pleasantness of smell, when in comparison to conventional deodorant. This may be due to the fact that since consumers place a different weight of importance on sensorial expectations for perfumes than for deodorants, that may influence consumer's judgments based on the claim (Amos et al., 2019; Rozin et al., 2004).

Therefore, this study sets to address this research gap, assessing whether natural claims in personal care products' packaging may influence consumers' sensory expectations of the products' properties. Following the previously reviewed literature, we expect that a halo effect elicited by the presence of natural claims does extend to the personal care category. Thus, it is hypothesized that exposure to

natural claims will positively impact consumers' ratings regarding their sensory experience of personal care items.

H1c – Natural Claims will positively influence consumers' Sensory Expectations.

2.3. The Effects of the Mediating Variables on Purchase Intentions

Purchase intentions are defined as consumers' conscious plans or impulses to make an effort to purchase a product (Spears & Singh, 2004) or as consumers' willingness to purchase a specific item at an exact point in time or during a specific situation (Lu et al., 2014). Since purchase intentions are the root of purchase behaviours, it is crucial to understand which factors can trigger these intentions, to influence actual behaviours, leading to products' differentiation and success, and to understand how to make a product stand out on retailers' shelves and be chosen over other similar alternatives. Previous research has therefore been extensive in this area, and it is generally agreed upon that packaging claims may influence consumers' purchase intentions (Apaolaza et al., 2017, 2014; Berry et al., 2017; Cousté et al., 2012; Hwang et al., 2016; Kozup et al., 2003; Meier, Dillard & Lappas, 2019; Meier, Dillard, Osorio et al., 2019; Meier & Lappas, 2016). Much of the research done on this subject has been conducted in the food and medicine domains (Meier, Dillard & Lappas, 2019), and has focused on health and nutrition-related claims (André et al., 2019; Annett et al., 2008; Hwang et al., 2016; Ikonen et al., 2020; Kozup et al., 2003).

Little research has been conducted in the field of natural claims, nonetheless, the majority of papers suggest that consumers prefer all that is claimed as natural (Meier, Dillard & Lappas, 2019; Meier, Dillard, Osorio et al., 2019; Rozin, 2006; Rozin et al., 2004, 2012; Scott et al., 2020). Most consumers justify this preference by alleging that such products are healthier than non-natural options (Rozin et al., 2004). However, unlike health and nutrition claims, natural claims have been distinguished as a different communicational element known as production claims (Cousté et al., 2012), and therefore, do not directly describe the healthfulness of a product.

Rozin et al. (2004) stated that people favour natural claimed products because they assess them as intrinsically better or as a result of associating other valued qualities to natural products. In fact, when consumers know that a product is made with natural ingredients, their purchase intentions increases (Apaolaza et al., 2014; Chrysochou & Grunert, 2014). However, prior research is lacking regarding the mediational mechanisms that are responsible for the influence of natural claims on consumers' purchase intentions. Indeed, Berry et al. (2017) found, in the food category, that the increase of consumers' purchase intentions when a natural claim was presented was mediated by consumers' inferences regarding the GMO content, level of processing and organic nature of the product itself. Further studies have also found evidence that consumers' perceptions of safety and effectiveness may mediate the relationship between natural claims and purchase intentions in the pharmaceutical category (Meier, Dillard & Lappas, 2019; Meier, Dillard, Osorio et al., 2019; Meier & Lappas, 2016; Scott et al., 2020). In fact, some studies suggest that safety perceptions may partially account for the natural-is-better bias and should therefore be further investigated (Meier, Dillard & Lappas, 2019).

Rozin (2005) suggests that natural entities are perceived to be more appealing to senses, which is an instrumental reason for consumers to justify their naturalness preference. Indeed, evidence was found that consumers tend to have higher sensory expectations for naturally-claimed products, which leads to higher purchase intentions (Apaolaza et al., 2017, 2014). However, this mediation process has not been explored in the personal care category, and therefore, there is no way for brands to understand how their products are perceived by consumers if they use natural claims, and how that impacts consumer behaviour.

Given this literature gap, and based on the conceptualization offered above, it is foreseen that consumers' inferences regarding natural-claimed products – perceived safety, perceived efficacy, and sensory expectations – will have a positive effect on purchase intentions. This thesis focuses on these three specific attributes since they are of particular interest to personal care brands, which is explained by consumers' interests in such variables. In fact, multiple studies and reports have highlighted safety,

efficacy and sensorial experiences as key success factors in the personal care industry (Krishna, 2012; Leggett, 2020; Nielsen, 2019; Whitehouse, 2017; Wolfe, 2019), even more so during a pandemic (Leggett, 2020). In other words, we suggest that the expectations and perceptions consumers form based on natural claims will mediate the way different natural claims affect consumers' shopping behaviour. Formally, we propose the following:

H2a – The positive effects of natural claims on consumers' Purchase Intentions are mediated by Perceived Efficacy

H2b – The positive effects of natural claims on consumers' Purchase Intentions are mediated by Perceived Safety

H2c – The positive effects of natural claims on consumers' Purchase Intentions are mediated by Sensory Expectations

2.4. THE MODERATING ROLE OF HEALTH CONSCIOUSNESS AND ENVIRONMENTAL CONSCIOUSNESS

2.4.1. Health Consciousness

Health consciousness can be defined as the degree of concern of an individual with his health (Plank & Gould, 1990). It is a variable of individual difference that estimates to which degree an individual is motivated to act on his health (Gould, 1990; Mai & Hoffmann, 2015). It is a trait that motivates humans to change their behaviours and adopt preventative acts to improve or maintain their health (Plank & Gould, 1990). Indeed, health-conscious consumers tend to actively engage in monitoring their health state and tend to modify their patterns as they believe that their behaviours directly influence their health (Kim & Seock, 2009).

Previous literature has linked high levels of health consciousness to a higher likelihood of buying organic products – such as food (Kriwy & Mecking, 2012; Mai & Hoffmann, 2015). Indeed, consumers tend to assume that such products are healthier and safer than other non-organic ones (Kriwy &

Mecking, 2012; Mai & Hoffmann, 2015; Nadricka et al., 2020). The same health halo occurs with natural products. As previously stated, individuals tend to believe that products with natural claims are healthier and safer than other synthetic options (Meier, Dillard & Lappas, 2019). This has mainly been studied in the medicine (Boon et al., 2013; Meier & Lappas, 2016; Scott et al., 2020) and food sectors (Berry et al., 2017; Migliore et al., 2018; Rozin et al., 2004; Spence & Velasco, 2018). In fact, safety and health have been considered to be the major reasons why consumers tend to prefer natural products (Meier, Dillard & Lappas, 2019; Rozin et al., 2004).

However, does health consciousness influence other individuals inferences regarding products? A study conducted by Mai and Hoffmann (2015) found that individuals with high levels of health consciousness were less likely to believe that healthy products were not tasty, in comparison to less health consciousness individuals. Additionally, an exploratory study conducted in the natural beauty products segment found that individuals higher in health consciousness did not just consider natural beauty products to be healthier, but also considered them to work better than conventional products, to be safer, more technologically advanced and more fashionable than synthetic items (Kim & Seock, 2009), however, this study was not able to draw conclusions has it was an exploratory study and the sample was only made up of female college students in the US. Therefore, this effect needs to be further examined in other settings and with other methodologies.

In view of the lack of literature regarding this subject, and based on the conceptualization offered above, it is foreseen that individuals with high levels of health consciousness will have better perceptions regarding natural products, which in turn, will improve their purchase intentions. Indeed, following Meier, Dillard and Lappas (2019), health consciousness may play a role in people's preferences for natural products, mainly due to safety reasons. In other words, we suggest that health consciousness will moderate the impact of natural claims on the products' perceived attributes. Formally, we propose the following:

H3a – Health consciousness moderates the effect of natural claims on Perceived Efficacy

H3b – Health consciousness moderates the effect of natural claims on Perceived Safety

H3c – Health consciousness moderates the effect of natural claims on Sensorial Expectations

2.4.2. Environmental Consciousness

Environmental consciousness is defined as the level to which an individual is concerned with the environment (Dunlap & Jones, 2002, as cited in Lin & Chang, 2012), and it has previously been linked to more pro-environmental behaviour and purchase of green products (Barber et al., 2012; Hoek et al., 2013; Lin & Chang, 2012; Olsen et al., 2014). Environmental consciousness nowadays is not exclusive to groups involved in activism or to environmental organizations, as environmental issues are becoming a mainstream concern to the general population, and individuals are becoming more demanding regarding the products they purchase (Tetra Pak, 2019), which is creating a movement amongst companies to focus on sustainability issues and to produce more ecologically friendly products and services (De Jong et al., 2018), in order to remain competitive.

Previous studies have found interesting results regarding the interaction of environmental consciousness with consumers' actual behaviour and perceptions. In the food sector, studies have been found to present environmental consciousness as a moderator of the halo effects induced by product claims, however, with ambiguous results. For example, Schuldt and Schwarz (2010) results establish that the effects of organic claims on calorie judgments were more noticeable for individuals with a high level of pro-environmentalism – with them considering organic food to have fewer calories than conventional food. In fact, they hypothesised that positive halo effects should increase when individuals give more importance to the initial attribute, suggesting a moderation role of environmental concern in the strength of halo effects. Additionally, a previous paper found that people who were more connected to the natural environment were more susceptible to the natural-is-better

bias (Li & Cao, 2020), which may also hold for individuals with high levels of environmental consciousness.

However, results from Lee et al. (2013) suggest that people who often engage in pro-environmental activities had less pronounced effects of organic labels on caloric estimations, showing weaker halo effects, which may indicate that environmental conscious individuals are more knowledgeable about organic products and are more accurate in estimating other product's attributes. This is consistent with Testa et al.(2020) results, which found that individuals who are more concerned with the environment are more likely to undertake additional actions, as information seeking, to make informed decisions. Withal, another study found that more environmentally conscious consumers overuse green products, in comparison to less environmentally conscious individuals, which seems to be driven by consumers' perceptions of the effectiveness of the product (Lin & Chang, 2012), in order to make up for the fact that the products may be less effective than regular items, which is consistent with the sustainability liability effect (Luchs et al., 2010).

In the present investigation, we are interested in assessing the influence of environmental consciousness on the halo effects leveraged by natural claims. Indeed, most effects found on the organic market may extend to the natural market, as the majority of consumers consider that natural products are less harmful to the environment partially due to having fewer chemicals (Kahraman & Kazançoğlu, 2019). Only two studies were found that tried to investigate this line of thought. Kim & Seock (2009) found evidence that suggests that high levels of environmental consciousness increase the likelihood of individuals to infer greater quality differences between natural and synthetic products, and to deduce that such products are more effective and safer than conventional alternatives. However, as previously stated, this study was not able to present conclusive findings, due to its exploratory nature and biased sample. Additionally, Apaolaza et al., (2014) found no significant results of pro-environmentalism on the relationship between natural claims and the halo effect elicited by them in the fragrance sector, not increasing or decreasing consumers' perceptions regarding the

perfumes. Therefore, it is crucial to analyse the effects of environmental consciousness on the natural personal care sector, following Meier, Dillard and Lappas (2019) research suggestions, and in order to offer conclusive results. Fundamentally, we propose that environmental consciousness will moderate the impact of natural claims on the product's perceived attributes. Formally, we propose the following:

H4a – Environmental consciousness moderates the effect of natural claims on Perceived Efficacy

H4b – Environmental consciousness moderates the effect of natural claims on Perceived Safety

H4c – Environmental consciousness moderates the effect of natural claims on Sensorial Expectations

Figure 1 illustrates the conceptual model of this dissertation, summarizing the hypotheses to be addressed in this research.

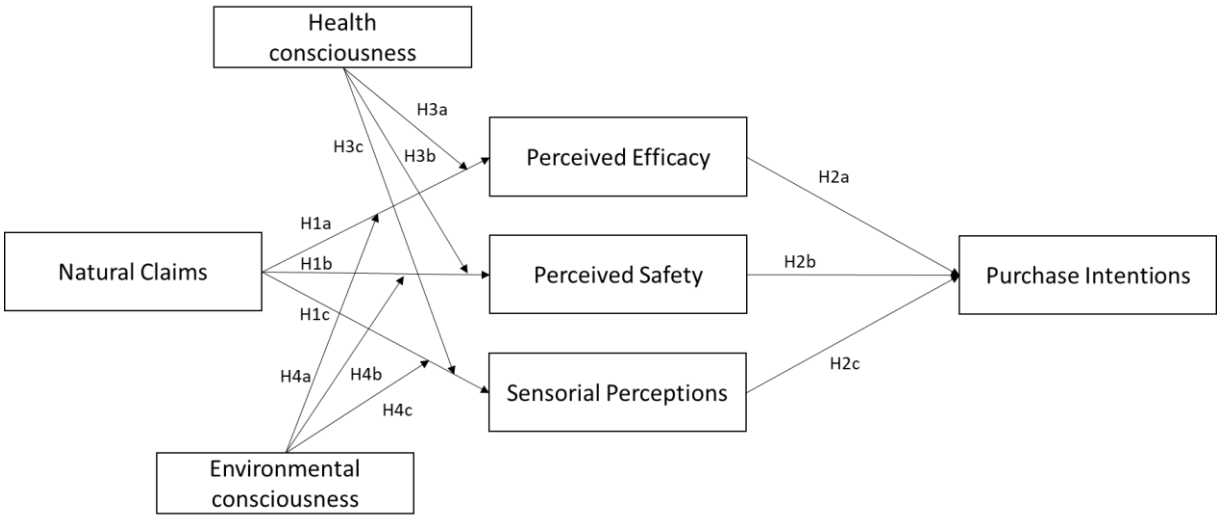


Figure 1 – Conceptual model
Source: Own elaboration

3. OVERVIEW OF THE STUDIES

After the theoretical foundation provided in the previous chapter, this section has the goal to present and describe in detail the methodological approaches and the studies conducted in the process of this research, the results of each study, followed by a discussion of such results. The Pre-study used an exploratory method to understand which types of claims were the most used in the Portuguese personal care market, and the way they are presented to consumers to provide the variation used in Study 1. Study 1 used an experimental methodology to understand how natural claims (vs. control group with no claim) influenced the product's perceived attributes (perceived efficacy, perceived safety, and sensorial expectations), and how these attributes mediated the effect of natural claims on purchase intentions. Additionally, it considered the impact of health and environmental consciousness on these relationships. The studies followed the imposed international and institutional procedures and were approved by the Ethics Committee of the university (Appendix A).

3.1. PILOT STUDY

3.1.1. Study Design and Methodology

Despite the existence of various studies and reports regarding packaging claims and their recurrence in different product categories, there is no detailed content analysis for natural claims in personal care products packaging. Therefore, the main objective of the present study is to understand which are the most used claims by brands in products' packaging available in leading retail companies. Indeed, for this thesis, it is crucial to find out which claims are more familiar to consumers and most used by brands and marketers in their products' packaging, to choose the claim to use in the later experimental study.

3.1.2. Procedures and Measures

An exploratory empirical study in the form of a content analysis was employed to examine natural claims and their different variations. This type of research is useful in the context of discovery to formulate new theories (Kolbe & Burnett, 1991) and has been previously employed in the study of

packaging and claims (Carlson et al., 1993; Chrysochou & Festila, 2019). To guarantee the excellence of this analysis, special attention was dedicated to improving the objectivity, sampling methods, systematization and reliability of the study (Kolbe & Burnett, 1991). To improve the objectivity of this study, rules and procedures were defined before the analysis, reviewed by the thesis advisor, and the rules were followed throughout the entire study. Systematization was attempted by following a data collection design that analyzed objective identifiable features of personal care products – natural claim type, level of naturalness and type of visual presentation.

During a two months period, between January and March 2021, an online content analysis was carried out using the websites of five retail players in the Portuguese market. For this study, and due to time and resources constraints, this analysis focused only on products that presented front-of-package natural claims, to examine a relatively large number of packages that would not exceed the resources of this research, and to guarantee the quality of the sampling method. Similarly, the data sources choice was based on having a sufficient market share of personal care products, and for the sake of only considering claims that are salient in generalized retailers – indeed, specialized shops were deliberately excluded from this research, to ensure the internal validity of our results. Such scoped samples are acceptable and justifiable in exploratory studies, such as this one (Carlson et al., 1993).

In each website, a review of all personal care products was conducted, and only the products that contained front-of-package natural claims were registered in the database, alongside its product type classification, brand, type of natural claims held and type of presentation on the packaging, and the level of naturalness claimed. Duplicates of the same product within or between websites and different sizes of the same product were removed from the database.

3.1.3. Results

During the exploratory research, 425 products with natural claims were identified, from 41 brands, ranging from shampoos, conditioners, and hair masks to face and body washes, deodorants, and toothpaste (Appendix B). 10 different variations of claims were uncovered with this study, however,

these claims have different weights in the market. In fact, three claims alone account for 80% of all claims found during the research process, according to Table 2. “Natural Origin” and “Natural Origin Ingredients” were the most frequent claims found in the personal care category.

Claims Variations	Frequency	Relative Frequency	Cumulative Relative Frequency
Natural Origin	168	39.53%	39.53%
Natural Origin Ingredients	127	29.88%	69.41%
Natural	45	10.59%	80.00%
Natural Extracts	43	10.12%	90.12%
Natural Origin Extracts	17	4.00%	94.12%
Natural Formula	10	2.35%	96.47%
Natural Ingredients	7	1.65%	98.12%
Vegetal Origin	4	0.94%	99.06%
Natural Derived Ingredients	3	0.71%	99.76%
With Natural vegetable extracts	1	0.24%	100.00%

Table 2 - Type of natural claims found in personal care products packaging

From the total universe of products analysed, 328 of them (77.18%) include the product’s naturalness percentage in their packaging claim. Further on, 93.45% of “natural origin” and 86.61% of “natural origin ingredients” claims – the top identified claims – included the naturalness level of the product as well. The level of naturalness found in packaging claims in this study varied from 77% to 100%, however, only 0.07% of the products studied show a level of naturalness lower than 90%. In truth, most products in the personal care category claim to be 90% natural or more – 93.29% of the products in the study that include the percentage of naturalness. Even more so, 63.72% of the products with the naturalness percentage, claim to have a naturalness level of 95% or higher (M = 95.13, SD = 4.20).

Regarding the visual presentation of said claims on products’ packaging, more than half of the claims studied (54.35%) were presented on products’ packaging as a text integrated on a round label. The second most frequent form of claims’ display was through text only, representing 29.65% of the claims. Indeed, these two forms of visual presentation of the claims represent 84% of the total cases studied,

while the rest is represented by other 3 different types of visual presentation – text on rectangular label (9.41%), text and icon (5.88%), text on round label with icon (0.71%), respectively (Appendix B).

Figure 2 – Types of visual presentation of natural claims identified in the study
Source: Own Elaboration / images from retailers' websites

3.1.4. Discussion

From this analysis, it becomes clear that claims such as "Natural Origin" and "Natural Origin Ingredients" are the most used by marketers when communicating the naturalness of their products. Indeed, the most used claim in previous papers, "Natural", is only the third most frequent claim in the personal care segment. Additionally, pairing claims with the naturalness percentage of the product or its ingredients is a standard procedure, mainly with naturalness levels higher than 90%, more specifically levels of naturalness of "90%", "98%" and "100%". Furthermore, brands usually present their products' natural claims as a text integrated on a round label.

Therefore, it is crucial to study these variations of natural claims to understand their advantages and disadvantages in terms of eliciting consumers' perceptions and influencing their shopping behaviour. Hence, the previously identified top claim type and visual presentation will be used in the experimental design, to create the ideal image to present the natural condition of the study to inquiries, in order to understand how this natural claim will impact consumers' judgments formation, and consequently, their buying behaviour.

3.2. STUDY 1

3.2.1. Study Design and Methodology

After the exploratory analysis of natural product claims in the personal care market, a study was conducted to answer the research questions that arose with the development of the literature review. Study 1 was an online single-factor between-subjects experimental design, conducted to understand how natural claims (100% natural origin *vs*. no-claim) influence consumers' perceptions regarding personal care products, and their shopping behaviour intentions. This type of study was chosen since the key goal was to understand the impact of natural claims on consumer's perceptions and behaviour while increasing the internal validity of the study by using a between-subject methodology by preventing carryover effects and fatigue effects that are frequent in within-subjects designs (Charness et al., 2012).

Additionally, this experimental study aims to investigate the role of individual differences (health consciousness and environmental consciousness) on consumers' perceptions. Prior literature suggests that consumers who are highly conscious of their health and concerned about the environment may be more susceptible to bias regarding product claims (Kim & Seock, 2009; Meier, Dillard & Lappas, 2019). However, since this research focuses on natural personal care products, little is known regarding the influence of individual differences on consumers' judgment formation. Thus, study 1 extends previous models, by investigating consumers' health consciousness and environmental consciousness self-reported levels.

The experimental methodology was chosen since it allows for the measurement of the effect of different conditions on the study's participants. To ensure the internal validity of the study, conditions are manipulated in a controlled manner, to ensure that the statistically significant differences found in participants' judgments or behaviours result only from the manipulation itself. Thus, the conditions presented to the participants need to be similar, only varying the independent variables that are

subject to the study. The experiment was developed, and the quantitative data was collected by using an online survey created on Qualtrics, and the IBM Statistical Package for Social Sciences (SPSS), version 27, was used to process and analyze the data.

3.2.2. Experimental Procedures and Measures

Study 1 was a single-factor (natural claim: 100% natural origin vs. no claim) between-subjects experimental design. Firstly, participants were invited to collaborate in an online research survey about consumers' perceptions and shopping behaviour of personal care products. Later, inquiries were randomly assigned to one of two different conditions, one condition with a natural claim (N=132) and a control condition, without a natural claim (N=124). The items used to measure the constructs in the present study were adapted from previous research papers to suit the objective of the research (Appendix C).

First, after participants had agreed to participate in the experiment, they were asked about their level of health consciousness and environmental consciousness. Health consciousness was measured using a 4-item scale adapted from Gould (1990) Health Consciousness Scale, the most used scale to measure this construct, as done in previous papers (Mai & Hoffmann, 2015). Environmental consciousness was measured using a 7-item scale adapted from the Environmental Attitudes and Knowledge Scale from Maloney and Ward (1973), as done in previous studies (Grunert & Juhl, 1995).

Afterwards, participants were randomly assigned to one of the conditions. All participants were primed with the following situational text, for them to think as if they were in a supermarket conducting their own shopping: "*Imagine that you are shopping in your usual supermarket. You just remembered that you need a new shampoo, and you head to the place where this type of hygiene product is normally found. Before choosing what you are going to take, you start to analyze all the available products and find the following shampoo. Take the normal time you would use at the supermarket to examine this shampoo. The next questions will be about this product.*" Then, participants were presented with an image of a shampoo bottle, according to the condition to which they were assigned. Indeed, each

participant was only presented to one of the conditions, randomly assigned by the software. Two images of a shampoo were designed for the purpose of this study alone – in one condition a natural claim was added, and a control condition, with no natural claim (more information on chapter 3.2.3).

After, consumers answered to questions regarding the shampoo they were shown. Regarding perceived efficacy, this construct was measured by using a 3-item scale adapted from Vanbergen, Irmak and Sevilla (2020). The original scale was composed of 4 items, but for the purpose of this research, one was removed since it was only relevant for household cleaning products. Items were measured using a seven-point Likert scale ranging from 1 "Strongly Disagree" to 7 "Strongly Agree". This measurement scale is very recent, but it exhibited a Cronbach's alpha of 0,93, which is an indicator of high reliability. Regarding perceived safety, previous research has shown that there is a lack of consistency when measuring this concept. In this study, to measure this construct, a 4-item scale was used, adapted from Bauer, Heinrich and Schäfer (2013). All scale items were measured using a seven-point Likert scale ranging from 1 "Strongly Disagree" to 7 "Strongly Agree". The original scale showed a great reliability score ($\alpha = 0,95$) and that was the main reason for this choice.

Following, participants answered to an awareness check, elaborated for this study, to ensure that they were aware of the manipulation. Additionally, to measure sensorial expectations, we used a 3-item scale adapted from Brakus et al. (2009). This is one of the most used scales to measure brand experience. All the items used were measured with a seven-point Likert scale ranging from 1 "Strongly Disagree" to 7 "Strongly Agree". Naturalness judgments were measured following the study of Rozin (2005). Participants were asked to rate from 0 to 100 – 0 being "not natural at all" and 100 representing "completely natural" – how natural the product seemed to be to them. Indeed, this is the most used method in previous research to measure consumers' naturalness perceptions (Boon et al., 2013; Lunardo & Saintives, 2013; Marckhgott & Kamleitner, 2019; Scott et al., 2020) and it was used as a manipulation check to ensure that the manipulation had been successful.

The intended consumer behaviour of participants was measured through inquiries' purchase intentions, which consisted of a 3-item scale, adapted from Barber et al. (2012). All scale items were measured using a seven-point Likert scale ranging from 1 "Strongly Disagree" to 7 "Strongly Agree". Then, participants were asked to "Rate the importance of each of the following dimensions/characteristics" when buying shampoos. 6 items were adapted from Luchs et al. (2010), to measure the importance of strong or gentle factors for participants, and they were measured using a seven-point Likert scale ranging from 1 "Not at all important" to 7 "Extremely important". Subjective knowledge regarding natural products was measured with a 4-item scale adapted from Ghazali et al. (2017), measured using a seven-point Likert scale ranging from 1 "Strongly Disagree" to 7 "Strongly Agree". Finally, to measure participants greenwashing perceptions, a 5-item scale was used, adapted from Leonidou and Skarmeas (2017), that used the scale from Chen and Chang (2013), to capture to what extent consumers perceive natural claims as misleading techniques employed by companies to improve the environmental features of their products. All the items used in the experiment are in Appendix C.

3.2.3. Materials

For this study, a set of 2 images were developed to present the 2 conditions of the experimental study (Figure 3). These images depicted shampoo bottles, one with a "100% natural origin claim", and a control condition, with no natural claim. The products depicted were similar, to assure the validity of results, and no brands or process information were presented. This helps to ensure that there is the least possibility for contaminating variables when participants evaluate their perceptions regarding the product and their shopping intentions.

Figure 3 – Images used as manipulations for the experimental study
Source: Own Elaboration

The choice of the natural claim and the way it was depicted on the shampoo bottle image was due to the results of the previous exploratory study. “Natural Origin” was the type of claim most frequently found on personal care products, and most claims include the product’s naturalness percentage. “100%” was not the most claimed naturalness index in this sector, however, it still was one of the most frequent percentages held, and it has been used in previous papers (Apaolaza et al., 2014; Lunardo & Saintives, 2013; Skubisz, 2017). We opted for this percentage to reduce the possible moderator effects of the naturalness percentage on consumers’ perceptions and focus only on the main condition. The claim was also integrated on the shampoo’s front-of-package as a text integrated on a round label, as it is most common in the personal care sector.

3.2.4. Data Collection and Participants

The data for this experiment was collected using an online survey. The survey was divided into 5 sections.

- Firstly, after participants had agreed to participate in the experiment, a group of personal questions was presented to them, to measure their health and environmental consciousness.

- In the second section, a situational text was presented to prime inquiries into thinking as if they were in a supermarket conducting their own shopping. Afterwards, an image of a shampoo was presented to the participants, accordingly to their experimental group.
- In the third section, after carefully analyzing the product, consumers answered to a series of questions regarding their perceptions of the product (perceived efficacy, perceived safety, naturalness perceptions and sensorial expectations) and to a manipulation check.
- In the fourth section, participants were asked about their purchase intentions, most important factors when shopping for shampoos, greenwashing perceptions, and their subjective knowledge regarding natural products.
- After completing these tasks, in the last section, inquiries had to respond to 7 additional demographic and socio-economical questions before ending the online experiment.

To ensure that the survey was clear and understandable, a pre-test was conducted where 10 individuals from the same pool as the main study revised it, including two individuals who work in the beauty and personal care sector. Following their feedback and insights, some modifications were made before the survey was published online. For example, the number of questions prior to the manipulation was reduced to increase the survey's completion rate. Additionally, clearer writing was adopted, for example, some items of the sensorial expectations scale were reworded, to be clearer and less repetitive. After the changes, the survey was published. Two Portuguese and English native speakers were in the pool to evaluate the translation of the questionnaire and review any discrepancies.

The survey was written in Portuguese and in English, allowing participants to choose the language they were most comfortable with, and it was implemented using Qualtrics. Data was collected between the 5th of June and the 20th of June of 2021, and 305 complete responses were gathered, from a total of 512 responses (completion rate of 59.57%). Most participants were recruited through social medias' private and group messages and email. Additionally, participants were invited to share the

questionnaire with other individuals they knew. Therefore, a mix between convenience sampling and snowball sampling techniques was used. A non-probabilistic sample should be used when it is not possible to have a total list of the population under study, as the sample elements are selected based on their availability, and not based on a sample frame. Despite the higher risk of sampling bias, this type of sample is easier and faster to access (Galloway, 2005).

From the 305 responses, 49 were excluded – 46 who failed to respond correctly to the awareness check, and 3 who answered that they "knew the shampoo had information regarding its naturalness and/or content, but they don't remember it" and at the same time, spent less than 2 minutes to finish the questionnaire. The final sample was composed of 256 responses, 73.0% female and 27.0% male. The average age of participants is of approximately 36 years. The most representative age range is of 18-25 years, which makes up 35.9% of the sample, followed by the 46-55 years, composing 20.4% of the sample. Regarding participants' education levels, almost half of the inquiries have a bachelor's degree (48.0%), followed by 25.8% that have a master's degree. Most participants live in Portugal (90.2%). Concerning the type of place where participants live, most of them live in towns (34.0%), followed by 31.3% who live in cities. Additionally, 13.3% of the survey's participants work in the beauty/cosmetics/personal care sector. Table 3 shows a full sample description.

Classification Questions	Answers	Frequency	Relative Frequency
Gender	Male	69	27.0%
	Female	187	73.0%
Age	18-25	92	35.9%
	26-35	44	17.2%
	36-45	51	19.9%
	46-55	52	20.4%
	>55	17	6.6%
Educational Level	Primary School	1	0.4%
	Middle School	10	3.9%
	Secondary School	56	21.9%
	Bachelor's Degree	123	48.0%

	Master's Degree	66	25.8%
Gross Annual Income	< 10.000€	42	16.4%
	10.000 to 19.999€	75	29.3%
	20.000 to 29.999€	56	21.9%
	30.000 to 39.999€	38	14.8%
	40.000 to 49.999€	21	8.2%
	>50.000€	24	9.4%
Country	Portugal	231	90.2%
	Other	25	9.8%
How would you describe the place where you live?	Rural Area	36	14.1%
	Village	53	20.7%
	Town	87	34.0%
	City	80	31.3%
Do you work in the beauty/cosmetics/personal care sector?	No	222	86.7%
	Yes	34	13.3%

Table 3 - Survey respondents' characterization

Additionally, regarding participants reported attributes importance when purchasing shampoos, most participants (96.1% with average levels higher than 4) consider gentleness factors to be very important when purchasing shampoos (M=5.82; SD=0.85). The sample of this study has also high levels of health consciousness (M=5.39; SD=0.99) and environmental consciousness (M=5.12; SD=0.95), as well as high levels of greenwashing perceptions (M=5.69; SD=0.86). The level of subjective product knowledge of the sample is average, however, there is a higher variance between inquiries (M=4.08; SD=1.29).

3.2.5. Results

3.2.5.1. Psychometric properties

To verify the quality of the data that was collected through the experiment, it is necessary to assess the validity and reliability of the data. Firstly, a principal component analysis (PCA) was conducted on the 36 items with a Promax Rotation, to verify if the items used on the questionnaire were appropriate to measure the previously presented constructs. The PCA is used to understand strong patterns in the data and rearrange the data into main constructs. To be able to conduct this analysis, the sample size

needs to be of at least 100 inquiries or 5 times the number of variables that are being analysed (Hatcher & O'Rourke, 2013). Therefore, we can use this analysis, since the sample size is of 256 responses.

Additionally, other assumptions need to be confirmed prior to the analysis. To detect sampling adequacy, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy for the overall data set and for each item needs to be analysed, and the Bartlett's Test of Sphericity needs to be conducted as well to test for the adequacy of the correlation matrix. For the KMO, results should be higher than 0.5 to indicate that the sampling is adequate, and for the Bartlett's Test, the significant value is recommended to be lower than 0.05 (Shrestha, 2021). When performing the analysis, the KMO =0.83, which indicates that sampling is adequate, and all the KMO values for the individual items are larger than 0.726, which is above the accepted limit of 0.5 (Field, 2009). Bartlett's Test $\chi 2_{(256)} = 5552.910$, p-value <.001, therefore, indicating that the correlation between items is sufficient to conduct a principal component analysis. Then, an initial PCA was conducted with 39 items, using a Promax rotation (Appendix E).

To extract the main components, the Kaiser's Criterion (only retaining factors with eigenvalues that are greater than 1.0), Explained Variance and Scree Plot were used, using the principal components analysis extraction method. It is recommended that the variance explained by the retained factors to be at least 50% (Shrestha, 2021). With these methods, 10 factors were identified within the data set with eigenvalues higher than 1. The 10 factors extracted account for 70.828% of the total variance. However, the Scree Plot shows a stabilization of the items after number 6 and another discrepancy after the 7 components, stabilising again after number 10, as seen in Figure 4. Therefore, and since component 10 only accounts for a total of 1.067 and only two items have high loadings on that component (S1 and S2), that component will not be retained. Three items were also excluded. Two of them "Rate the importance of each of the following dimensions/characteristics for you when purchasing shampoos- Strong" (S1) and "Powerful" (S2), only had loadings higher than 0.3 on

component 10, and after its removal, they had no loadings higher than 0.3. The third item, “Effective” (S3), had a cross-loading higher than 0.3 and is higher loading was below 0.6.

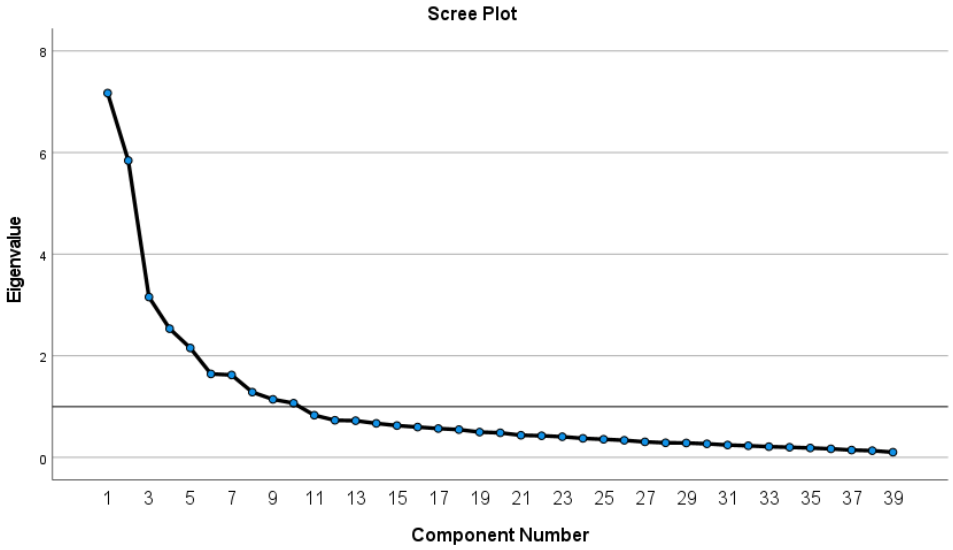


Figure 4 – Scree Plot with eigenvalues of each component
Source: SPSS

After the decision, another similar PCA, with Promax rotation, was conducted to have the results and factor loadings of the items on the 9 components – this analysis was conducted with 36 items. Before performing the analysis, we first analysed again the KMO and Bartlett’s Test. the KMO =0.831, and all the KMO values for the individual items are larger than 0.662, which indicates that sampling is adequate. Bartlett’s Test $\chi 2_{(256)} = 5148.935$, p-value < .001. Therefore, the data is adequate to conduct the principal component analysis. Nine components had eigenvalues over Kaiser’s criterion of 1 and in combination explained 70.34% of the variance. Given this fact and the convergence of the scree plot on the 9 components, this was the number of components retained in the final analysis (Appendix F). All items that load on the components had no cross-loadings higher than 0.3, or, if they had so, their higher loading was higher than 0.6, therefore, they were kept (Appendix G). The items that cluster on the same components suggest that component 1 represents greenwashing perceptions, component 2 environmental consciousness, component 3 perceived security, component 4 represents product knowledge, component 5 health consciousness, component 6 represents purchase intentions,

component 7 perceived efficacy, component 8 gentleness importance and component 9 represents sensorial expectations.

Following, we analysed the construct's reliability using two major criteria – Composite Reliability (CR) and Cronbach's Alpha. Cronbach's Alpha is a measure that estimates the reliability based on intercorrelations of the variables. According to table 4, all constructs have values higher than 0.7 and lower than 0.9 – the minimum and maximum recommended values (Tavakol & Dennick, 2011). For CR, this measure considers that items have different loadings, unlike Cronbach's Alpha (Henseler et al., 2009). Each construct shows values higher than the recommended 0.7. Therefore, we can confirm constructs' reliability.

Construct	Items	Factor Loadings	Cronbach's Alpha	CR	AVE
Perceived Efficacy	PE1	0.867	0.845	0.872	0.697
	PE2	0.877			
	PE3	0.747			
Perceived Safety	PS1	0.872	0.895	0.908	0.713
	PS2	0.887			
	PS3	0.850			
	PS4	0.680			
Sensorial Expectations	SE1	0.809	0.852	0.856	0.667
	SE2	0.738			
	SE3	0.635			
Purchase Intentions	PI1	0.737	0.863	0.871	0.693
	PI2	0.839			
	PI3	0.834			
Product Knowledge (Subjective)	PK1	0.859	0.873	0.908	0.715
	PK2	0.923			
	PK3	0.944			
	PK4	0.626			
Greenwashing Perceptions	GP1	0.807	0.883	0.915	0.682
	GP2	0.843			
	GP3	0.851			
	GP4	0.864			
	GP5	0.785			
Health Consciousness	HC1	0.812	0.827	0.885	0.659
	HC2	0.860			

	HC3	0.827			
	HC4	0.747			
Environmental Consciousness	EC1	0.586	0.815	0.854	0.463
	EC2	0.609			
	EC3	0.860			
	EC4	0.813			
	EC5	0.704			
	EC6	0.613			
	EC7	0.507			
Gentle Factor	G1	0.868	0.728	0.841	0.639
	G2	0.790			
	G3	0.735			

Table 4 - Factor Loadings, Reliability, and Average Variance Extracted (AVE)
Source: Own Elaboration

Succeeding, in order to guarantee convergent validity, the average variance extracted (AVE) needs to be at least 0.5. This is an indicator that the items explain more than half of the variance of the construct (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Each construct's AVE is above 0.5, except environmental consciousness, thus confirming convergent validity for the rest of the constructs (Table 4). The low value of AVE for environmental consciousness may be explained due to the fact that the scale used measures of self-reported behaviours, and the behaviours used on the scale all have different difficulties and therefore, the frequency of these behaviours vary amongst participants themselves. However, according to Fornell and Lacker (1981), the AVE is a more conservative measure than the composite reliability, and even though more than half of the variance of a construct is due to error, a researcher may still conclude that the convergent validity of a construct is adequate based on CR alone.

3.2.5.1. Manipulation and Awareness Checks

To check the awareness of inquiries regarding the presence of the natural claim, participants were asked to complete the following sentence "The shampoo presented to me in this questionnaire…" with one of the options "claimed to be of natural origin", "had no information about its naturalness and content", "had information regarding its naturalness and content, but I don't remember.".

Additionally, they were asked to rate on a continuous scale from 0 to 100 “How natural is the product previously presented? "0" being unnatural and "100" totally natural.”

Most participants that were exposed to the natural claim said that the product claimed to be of a natural origin (87.9%), while 67.7% of participants in the control group answered that the shampoo had no information regarding its naturalness. Additionally, 32.3% of participants in the control group did not exactly remember the shampoo’s information, in contrast to 12.1% of participants from the natural claim group. Additionally, participants in the natural claim group perceived the shampoo to be more natural (M=74.99; SD=22.08) than participants in the control group (M=45.88; SD=21.09; $F(1, 254) = 116.080$, $p < .001$).

3.2.5.2. Independent Samples T-Test and Mann-Whitney U Tests

To be capable to test the hypothesis and find if there are any significant differences between the two experimental groups – natural claim group vs. control group – independent samples t-tests were conducted. This test assumes the following data characteristics:

1. The dependent variables should be measured at the ordinal or continuous level
2. The independent variables should consist of two categorical groups
3. Independence of the samples
4. The dependent variable should be approximately normally distributed for each group of the dependent variable
5. Homogeneity of variances

The first and second assumptions are confirmed, since the dependent variables – perceived efficacy, perceived safety, sensorial expectations, and purchase intentions – were measured with 7 points Likert scales and treated as continuous variables. The dependent variable is a categorial nominal variable (1 = natural claim group; 0 = control group). The third assumption is confirmed, since participants were randomly assigned to only one of the experimental groups, with no participant being in both groups.

For the 4th assumption, the Kolmogorov-Smith tests, Skewness, Kurtosis, Histograms and Q-Q Plots were used to test the normality of samples, since this is a large sample size. The assumption of normality was tested for the variables “Purchase Intentions”, “Sensorial Expectations”, “Perceived Security” and “Perceived Safety” for each group of the conditions (natural claim vs. control group). The tests show that the distributions are slightly different from normal, especially for purchase intentions (Appendix H) and therefore, we will report t-test results (Appendix I) and Mann-Whitney U tests (Appendix J) since the latter is the non-parametric alternative to an independent samples t-test.

To test the 5th assumption, Levene’s tests based on the median were carried out. Homogeneity of variances was verified for perceived efficacy ($F(1, 254) = 2.096$, $p = 0.15$), perceived security ($F(1, 254) = 2.722$, $p = 0.10$), sensorial expectations ($F(1, 254) = .259$, $p = 0.61$) and purchase intentions ($F(1, 254) = 3.82$, $p = 0.052$), since the tests were non-significant.

On average, participants rated the natural claimed shampoo higher in perceived efficacy ($M = 4.80$, $SE = 0.98$) than the control group ($M = 4.32$, $SE = 0.92$), $t(254) = 3.99$, $p < .001$. Therefore we reject the null hypothesis that the difference between the means of the two groups is zero. The Mann-Whitney U Test also showed a significant difference between the two groups ($U = 5860.00$, $z = -3.954$, $p < .001$, $r = -.25$), therefore, we reject the null hypothesis that the difference between the medians of the two groups is zero.

Participants on the natural-claimed group rated the shampoo’s perceived security higher ($M = 4.70$, $SE = 1.21$) than participants from the control group ($M = 3.74$, $SE = 1.08$), $t(254) = 6.70$, $p < .001$. . Therefore we reject the null hypothesis that the difference between the perceived security means of the two groups is zero. The Mann-Whitney U Test also shows a significant difference between the two groups ($U = 4385.50$, $z = -6.442$, $p < .001$, $r = -.40$) and therefore we reject the null hypothesis that the difference between the medians of the two groups is zero.

Regarding participants sensorial expectations, the ones in the natural-claim group expected a better sensorial experience from that shampoo ($M = 4.48$, $SE = 1.02$) than the participants in the control group

(M = 3.80, SE = 1.12), *t*(254) = 5.06, p < .001. Therefore we reject the null hypothesis that the difference between the means of the two groups is zero. The Mann-Whitney U Test is also significant (U = 5381.00, z = −4.777, p < .001, r = −.30) and therefore we reject the null hypothesis that the difference between the medians of the two groups is zero.

Participants that were on the natural-claim group also had higher levels of purchase intentions (M = 4.39, SE = 1.24) than the ones of participants from the control group (M = 3.32, SE = 1.34), *t*(254) = 6.596, p < .001. Therefore, we reject the null hypothesis that the difference between the means of the two groups is zero. The Mann-Whitney U Test is also significant (U = 4665.00, z = −5.965, p < .001, r = −.37) and therefore we reject the null hypothesis that the difference between the medians of the two groups is zero.

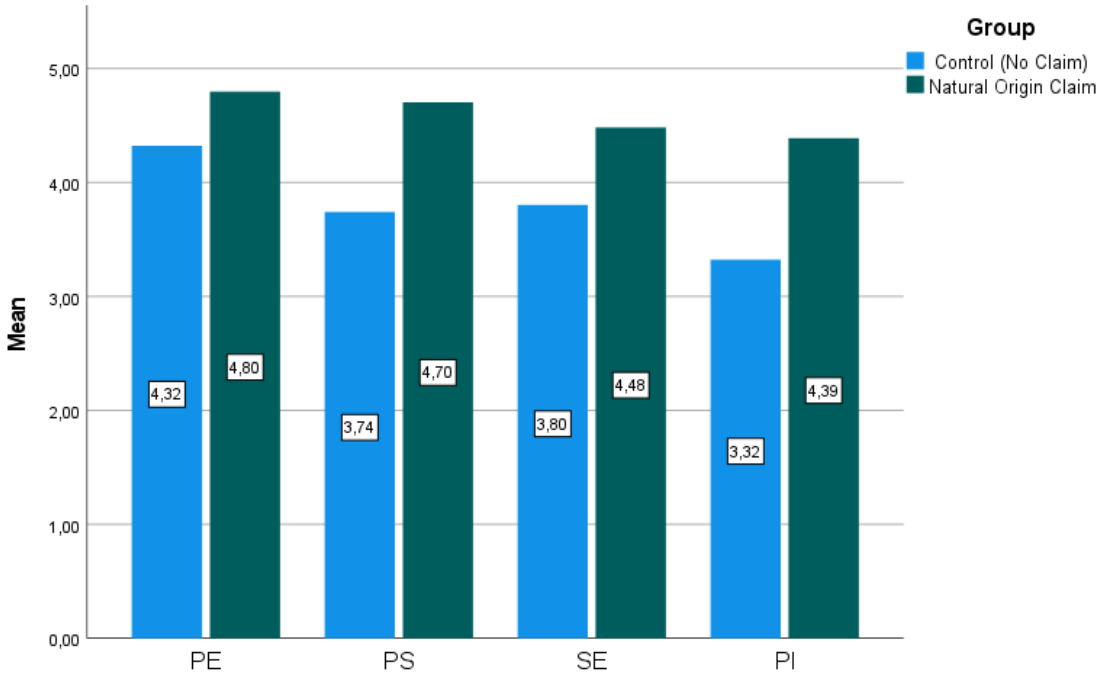


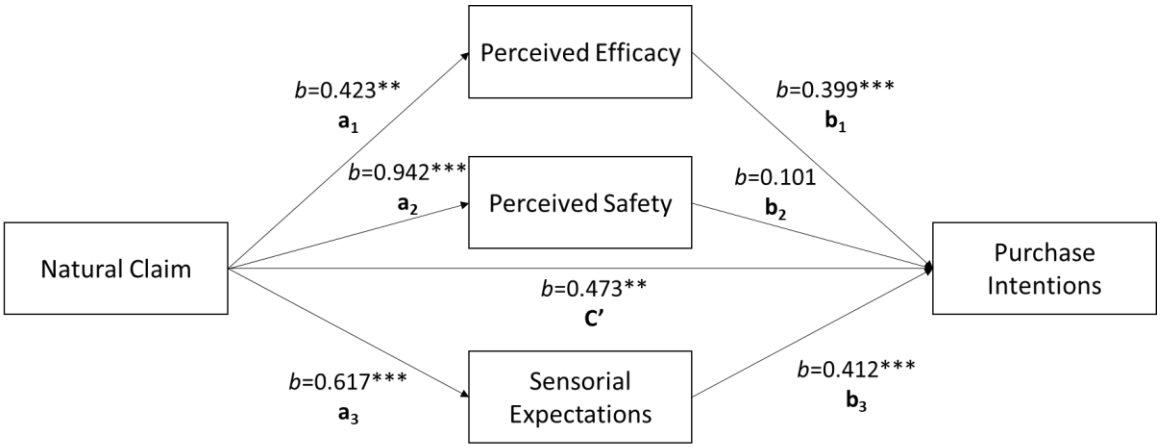
Figure 5 – Mean values of Perceived Efficacy (PE), Perceived Safety (PS), Sensorial Expectations (SE) and Purchase intentions (PI) per experimental group
Source: SPSS

3.2.5.3. Mediation Analysis through perceived product's attributes

First, it was hypothesised that perceived efficacy (H2a), perceived safety (H2b) and sensorial expectations (H2c) mediate the influence of natural claims on purchase intentions. To examine this parallel mediation model, model 4 in PROCESS SPSS macro developed by Hayes (2018) was used, with 5000 bootstrap samples. Previously, regression assumptions were tested, and they were met (Appendix K).

Firstly, the results show that natural claims significantly positively influenced perceived efficacy ($b = 0.423$, $SE = 0.125$; $p < 0.05$), perceived safety ($b = 0.942$, $SE = 0.151$; $p < 0.05$) and sensorial expectations ($b = 0.617$, $SE = 0.141$; $p < 0.05$). Additionally, perceived efficacy had a significant positive impact on purchase intentions ($b = 0.399$, $SE = 0.090$; $p < 0.05$), and so did sensorial expectations ($b = 0.412$, $SE = 0.091$; $p < 0.05$). Perceived safety was found to not be a significant predictor of purchase intentions. Natural claims were still found to be a significant predictor of purchase intentions after controlling for the mediators ($b = 0.473$, $SE = 0.144$; $p < 0.05$).

The indirect effects were tested using a bootstrap technique with 5000 bootstrap samples, at 95% confidence interval (CI). These results indicated that the indirect effect of natural claims on purchase intentions through perceived efficacy ($b = 0.169$, $SE = 0.061$, 95% CI = 0.063, 0.303) and through sensorial expectations ($b = 0.254$, $SE = 0.076$, 95% CI = 0.120, 0.416) are statistically significant. Therefore, perceived efficacy and sensorial expectations partially mediate the relationship between natural claims and purchase intentions. The role of perceived safety as a mediator was found to be not significant ($b = 0.068$, $SE = 0.053$, 95% CI = -0.028, 0.182) (Appendix L).



Claim → Perceived Efficacy → Purchase Intentions = 0.17; 95% CI* [0,063, 0,303]
Claim → Perceived Safety → Purchase Intentions = 0.07; 95% CI [-0,028, 0,182]
Claim → Sensorial Expectations→ Purchase Intentions = 0.25; 95% CI* [0,120, 0,416]

Notes:
* Statistically significant indirect effect
** p < .01
***p < .001

Figure 6 - Indirect Effects on Purchase Intentions
Source: Own Elaboration

3.2.5.4. Moderated Mediation Analysis through perceived product's attributes

H3a, H3b, H3c and H4a, H4b and H4c predicted that the mediation effects through the product's perceived attributes will be moderated by health consciousness and environmental consciousness. To examine these conditional mediation effects on purchase intentions through perceived product's attributes, we used the PROCESS SPSS macro developed by Hayes (2018). Moderated mediation analyses the conditional indirect effect of moderating variables (i.e., health and environmental consciousness) on the relationship between the independent variable (natural claim) and the dependent variable (purchase intentions) via the mediators (perceived efficacy, perceived safety, and sensorial expectations). Model 9 was used with 5.000 bootstrap samples with the PROCESS v3.5 macro (Hayes, 2018). This model tests the moderating effect of two variables on the independent variable to the mediators' paths. An index of moderated mediation was used to examine the significance of the moderated mediation – the difference of the indirect effects at different levels of health and environmental consciousness (Hayes, 2018).

The hypothesis H4a was the only one supported by this analysis, according to table 5, Environmental consciousness was found to moderate the effect of natural claims on perceived efficacy (b = 0.305, SE = .124, t = 2.467, p = .014). Greater perceived efficacy was associated to a higher purchase intention (b = 0.411, SE = .091, t = 4.506, p < .001). This moderated mediation effect is supported by the index of partial moderated mediation = 0.125 (SE = 0.053, 95% CI = 0.019;0.249). As zero is not included in the confidence interval, this indicates that the moderating effect of environmental consciousness on natural claims on the indirect effect via perceived efficacy is significant (Hayes, 2018). The conditional indirect effect was stronger in those individuals high in environmental consciousness (1 SD above the mean of EC (and at the mean of health consciousness); effect = 0.286, SE = 0.095, 95% CI = 0.123; 0.487) and non-significant for those with low levels of environmental consciousness (1 SD below the mean of EC (and at the mean of health consciousness); effect = 0.048, SE = 0.070, 95% CI = -0.079; 0.198). Figure 7 represents the test of simple slopes. The other partial moderated effects were not significant (Appendix M).

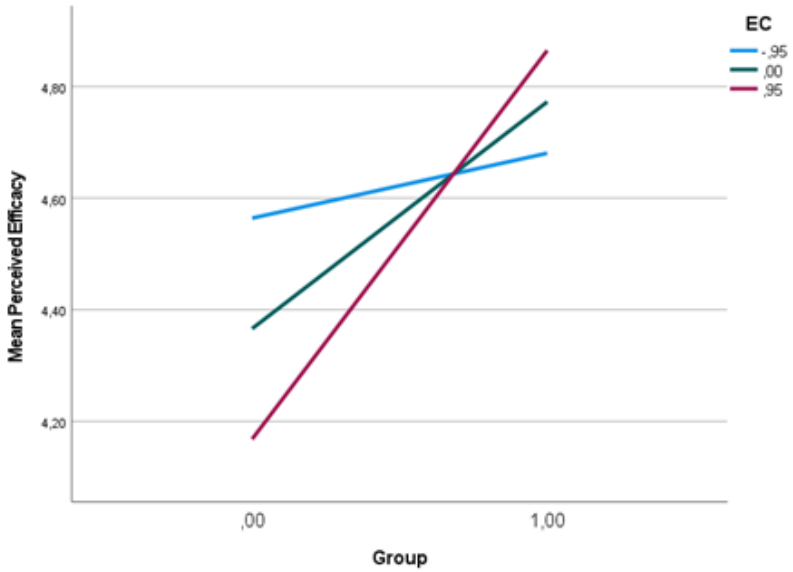


Figure 7 - Graphical representation of the test of simple slopes (conditional effects of the moderator – environmental consciousness – on the path of natural claims to perceived efficacy)
Source: SPSS

Mediation Paths				Claim x HC -> PE -> PI	Claim x HC -> PS -> PI	Claim x HC -> SE -> PI	Claim x EC -> PE -> PI	Claim x EC -> PS -> PI	Claim x EC -> SE -> PI
IMM				0.054	0.015	0.058	0.116**	0.001	0.109
95% CI				[−.04, .17]	[−.02, .08]	[−.06, .02]	[.02, .23]	[−.05, .05]	[−.03, .03]
Conditional Indirect Effects of HC and EC	[-1 SD HC]	[-1 SD EC]	IE	-.01	.08	.08	-.01	.08	.08
			95% CI	[-.39,.38]	[-.03,.23]	[-.13,.31]	[-.39,.38]	[-.03,.23]	[-.13,.31]
		[Mean EC]	IE	.27	.08	.19*	.27	.08	.19*
			95% CI	[-.06,.61]	[-.03,.22]	[.01,.39]	[-.06,.61]	[-.03,.22]	[.01,.39]
		[+1 SD EC]	IE	.55*	.08	.29*	.55*	.08	.29*
			95% CI	[.12,.99]	[-.03,.24]	[.06,.55]	[.12,.99]	[-.03,.24]	[.06,.55]
	[Mean HC]	[-1 SD EC]	IE	.13	.09	.14	.13	.09	.14
			95% CI	[-.19,.45]	[-.03,.26]	[-.04,.35]	[-.19,.45]	[-.03,.26]	[-.04,.35]
		[Mean EC]	IE	.41*	.09	.24*	.41*	.09	.24*
			95% CI	[.17,.65]	[-.04,.25]	[.11,.40]	[.17,.65]	[-.04,.25]	[.11,.40]
		[+1 SD EC]	IE	.69	.09	.35	.69	.09	.35
			95% CI	[.34,1.03]*	[-.04,.26]	[.16,.57]*	[.34,1.03]*	[-.04,.26]	[.16,.57]*
	[+1 SD HC]	[-1 SD EC]	IE	.26	.11	.20	.26	.11	.20
			95% CI	[-.15,.68]	[-.04,.32]	[-.03,.47]	[-.15,.68]	[-.04,.32]	[-.03,.47]
		[Mean EC]	IE	.54	.11	.30	.54	.11	.30
			95% CI	[.21,.88]*	[-.04,.31]	[.12,.53]*	[.21,.88]*	[-.04,.31]	[.12,.53]*
		[+1 SD EC]	IE	.82	.11	.41	.82	.11	.41
			95% CI	[.42,1.22]*	[-.04,.31]	[.18,.66]*	[.42,1.22]*	[-.04,.31]	[.18,.66]*

Notes: The IEs are the indirect effects for the natural claim across the levels of health and environmental consciousness. The CIs are the bias-corrected bootstrap 95% confidence intervals. -1SD means at -1 standard deviation from the mean, and +1SD means at + 1 standard deviation from the mean. IMM is the Index of Moderated Mediation.

PE = Perceived Efficacy; PS = Perceived Security; SE = Sensorial Expectations; PI = Purchase Intentions; HC = Health Consciousness; EC = Environmental Consciousness

** Statistically significant index of moderated mediation

* Statistically significant indirect effect

Table 5 - Conditional indirect effects (IEs) of the natural claim by health consciousness (HC) and environmental consciousness (EC)

Source: SPSS

3.2.6. Discussion

Results from this online experiment show that natural claims influence consumers' perceptions about product attributes, and some of these perceptions also influence purchase intentions. Specifically, in line with the previously stated results and literature, natural claims positively influence consumers perceived safety ratings, supporting H1b (Bauer et al., 2013; H. Li & Cao, 2020; Meier, Dillard, Osorio et al., 2019; Meier & Lappas, 2016). Natural claims also positively influence sensorial expectations, supporting H1c (Apaolaza et al., 2017, 2014; Rozin et al., 2004), and purchase intentions (Berry et al., 2017; Davis & Burton, 2019). However, contrary to the hypothesized association between natural claims and lower efficacy ratings made with H1a, and contradicting previous results from Meier et al (2019) and Meier and Lappas (2016) that natural products are perceived as less effective, we found that natural claims positively impact perceived efficacy ratings. Therefore, H1a is not supported. This may be explained by the fact that since the majority of participants in the sample value gentleness attributes when buying shampoos, then, naturalness is an asset for them (Luchs et al., 2010), and that positively influences products' attributes.

Additionally, while perceived efficacy and sensorial expectations were found to mediate the influence of natural claims on product purchases, supporting H2a and H2c respectively, perceived safety was not significant in the mediation effect. Therefore, H2b was not supported. This may lead us to infer that, in line with findings from Meier and Lappas (2016) that participants still prefer natural drugs even when they are described as less safe, that the natural-is-better bias might be stronger than beliefs about safety. Indeed, as safety is a great concern and very regulated by EU laws and directives, consumers may not consider safety as a decisive factor when shopping for shampoos. Moreover, we found that natural claims still influenced purchase intentions even after considering the mediators. This is in line with previous conclusions from Li and Chapman (2012), suggesting that the preference for natural products is not only explained by instrumental reasons (specific properties of the product at hand), but also by ideational reasons - general beliefs of the superiority of the said product.

Furthermore, significant results were only found regarding the moderating effect of environmental consciousness on the influence of natural claims on perceived efficacy, which means that H4a was supported, while H4b, H4c, H3a, H3b and H3c were not supported. Indeed, contrasting with previous literature from Lin and Chang (2012), we found that people who have higher levels of environmental consciousness perceive that natural products have higher efficacy than individuals with lower levels of environmental consciousness, and perceive conventional shampoos to be less effective when in comparison to individuals with lower levels of environmental consciousness. This extends the results from the studies conducted by Li and Cao (2020) and is in line with insights from Kim and Seock (2009) exploratory study.

4. CONCLUSIONS

Brands and marketers have been increasingly promoting their products as “natural” and trying to understand the advantages of natural claims to increase consumers’ purchase intentions and perceptions regarding their products. With the studies conducted in this thesis, the research extends previous literature regarding natural claims and the natural-is-better bias.

Prior research had demonstrated that natural foods (Amos et al., 2019; Apaolaza et al., 2017, 2014; Migliore et al., 2018; Rozin, 2006) and natural medicine products (Li & Cao, 2020; Meier & Lappas, 2016; Scott et al., 2020) were perceived as better and were preferred when in comparison to similar conventional alternatives. Consumers perceive such products as healthier, lower in calories and safer. The present research extends the natural-is-better bias literature by examining the bias for a different type of product, revealing that natural claims in the personal care market also trigger halo effects that positively influence individuals’ perceptions of the products’ effectiveness, safeness, and sensory aspects.

This research further demonstrates that the influence of natural claims is not only limited to consumers’ perceptions of products’ attributes but also, their purchase intentions. Indeed, natural claims directly influence purchase intentions due to the natural-is-better bias (Meier, Dillard, & Lappas, 2019) and ideational reasons (Rozin et al., 2004), but also indirectly, by means of consumers’ perceptions regarding natural products. Thus, we extend previous research on natural products by demonstrating that perceived efficacy and sensorial expectations mediate the relationship between natural claims and purchase intentions of personal care products.

Lastly, this study reveals that consumers with higher levels of environmental consciousness perceive greater differences in effectiveness between natural and conventional products. In fact, individuals higher in environmental consciousness rate the effectiveness of natural products higher than individuals with low levels of environmental consciousness. Thus, we extend recent findings from Li and Cao (2020) and provide foundations for the insights found by Kim and Seock (2009).

4.1. THEORETICAL IMPLICATIONS

This research contributes and advances theory on the field of the natural-is-better bias and consumer behaviour and informs brands and on how to use natural claims to build a sustainable product strategy. From a theoretical view, this thesis extends the literature in several ways and helps to understand the natural-is-better default belief in more depth.

Although many studies have been conducted regarding natural products and their influence on consumers' perceptions and behaviour (Amos et al., 2019; Berry et al., 2017; Meier, Dillard, Osorio, et al., 2019; Meier & Lappas, 2016; Migliore et al., 2018; Rozin et al., 2004; Scott et al., 2020; Skubisz, 2017), to the best of our knowledge, this is the first conclusive research that examines this effect on the personal care segment – the only study found was conducted with fragrances (Apaolaza et al., 2014). Furthermore, in this research, we extend previous studies by investigating the impact of natural claims on products' packaging on consumers' perceptions and purchase intentions, where it had mainly been studied by informing consumers that a product was natural or not. Indeed, this is one of the first studies that examines which are the most used claims on the personal care market and uses the most frequent one to investigate the influence of natural claims in that category.

Natural claims were found to influence the perceptions of efficacy, safety, and sensorial expectations that consumers hold regarding the product with the natural claims. This contributes to the literature, as the majority of studies focused on the natural food and medicine segment, and this study was able to confirm the existence of a similar "halo" on the personal care category. However, in contrast with previous literature that found that natural products are considered to be less effective (Boon et al., 2013; Gomez, 2015; Kramer et al., 2012; Luchs et al., 2010; Scott, Rozin, & Small, 2020; Meier, Dillard, & Lappas, 2019), we found that natural claims positively influence a product's perceived efficacy rating. The same positive influence was found for perceived safety and sensorial expectations, in line with previous literature (Bauer et al., 2013; Li & Cao, 2020; Meier, Dillard, Osorio et al., 2019; Meier & Lappas, 2016; Apaolaza et al., 2017, 2014; Rozin et al., 2004).

Additionally, we extend on the previous research, since to the best of our knowledge, this was the first study to examine consumers' perceptions as mediators on the influence of natural claims on consumers' purchase intentions. Indeed, we concluded that perceived efficacy and sensorial expectations mediate the influence of natural claims on purchase intentions, however, natural claims still influence purchase intentions when accounting for the mediators. This reinforces previous research, suggesting that the preference for natural products is not only explained by instrumental reasons, but also by ideational reasons and that those reasons are closely connected in consumers' minds (Li & Chapman, 2012). Indeed, even when consumers may not explicitly believe that a natural product has more instrumental advantages than a conventional item, consumers previous acquired beliefs regarding natural items may exert some influence in their product judgment and increase their intentions of purchasing such product.

This study also contributes to a better understanding of the natural-is-better bias, by examining the mediation effect of perceived safety on consumers' purchase intentions, as suggested by Meier et al.(2019). Indeed, while we found that natural claims have a positive influence on consumers' safety perceptions, we reveal that perceived safety does not significantly mediate the relationship between natural claims and purchase intentions in the personal care market. This suggests that a natural-is-better bias may be stronger than safety judgments for some individuals, and for some products, like personal care items, that are highly regulated in the EU, and so, may limit the importance consumers give to safety when purchasing those products. Additionally, according to Meier and Lappas (2016), consumers might still prefer natural products over conventional ones even when described as less safe, which may also result from individuals placing higher importance on other products' attributes, such as efficacy and sensorial experience.

Lastly, we extend previous research regarding the natural-is-better bias by investigating individual differences and their influence, as suggested by Meier, Dillard and Lappas (2019). According to previous studies conducted in the area (Kim & Seock, 2009; Kriwy & Mecking, 2012; Lin & Chang, 2012;

Mai & Hoffmann, 2015), we examined the impact of health and environmental consciousness as moderators in the relationship between natural claims and consumers' judgments regarding personal care products. However, we only found a significant effect of environmental consciousness on consumers' efficacy judgments. In contrast with previous literature but supporting Kim and Seock (2009) exploratory study, and extending Li and Cao (2020) results, we found that individuals with high levels of environmental consciousness find natural products to be more efficacious than individuals with low levels of environmental consciousness, and consider synthetic products to be less effective than individuals with low levels of environmental consciousness. This study draws from these results and suggests that individuals more concerned with the environment are more prone to the natural-is-better bias, mainly by having stronger instrumental reasons for the consumption of such products, due to stronger halos elicited by natural claims, and therefore, concerns about the environment serve as more enduring motives for the preference of natural personal care products than concerns about personal health.

4.2. MANAGERIAL IMPLICATIONS

This thesis offers important findings to brands and policymakers, particularly in the personal care market. Several personal care brands have been increasingly marketing their products as natural, using natural claims in their products' packaging (Culliney, 2020) to grab consumers' attention, improve their products' image and support consumers' purchase decisions. However, a key issue facing these claims is how they influence consumers and if they are in fact effective communication tools. This study provides some important managerial insights into how to utilize natural claims and suggestions to the market.

Firstly, we successfully answer to the first research question, by concluding that natural claims can favourably influence consumers' perceptions and shopping behaviour in the personal care market. Indeed, by investigating which is the most used natural claim in the market, and by using that claim to conduct the experiment, we provide guidelines to brands who want to market their natural

products and show the positive effects of such claims on consumers. More specifically, we conclude that natural claims positively influence consumers' judgments regarding perceived efficacy, safety, and sensorial expectations of products, and directly and indirectly influence consumers purchase intentions.

As such, the inappropriate use of natural claims by brands and lack of regulation is of substantial concern due to the favourable effects of natural claims found in this research. Indeed, European consumers are confused about the number and variety of claims and labels on the cosmetic market (Natrue, 2021). Claims that are created by brands do not involve external reviews by independent third parties, and as such, the level of control is much lower when in comparison to third-party certified claims, which may result in a higher risk of providing consumers with incorrect information. Therefore, efforts should be made by policymakers in agreement with brands to create an official definition and criteria for self-declared claims, which indicates how and when claims such as "natural" should be applied to personal care products, to create more transparency in the market and fair competition between brands.

Secondly, by concluding that perceived efficacy and sensorial expectations mediate the influence of natural claims on purchase intentions, brands need to promote and educate consumers regarding the efficacy and sensorial aspects of their products. As such, brands should use tactics to convey higher efficacy and sensorial beliefs, such as efficacy claims, testimonials, and experimental results from personal care testing to increase these positive halos, leading to higher purchase intentions.

Finally, we answer to the second research question by concluding that environmental consciousness impacts the halos elicited by natural claims on consumers' judgments of a product´s efficacy. These results are extremely important since in the past brands made prevalent marketing efforts to emphasize health and safety benefits, such as the absence of chemical ingredients and unwanted ingredients from their formulas (Kim & Seock, 2009). As such, and according to this study, it is important for brands to now communicate the environmental benefits of their natural products and

create communication campaigns targeting environmentally conscious consumers, in order to have a higher return in investment and a more sustainable strategy, leveraging the power of natural claims.

4.3. Limitations and Future Research Recommendations

Findings and conclusions from this thesis should be taken with some caution, as this research is subject to a number of limitations, which may outline the directions for future research. Our experimental study mainly focused on one type of natural claim (100% natural origin). Future research should examine different natural claims and different percentages of naturalness to increase the generality of results and try to understand which are the best claims to use in the personal care market. For example, examining the impact of natural claims regarding the whole product versus natural claims regarding only one ingredient may be of great importance to policymakers, since it is expected that both types of claims will have similar halo effects on consumers' minds (Natrue, 2021).

Second, while this research demonstrates the positive effects of natural claims regarding shampoos' perceived efficacy, safety and sensorial expectations, these effects may not hold for other personal care products like hand sanitisers and deodorants, where efficacy is crucial (Luchs et al., 2010). To increase external validity, other products should be used in future studies to examine these halos. Additionally, as we only conducted an online study, future research should replicate this study in a realistic retail environment. Indeed, this context is not fully comparable to the retail marketplace, where consumers have multiple products to choose from. This study did also not involve the exchange of money and actual choice and purchase of the product. This also contributes to a lower external validity of the results, however, this provides an opportunity for future research to further understand the natural-is-better bias, by measuring consumers' behaviour (Meier, Dillard & Lappas, 2019).

On the other hand, while the main goal of this thesis was to examine the influence of natural claims in a fast-paced environment, such as general retailers – i.e., supermarkets - future work should investigate the impact of the type of point of purchase in consumers judgments regarding products with natural claims. For example, Lunardo and Saintives (2013) found that for food, traditional markets

conveyed a higher sense of naturalness for products with natural claims than in supermarkets. So, we purpose that the type of point of purchase should be used as a moderator in future research regarding the natural-is-better bias.

Additionally, to increase the internal validity of the results, future studies should use other methods to measure environmental consciousness, as one of the limitations of the experimental study was the low average variance extracted of that construct. Indeed, future studies should try to use the New Environmental Paradigm Scale and see if the same conclusions are met.

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6. APPENDIX

Appendix A

NOVA IMS Ethics Committee Approval

This is to certify that
Project No.: **DDMKT2021-5-297472**
Project Title: **The impact of Natural Claims on Consumers' Judgments and Shopping Behaviour of Personal Care Products**
Principal Researcher: **Sofia Simão**

according to the regulations of the Ethics Committee of NOVA IMS and MagIC Research Center this project was considered to meet the requirements of the NOVA IMS Internal Review Board, being considered **APPROVED** on 5/29/2021.

It is the Principal Researcher's responsibility to ensure that all researchers and stakeholders associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Ethics Committee, via amendment or progress report, of
- Any significant change to the project and the reason for that change;
- Any unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role or any other change in research personnel involved in the project.

Lisbon, 5/29/2021

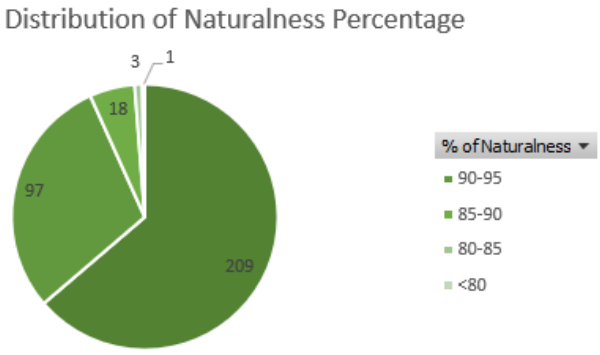
NOVA IMS Ethics Committee
ethicscommittee@novaims.unl.pt

Appendix B

Results of the research regarding natural claims on personal care products' packaging (Pre-Study)

Types of Natural Claims	Frequency	Relative Frequency
Natural Origin	168	39.53%
Natural Origin Ingredients	127	29.88%
Natural	45	10.59%
Natural Extracts	43	10.12%
Natural Origin Extracts	17	4.00%
Natural Formula	10	2.35%
Natural Ingredients	7	1.65%
Vegetal Origin	4	0.94%
Natural Derived Ingredients	3	0.71%
With Natural vegetable extracts	1	0.24%
Total	**425**	**100%**

Visual Presentation	Relative Frequency
Text on Round Shape	54.35%
Text	29.65%
Text on Rectangular Shape	9.41%
Text + icon	5.88%
Text on round shape with icon	0.71%
Total Geral	**100.00%**



Appendix C

Measurement scales used in Study 1

Constructs	Items	Measurement items	References
Naturalness Judgments	Scale	How natural is this product? (from 0 to 100)	(Rozin, 2005)
Perceived Efficacy	PE1	I consider this product to be effective	(Vanbergen, Irmak, & Sevilla, 2020)
	PE2	I think this product would reach its objectives	
	PE3	The ingredients in this product are potent	
Perceived Safety	PS1	I feel that this product is free of chemical residues	(Bauer, Herinrich & Schäfer, 2013)
	PS2	I believe this product is not contaminated	
	PS3	This products' ingredients are free from harmful substances	
	PS4	I believe this product is safe to use	
Sensorial Perceptions	SE1	This product makes a strong impression on my senses	(Brakus, Schmitt & Zarantonello, 2009)
	SE2	This product is interesting in a sensory way	
	SE3	This product appeals to my senses	
Purchase Intentions	PI1	I would consider purchasing this product	(Barber, Kuo, Bishop, & Goodman, 2012)
	PI2	I intend to try this product	
	PI3	I am likely to buy this product	
Product Knowledge	PK1	I know a lot about natural personal care products	(Ghazali, Soon, Mutum, & Nguyen, 2017)
	PK2	I have a great purchasing experience with natural personal care products	
	PK3	I am familiar with natural personal care products	
	PK4	I understand the features and benefits of natural personal care products	
Environmental Consciousness	EC1	I would be willing to stop buying products from companies guilty of polluting the environment, even if it is inconvenient to me	(Maloney & Ward, 1973)
	EC2	I usually discuss environmental issues with my friends	
	EC3	I am furious when I think about the damage caused to plant and animal life by pollution	
	EC4	When I think of ways industries pollute the environment, I get frustrated and angry	
	EC5	I would donate money to a foundation to help improve the environment	
	EC6	I usually read articles or view documentaries/programs about environmental issues	
	EC7	At my house, we buy products that result from sustainable production	
Health Consciousness	HC1	I reflect a lot about my health	Gould (1990), adapted from (Mai & Hoffmann, 2015)
	HC2	I am very self-conscious about my health	
	HC3	I usually pay attention to my internal feelings about my health	
	HC4	I am often examining my health	

Greenwashing perceptions	GP1	Most companies mislead with words about the environmental features of their products	(Leonidou & Skarmeas, 2017)
	GP2	Most companies mislead with visuals or graphics about the environmental features of their products	
	GP3	Most companies provide vague or seemingly un-provable environmental claims for their products	
	GP4	Most companies overstate or exaggerate the environmental features of their products	
	GP5	Most companies leave out or hide important information about the real environmental features of their products	
Gentle Factor	G1	Safe	Luchs, Naylor, Irwin, & Raghunathan (2010)
	G2	Healthy	
	G3	Gentle	
Strong Factor	S1	Strong	Luchs, Naylor, Irwin, & Raghunathan (2010)
	S2	Powerful	
	S3	Effective	

Appendix D

Online Questionnaire (Study 1)

Hello! My name is Sofia Simão and I am a student of the Master of Information Management, with a specialization in Marketing Intelligence at NOVA Information Management School, and I am currently developing my master's dissertation. This questionnaire aims to study the **consumer's perceptions** and their **buying behavior** in relation to **personal hygiene products.**

Be as authentic as possible when answering the questions. **There are no wrong or right answers**, and your opinion is of great relevance. Remember that **your participation in this survey is voluntary**, which means that you are free to participate or not, as well as to withdraw at any time. All **responses are completely anonymous**, and the **data collected will be used only for academic / statistical purposes**. There are no risks involved in answering any of the following questions.

The completion of this questionnaire **will not take more than 7 minutes to complete**. For any additional question you can contact me through the following email address: m20190070@novaims.unl.pt

Thank you in advance!

By clicking on "I agree to participate in this study", I declare that I am 18 or older and I agree to participate in this survey. I declare that I have been informed that my participation in this study is voluntary, that I can withdraw from this research at any time without penalty and that all data is confidential. I understood that this study does not offer serious risks.

- ○ I do not agree to participate in this study
- ○ I agree to participate in this study

The first questions will be focused on your beliefs and worries. Try to answer each question as honestly as possible. Rate the following statements on a scale of 1 "Strongly Disagree" to 7 "Strongly Agree".

	1. Strongly disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I reflect a lot about my health	○	○	○	○	○	○	○
I am very self conscious about my health	○	○	○	○	○	○	○
I usually pay attention to my internal feelings about my health	○	○	○	○	○	○	○
I am often examining my health	○	○	○	○	○	○	○

Rate the following statements on a scale of 1 "Strongly Disagree" to 7 "Strongly Agree".

	1. Strongly disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I would be willing to stop buying products from companies guilty of polluting the environment, even if it is inconvenient for me	○	○	○	○	○	○	○
I usually discuss environmental issues with my friends	○	○	○	○	○	○	○
I am furious when I think about the damage caused to plant and animal life by pollution	○	○	○	○	○	○	○
When I think of ways industries pollute the environment, I get frustrated and angry	○	○	○	○	○	○	○
I would donate money to a foundation to help improve the environment	○	○	○	○	○	○	○
I usually read articles or view documentaries/ programs about environmental issues	○	○	○	○	○	○	○
At my house, we buy products that result from sustainable production	○	○	○	○	○	○	○

On the next page, you will be asked to read a short text and analyze a personal care product image. Please do this very carefully. Make sure you are in a quiet place. The following questions will be about your perceptions regarding the product presented and your purchase intentions. **Distractions will significantly influence your performance.**

Imagine that you are shopping in your usual supermarket. You just rememberes that you need a new shampoo, and you head to the place where this type of hygiene product is normally found. Before choosing what you are going to take, you start to analyze all the available products and find the following shampoo. Take the normal time you would use at the supermarket to examine this shampoo. The next questions will be about this product.

Imagine that you are shopping in your usual supermarket. You just remembered that you need a new shampoo, and you head to the place where this type of hygiene product is usually found. Before choosing what you are going to take, you start to analyze all the available products and find the following shampoo.

Take the normal time you would use at the supermarket to examine this shampoo. The next questions will be about this product.

Rate the following statements on a scale of 1 "Strongly Disagree" to 7 "Strongly Agree".

	1. Strongly disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I consider this product to be effective	○	○	○	○	○	○	○
I believe that this product would achieve its goals	○	○	○	○	○	○	○
I believe the ingredients in this product are powerful	○	○	○	○	○	○	○

Rate the following statements on a scale of 1 "Strongly Disagree" to 7 "Strongly Agree".

	1. Strongly disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I believe that this product is free of chemical residues	○	○	○	○	○	○	○
I believe this product is not contaminated	○	○	○	○	○	○	○
This product's ingredients are free from harmful substances	○	○	○	○	○	○	○
I believe this product is safe to use	○	○	○	○	○	○	○

The shampoo presented to me in this questionnaire ...

○ ... claimed to be of natural origin

○ ... had no information about its naturalness and content

○ ... had information regarding its naturalness and content, but I don't remember.

Rate the following statements on a scale of 1 "Strongly Disagree" to 7 "Strongly Agree".

	1. Strongly Disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I believe this product will make a strong impression on my senses	○	○	○	○	○	○	○
I believe this product is interesting in a sensory way	○	○	○	○	○	○	○
I don't think this product will appeal to my senses	○	○	○	○	○	○	○

How natural is the product previously presented? "0" being unnatural and "100" totally natural.

	0 10 20 30 40 50 60 70 80 90 100
The product is natural	

On a scale from 1 to 7, evaluate the following statements.

	1. Strongly Disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I would consider purchasing this product	○	○	○	○	○	○	○
I intend to purchase this product	○	○	○	○	○	○	○
I am not likely to buy this product	○	○	○	○	○	○	○

Rate the importance of each of the following dimensions / characteristics for you when purchasing shampoos.

	Not at all important	Low importance	Slightly important	Neutral	Moderately important	Very Important	Extremely important
Strong	○	○	○	○	○	○	○
Powerful	○	○	○	○	○	○	○
Effective	○	○	○	○	○	○	○
Safe	○	○	○	○	○	○	○
Healthy	○	○	○	○	○	○	○
Gentle	○	○	○	○	○	○	○

Rate the following statements on a scale of 1 "Strongly Disagree" to 7 "Strongly Agree".

	1. Strongly disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I know a lot about natural personal care products	○	○	○	○	○	○	○
I have a great purchasing experience with natural personal care products	○	○	○	○	○	○	○
I am familiar with natural personal care products	○	○	○	○	○	○	○
I understand the features and benefits of natural personal care products	○	○	○	○	○	○	○

Rate the following statements on a scale of 1 "Strongly Disagree" to 7 "Strongly Agree".

	1. Strongly disagree	2. Disagree	3. Somewhat disagree	4. Neither agree or disagree	5. Somewhat agree	6. Agree	7. Strongly agree
Most companies mislead with words about the environmental features of their products	○	○	○	○	○	○	○
Most companies mislead with visuals or graphics about the environmental features of their products	○	○	○	○	○	○	○
Most companies provide vague or seemingly un-provable environmental claims for their products	○	○	○	○	○	○	○
Most companies overstate or exaggerate the environmental features of their products	○	○	○	○	○	○	○
Most companies leave out or hide important information about the real environmental features of their products	○	○	○	○	○	○	○

Gender:

○ Male

○ Female

○ Other

How old are you? (numeric values only)

_____

In which country do you currently live in?

▼ Portugal ... Zimbabwe

How would you describe the place where you live?

- ○ Rural Area
- ○ Village
- ○ Town
- ○ City

What is the highest degree or level of school you have completed? *If currently enrolled, highest degree received.*

- ○ Primary School (1st to 4th grade)
- ○ Primary School (5th to 6th grade)
- ○ Middle School (7th to 9th grade)
- ○ Secondary School
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ Doctoral Degree
- ○ None

What is the gross annual income of your household? (Indicate an estimate)

- ○ Less than € 10,000
- ○ € 10,000 to € 19,999
- ○ € 20,000 to € 29,999
- ○ € 30,000 to € 39,999
- ○ € 40,000 to € 49,999
- ○ € 50,000 or more

Appendix E

First Principal Component Analysis with Promax Rotation conducted in 39 items

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.826
Bartlett's Test of Sphericity	Approx. Chi-Square	5552.910
	df	741
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.172	18.390	18.390	7.172	18.390	18.390	3.904
2	5.844	14.985	33.375	5.844	14.985	33.375	4.600
3	3.157	8.095	41.470	3.157	8.095	41.470	4.692
4	2.534	6.497	47.967	2.534	6.497	47.967	4.384
5	2.155	5.525	53.492	2.155	5.525	53.492	3.290
6	1.643	4.213	57.705	1.643	4.213	57.705	4.423
7	1.623	4.162	61.867	1.623	4.162	61.867	4.310
8	1.285	3.295	65.161	1.285	3.295	65.161	3.008
9	1.143	2.930	68.091	1.143	2.930	68.091	3.990
10	1.067	2.737	70.828	1.067	2.737	70.828	3.200
11	.831	2.130	72.958				
12	.731	1.874	74.832				
13	.723	1.853	76.685				
14	.670	1.718	78.403				
15	.626	1.606	80.009				
16	.597	1.532	81.541				
17	.568	1.457	82.997				
18	.547	1.404	84.401				
19	.498	1.278	85.679				
20	.484	1.242	86.920				
21	.436	1.118	88.038				
22	.426	1.092	89.131				
23	.407	1.044	90.175				
24	.375	.961	91.136				
25	.357	.914	92.050				
26	.337	.863	92.913				

27	.306	.785	93.698		
28	.288	.738	94.436		
29	.284	.728	95.164		
30	.268	.686	95.850		
31	.244	.626	96.475		
32	.229	.588	97.064		
33	.212	.542	97.606		
34	.200	.512	98.118		
35	.185	.476	98.594		
36	.169	.433	99.027		
37	.145	.371	99.397		
38	.132	.340	99.737		
39	.103	.263	100.000		

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix[a]

	Component									
	1	2	3	4	5	6	7	8	9	10
GP_4	.877									
GP_3	.842									
GP_2	.824									
GP_1	.801									
GP_5	.789									
EC_3		.834								
EC_4		.802								
EC_5		.746								
EC_6		.631								
EC_2		.608							-.316	
EC_1		.561								
EC_7		.515								
PS_2			.890							
PS_1			.877							
PS_3			.849							
PS_4			.676				.307			
PK_3				.933						
PK_2				.915						
PK_1				.847						
PK_4				.640						
HC_2					.866					
HC_3					.831					
HC_1					.816					
HC_4					.732					

PI_2	.843				
PI_3	.825				
PI_1	.747				
PE_1		.852			
PE_2		.839			
PE_3		.666			
Q17_4			.853		
Q17_5			.759		
Q17_6			.716		
Q17_3			.568		.334
SE_1				.811	
SE_2				.751	
SE_3	.383			.668	
Q17_2					.905
Q17_1					.881

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization.[a]

a. Rotation converged in 7 iterations.

Appendix F

Final Principal Component Analysis with Promax Rotation conducted in 36 items

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.831
Bartlett's Test of Sphericity	Approx. Chi-Square	5148.935
	df	630
	Sig.	.000

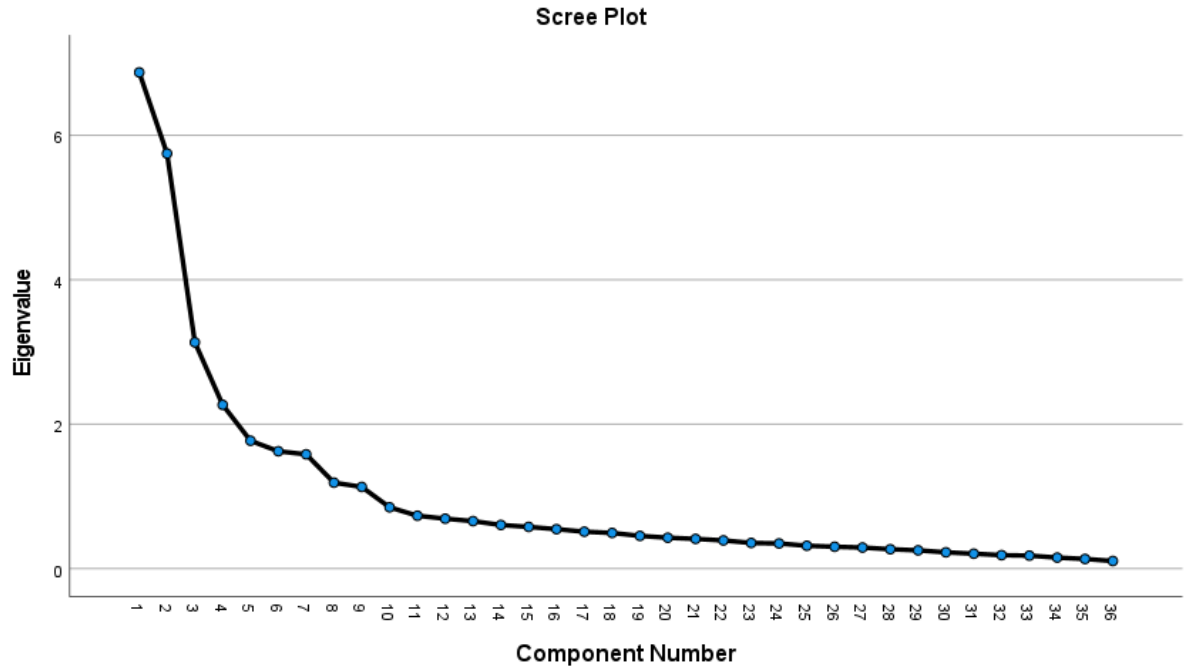
Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.872	19.089	19.089	6.872	19.089	19.089	3.922
2	5.749	15.968	35.057	5.749	15.968	35.057	4.594
3	3.134	8.705	43.762	3.134	8.705	43.762	4.562
4	2.268	6.300	50.062	2.268	6.300	50.062	4.407
5	1.771	4.919	54.981	1.771	4.919	54.981	3.286
6	1.625	4.515	59.496	1.625	4.515	59.496	4.374
7	1.583	4.397	63.893	1.583	4.397	63.893	4.268
8	1.191	3.307	67.200	1.191	3.307	67.200	2.543
9	1.131	3.142	70.343	1.131	3.142	70.343	3.779
10	.849	2.359	72.701				
11	.732	2.035	74.736				
12	.692	1.921	76.657				
13	.658	1.827	78.484				
14	.604	1.679	80.163				
15	.578	1.605	81.768				
16	.547	1.518	83.286				
17	.512	1.421	84.707				
18	.494	1.372	86.079				
19	.453	1.259	87.338				
20	.428	1.189	88.527				
21	.412	1.144	89.671				
22	.390	1.085	90.755				
23	.356	.988	91.743				
24	.348	.968	92.711				
25	.317	.880	93.591				
26	.303	.841	94.433				
27	.292	.811	95.244				

28	.268	.746	95.989		
29	.253	.703	96.693		
30	.226	.627	97.320		
31	.207	.574	97.894		
32	.186	.518	98.411		
33	.180	.500	98.911		
34	.153	.424	99.335		
35	.134	.372	99.707		
36	.106	.293	100.000		

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.



Appendix G

Loadings and Cross-Loadings

Pattern Matrix [a]

	Component								
	GP	EC	PS	PK	HC	PI	PE	G	SE
HC1	.022	-.048	-.048	.026	**.812**	-.097	.033	.066	.235
HC2	.005	-.086	-.082	.045	**.860**	.035	-.023	-.001	.044
HC3	.016	-.019	.050	-.058	**.827**	-.077	.148	-.004	-.146
HC4	-.024	.144	.037	-.005	**.747**	.109	-.063	-.068	-.101
EC1	.084	**.586**	-.098	.104	-.128	-.262	.109	-.022	.160
EC2	.015	**.609**	.108	.102	.074	.092	.054	-.033	-.333
EC3	-.053	**.860**	-.097	-.167	.077	-.125	.098	.056	.131
EC4	.053	**.813**	-.168	-.066	-.044	-.012	.070	.048	.223
EC5	-.123	**.704**	.083	-.060	-.105	-.013	-.085	-.034	.024
EC6	.048	**.613**	.212	.109	.035	.160	-.206	-.026	-.236
EC7	.023	**.507**	.031	.219	.155	.028	-.019	-.007	-.041
PE1	.024	.018	.017	.033	-.032	.134	**.867**	-.037	-.091
PE2	-.056	.053	-.027	-.021	.066	.133	**.877**	-.059	-.016
PE3	-.016	-.045	.141	.055	.082	-.030	**.667**	.102	.071
PS1	.032	-.007	**.872**	.037	-.026	-.001	-.128	.108	.076
PS2	-.027	.024	**.887**	-.028	.016	-.077	.017	.017	.132
PS3	-.014	.026	**.850**	-.077	-.005	.002	.049	.002	.123
PS4	.042	-.076	**.680**	-.013	-.044	-.044	.346	-.069	-.016
SE1	-.044	.055	.191	.023	.031	-.048	-.024	.059	**.809**
SE2	.004	.058	.114	.070	-.011	.200	.015	-.085	**.738**
SE3	.054	-.007	.014	.085	-.032	.414	-.064	-.100	**.635**
PI1	.084	-.001	.018	-.059	-.073	**.737**	.232	-.022	.044
PI2	-.048	.004	.040	-.075	-.019	**.839**	.074	.015	.072
PI3	-.048	-.119	-.137	.055	.046	**.834**	.017	.108	.083
G1	.071	.021	-.003	-.111	.029	.043	-.013	**.859**	.078
G2	-.035	.075	.003	-.014	.038	.218	-.131	**.777**	-.033
G3	-.032	-.081	.110	.149	-.072	-.132	.102	**.752**	-.119
PK1	.015	-.044	.059	**.859**	.088	.001	-.093	-.012	.120
PK2	-.058	-.013	.022	**.923**	-.012	.027	-.040	-.034	.024
PK3	.015	-.068	-.095	**.944**	.015	-.058	.091	-.024	.020
PK4	.000	.163	-.083	**.626**	-.136	-.022	.143	.139	-.022
GP1	**.807**	.107	-.017	-.017	.009	.029	-.081	-.063	.036
GP2	**.843**	-.056	.055	-.063	.097	-.070	.001	-.032	.057
GP3	**.851**	-.065	.005	-.013	.025	-.097	.000	.044	.043
GP4	**.864**	-.023	.072	.052	-.064	.031	-.075	-.040	-.096
GP5	**.785**	-.023	-.106	.009	-.054	.096	.116	.113	-.077

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Notes:

1. GP: Greenwashing Perceptions; EC: Environmental Consciousness; PS: Perceived Security; PK: Product Knowledge: HC: Health Consciousness; PI: Purchase Intentions; PE: Perceived Efficacy; G: Gentle Factor; SE: Sensorial Expectations.

Appendix H

Normality analysis for the dependent variables (perceived efficacy, perceived safety, sensorial expectations, and purchase intentions), by group (natural claim vs. control group)

Tests of Normality [a]

	Kolmogorov-Smirnov [b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PE	.161	124	.000	.945	124	.000
PS	.127	124	.000	.976	124	.024
SE	.158	124	.000	.965	124	.003
PI	.128	124	.000	.948	124	.000

a. Group = .00

b. Lilliefors Significance Correction

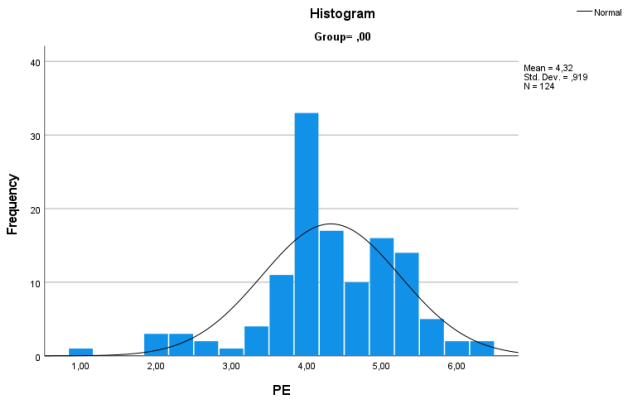
Tests of Normality [a]

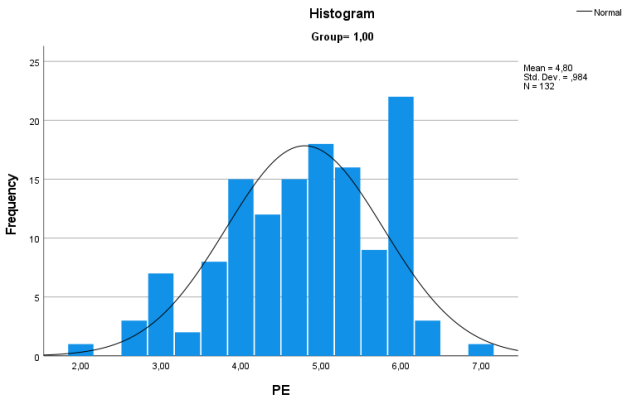
	Kolmogorov-Smirnov [b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PE	.104	132	.001	.963	132	.001
PS	.089	132	.012	.965	132	.002
SE	.137	132	.000	.954	132	.000
PI	.105	132	.001	.965	132	.002

a. Group = 1.00

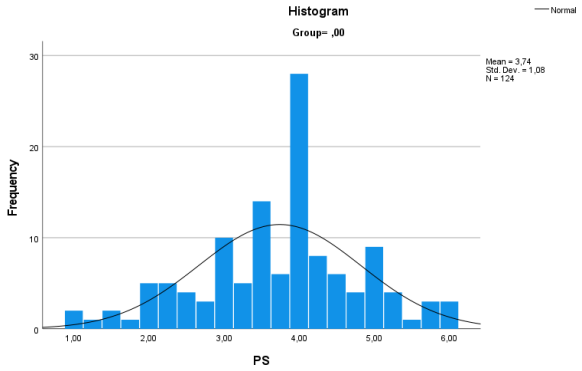
b. Lilliefors Significance Correction

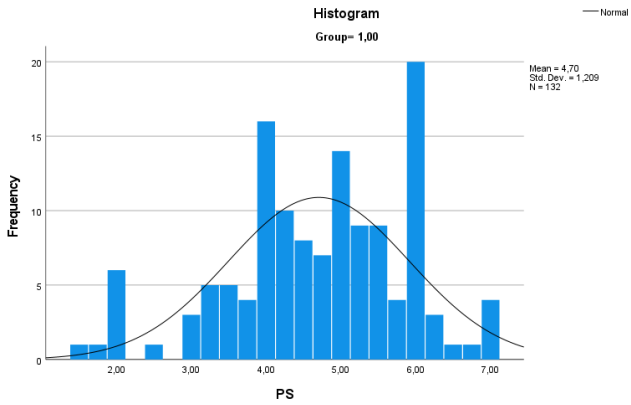
Perceived Efficacy, $D(124) = 0.16$, $p < .001$, Perceived Safety, $D(124) = 0.13$, $p < .001$, Sensorial Expectations, $D(124) = 0.16$, $p < .001$, and Purchase intentions, $D(124) = 0.13$, $p < .001$, violate the normality assumption on the control group. The same happens for the natural-claim group regarding Perceived Efficacy, $D(132) = 0.10$, $p < .05$, Perceived Safety, $D(132) = 0.09$, $p < .05$, Sensorial Expectations, $D(132) = 0.14$, $p < .001$, and Purchase intentions, $D(132) = 0.11$, $p < .05$. However, as these are large samples, and these tests can be significant when scores are only slightly distinct from a normal distribution, these tests need to be interpreted in conjunction with histograms, or other data (Field, 2013).



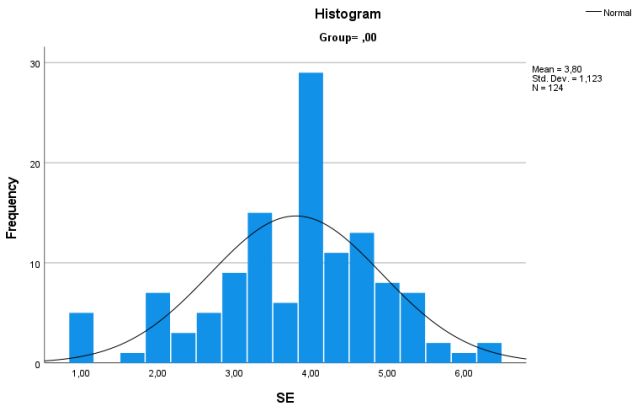


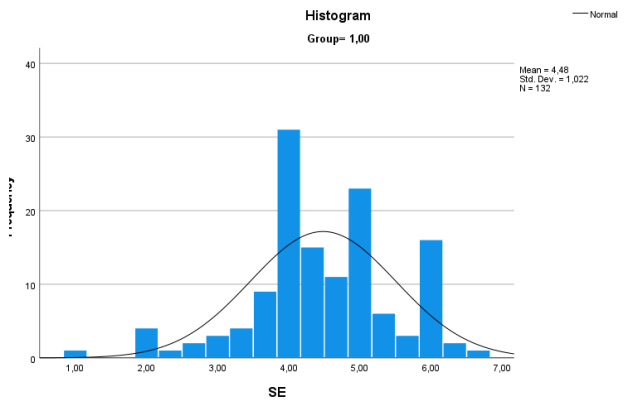
From the analysis of the histograms, in conjunction with the skewness and kurtosis results, it is concluded that Perceived Efficacy (PE) does not follow a normal distribution, for both group 0 and group 1 (group 0 being the control group and group 1 the natural-claim group). Group 0 results are pile-up to the right and the distribution is pointy and heavy-tailed (Skewness = -0.634; Kurtosis = 1.266). while results from group 1 also indicate a pile-up to the right but a light-tailed distribution (Skewness = -0.408; Kurtosis = -0.360). Results of skewness and kurtosis further from 0 indicate that the data is not normally distributed (Field, 2013).



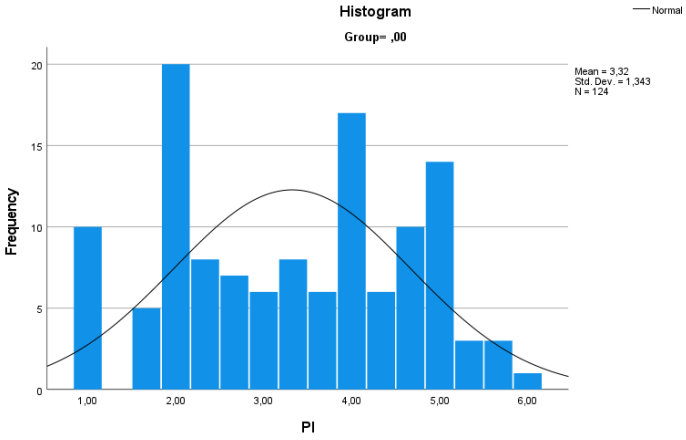


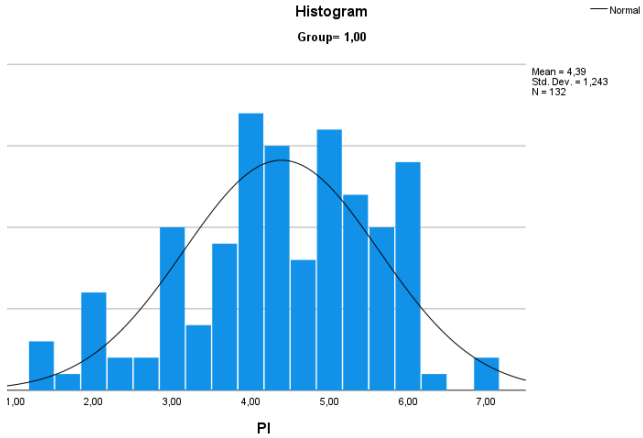
Results of Perceived Safety (PS) from group 0 (Skewness = -0.272; Kurtosis = 0.004) show a small skewness of results to the right of the distribution. For group 1 (Skewness = -0.478; Kurtosis = -0.026), the skewness of results to the right side of the distribution is larger, which indicates, for both distributions, a slightly different distribution of results when comparing to a normal distribution, however, the difference is not that severe for the distribution of results from both groups.





Results of Sensorial Expectations (SE) from group 0 (Skewness = -0.463; Kurtosis = 0.269) show a skew of results to the right of the distribution, with a little pointy and heavy-tailed distribution. For group 1 (Skewness = -0.425; Kurtosis = 0.666), the distribution of results is similar, but the distribution is even more pointy and heavy-tailed. Both distributions are slightly distinct from a normal distribution. However, the difference is not that major for the distribution of results for both groups.





For the distribution of results of Purchase Intentions (PI) for group 0 (Skewness = -0.068; Kurtosis = -1.127), the distribution does not show any skew of results, but the distribution is flat and light-tailed. For group 1 (Skewness = -0.463; Kurtosis = -0.226), there is a skew of results to the right side of the distribution, but the distribution is less flat. This also indicates that these results don't follow a normal distribution.

Notes:

1. PE: Perceived Efficacy; PS: Perceived Security; SE: Sensorial Expectations; PI: Purchase Intentions.
2. Group = ,00: Control Group; Group = 1,00: Natural Claim group.

Appendix I

Independent Samples T-tests

The objective of the independent-samples T-test: To determine whether there is a statistically significant difference of perceived efficacy, perceived safety, sensorial expectations and purchase intentions between the test group (shampoo with a natural claim) and the control group (shampoo with no natural claim).

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
PE	.00	124	4.3226	.91946	.08257
	1.00	132	4.7980	.98397	.08564
PS	.00	124	3.7419	1.08009	.09700
	1.00	132	4.7045	1.20899	.10523
SE	.00	124	3.8038	1.12298	.10085
	1.00	132	4.4823	1.02249	.08900
PI	.00	124	3.3226	1.34341	.12064
	1.00	132	4.3889	1.24325	.10821

		Levene's Test for Equality of Variances		T-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
PE	Equal variances assumed	2.643	.105	-3.988	254	.000	-.47540	.11922	-.71018	-.24062
	Equal variances not assumed			-3.996	253.994	.000	-.47540	.11897	-.70968	-.24112
PS	Equal variances assumed	2.506	.115	-6.703	254	.000	-.96261	.14362	-1.24544	-.67978
	Equal variances not assumed			-6.726	253.371	.000	-.96261	.14311	-1.24445	-.68077
SE	Equal variances assumed	.728	.394	-5.060	254	.000	-.67856	.13411	-.94266	-.41446
	Equal variances not assumed			-5.045	247.971	.000	-.67856	.13450	-.94347	-.41365
PI	Equal variances assumed	3.794	.053	-6.596	254	.000	-1.06631	.16167	-1.38469	-.74793
	Equal variances not assumed			-6.580	249.125	.000	-1.06631	.16206	-1.38549	-.74712

Notes:

1. PE: Perceived Efficacy; PS: Perceived Security; SE: Sensorial Expectations; PI: Purchase Intentions.

Appendix J

Mann-Whitney U Tests

The objective of the Mann-Whitney U Tests: To determine whether there is a statistically significant difference in perceived efficacy, perceived safety, sensorial expectations, and purchase intentions between the test group (shampoo with a natural claim) and the control group (shampoo with no natural claim).

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The distribution of PE is the same across categories of Condition.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
2	The distribution of PS is the same across categories of Condition.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
3	The distribution of SE is the same across categories of Condition.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
4	The distribution of PI is the same across categories of Condition.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

a. The significance level is .050.

b. Asymptotic significance is displayed.

PE across Condition

Independent-Samples Mann-Whitney U Test Summary

Total N	256
Mann-Whitney U	5860.000
Wilcoxon W	13610.000
Test Statistic	5860.000
Standard Error	587.800
Standardized Test Statistic	-3.954
Asymptotic Sig.(2-sided test)	.000

PS across Condition

Independent-Samples Mann-Whitney U Test Summary

Total N	256
Mann-Whitney U	4385.500
Wilcoxon W	12135.500
Test Statistic	4385.500
Standard Error	589.675
Standardized Test Statistic	-6.442
Asymptotic Sig.(2-sided test)	.000

SE across Condition

Independent-Samples Mann-Whitney U Test Summary	
Total N	256
Mann-Whitney U	5381.000
Wilcoxon W	13131.000
Test Statistic	5381.000
Standard Error	586.786
Standardized Test Statistic	-4.777
Asymptotic Sig.(2-sided test)	.000

PI across Condition

Independent-Samples Mann-Whitney U Test Summary	
Total N	256
Mann-Whitney U	4665.000
Wilcoxon W	12415.000
Test Statistic	4665.000
Standard Error	589.952
Standardized Test Statistic	-5.965
Asymptotic Sig.(2-sided test)	.000

Notes:

1. PE: Perceived Efficacy; PS: Perceived Security; SE: Sensorial Expectations; PI: Purchase Intentions.

Appendix K

Assumptions for the PROCESS Tests

Before running the process model, as we will be running regression models, assumptions need to be met before using the PROCESS model (Hayes, 2018). To run a regression analysis, the following assumptions must be true:

- Independence of residuals
- No perfect multicollinearity
- No extreme outliers
- Homoscedasticity
- Normality – residuals of the dependent variable scores should be normally distributed
- Linearity – residuals should follow a straight-line relationship

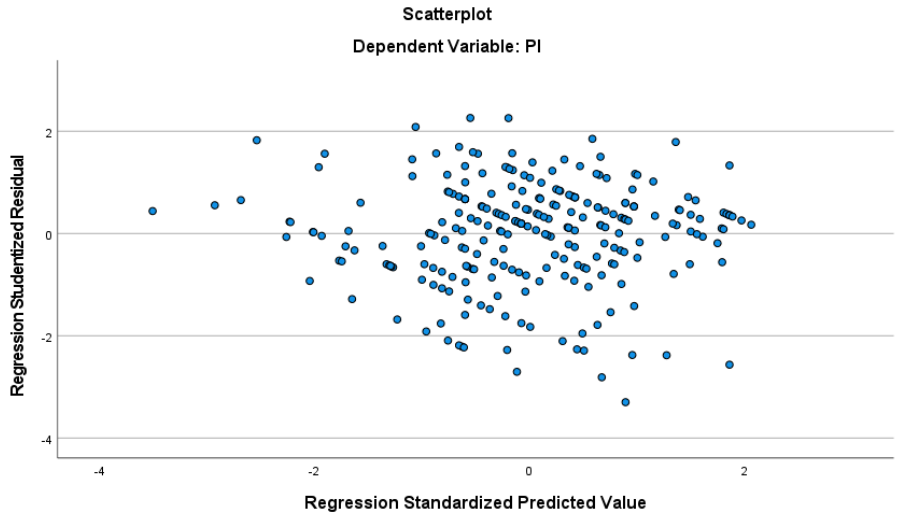
The first assumption was tested using the Durbin-Watson statistic. As the value of the statistic is 2,019, then, there are no strong indicators of correlated residuals. For the second assumption, we used a bivariate correlation test to check the correlation between the independent and mediation variables. Since there were no extremely high values of correlation between the variables, the second assumption is met.

Correlations

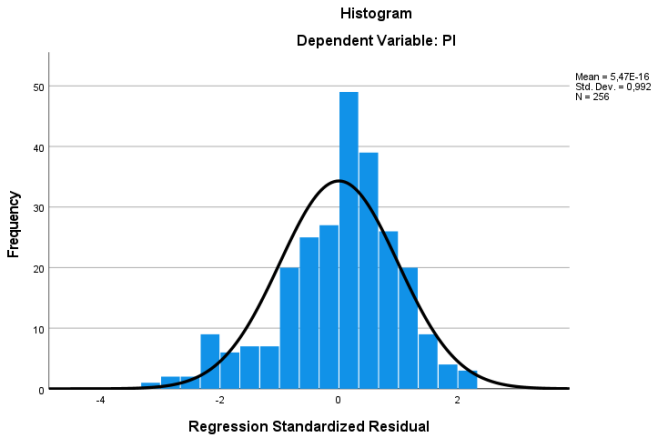
		Group	PE	PS	SE
Group	Pearson Correlation	1	.243**	.388**	.303**
	Sig. (2-tailed)		.000	.000	.000
	N	256	256	256	256
PE	Pearson Correlation	.243**	1	.509**	.527**
	Sig. (2-tailed)	.000		.000	.000
	N	256	256	256	256
PS	Pearson Correlation	.388**	.509**	1	.510**
	Sig. (2-tailed)	.000	.000		.000
	N	256	256	256	256
SE	Pearson Correlation	.303**	.527**	.510**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	256	256	256	256

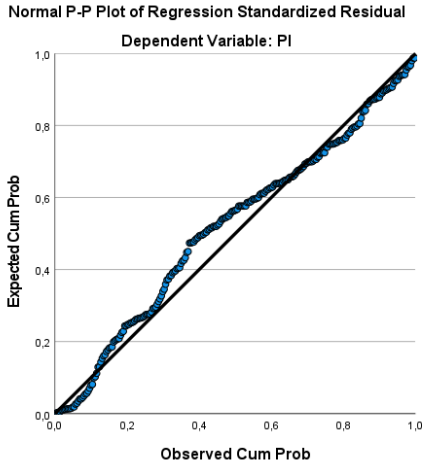
**. Correlation is significant at the 0.01 level (2-tailed).

For assumption three, the Mahalanobis distances were used to identify outliers. As our model will include 4 independent variables, the critical value is 18.47. The maximum value in the data is 15.83, so, no extreme outliers are included in the database, and the assumption is met. To check assumptions four and six, the scatterplot of standardized residuals was analysed. The residuals are centred around zero, and have a roughly rectangular shape, with no clear pattern on the residuals. Additionally, residuals don't seem to follow any type of curve. So, assumptions four and six are both met.



For assumption five, the Histogram of Standardised Residuals and the Normal Probability Plot (P-P) of the Regression Standardised Residuals were analysed. The residuals appear to follow a normal distribution on the histogram, and the P-P plot, data points reasonably follow a diagonal straight line. In conclusion, assumption five is met, so as all the other assumptions, and therefore, the PROCESS model can be used.





Appendix L

Mediation Analysis

The objective of the mediation analysis: Examine whether perceived efficacy, perceived safety and sensorial expectations mediate the effect of natural claims on purchase intentions. Model 4 from the SPSS PROCESS macro developed by Hayes (2018) was used to test these hypotheses.

```
Model  : 4
    Y  : PI
    X  : Group
   M1  : PE
   M2  : PS
   M3  : SE

Covariates:
 Age      Residen  Educate  Income   Beauty   PK       Gentle

Sample
Size:  256

**************************************************************************
OUTCOME VARIABLE:
 PE

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
       ,298       ,089       ,905      3,669      8,000    247,000       ,000

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant      5,104       ,751      6,795       ,000      3,624      6,583
Group          ,423       ,125      3,387       ,001       ,177       ,669
Age           -,006       ,005     -1,061       ,290      -,016       ,005
Residen        ,009       ,063       ,148       ,883      -,116       ,134
Educate       -,147       ,078     -1,882       ,061      -,301       ,007
Income        -,031       ,040      -,785       ,433      -,110       ,047
Beauty        -,072       ,182      -,395       ,693      -,431       ,287
PK             ,065       ,050      1,314       ,190      -,033       ,164
Gentle         ,035       ,073       ,489       ,625      -,107       ,178

Standardized coefficients
            coeff
Group         ,431
Age          -,075
Residen       ,010
Educate      -,123
Income       -,048
Beauty       -,025
PK            ,086
Gentle        ,031

**************************************************************************
OUTCOME VARIABLE:
 PS

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
       ,391       ,153      1,352      6,190      8,000    247,000       ,000

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant      3,358       ,949      3,537       ,000      1,488      5,228
Group          ,942       ,151      6,236       ,000       ,645      1,240
```

Age	,002	,007	,284	,777	-,011	,015
Residen	,039	,080	,485	,628	-,119	,197
Educate	-,005	,101	-,048	,962	-,203	,194
Income	-,021	,055	-,375	,708	-,129	,087
Beauty	,043	,218	,196	,844	-,386	,472
PK	,006	,062	,103	,918	-,116	,129
Gentle	,040	,093	,428	,669	-,144	,224

Standardized coefficients

	coeff
Group	,758
Age	,020
Residen	,032
Educate	-,003
Income	-,025
Beauty	,012
PK	,007
Gentle	,027

****

OUTCOME VARIABLE:
SE

Model Summary

R	R-sq	MSE	F(HC4)	df1	df2	p
,388	,151	1,106	6,125	8,000	247,000	,000

Model

	coeff	se(HC4)	t	p	LLCI	ULCI
constant	4,582	,832	5,511	,000	2,944	6,220
Group	,617	,141	4,365	,000	,339	,896
Age	,000	,006	,081	,936	-,011	,012
Residen	-,030	,074	-,409	,683	-,177	,116
Educate	-,225	,083	-2,710	,007	-,388	-,061
Income	-,017	,050	-,339	,735	-,115	,081
Beauty	,136	,202	,671	,503	-,263	,534
PK	,150	,065	2,320	,021	,023	,278
Gentle	-,010	,118	-,085	,932	-,242	,222

Standardized coefficients

	coeff
Group	,550
Age	,005
Residen	-,028
Educate	-,163
Income	-,023
Beauty	,041
PK	,172
Gentle	-,008

****

OUTCOME VARIABLE:
PI

Model Summary

R	R-sq	MSE	F(HC4)	df1	df2	p
,687	,472	1,076	28,584	11,000	244,000	,000

Model

	coeff	se(HC4)	t	p	LLCI	ULCI
constant	-1,782	,987	-1,806	,072	-3,726	,162
Group	,473	,144	3,278	,001	,189	,757
PE	,399	,090	4,441	,000	,222	,576
PS	,101	,078	1,286	,200	-,054	,255
SE	,412	,091	4,507	,000	,232	,592
Age	,011	,005	2,235	,026	,001	,021
Residen	,036	,065	,564	,574	-,091	,164
Educate	,038	,089	,425	,671	-,138	,213

Income	-,005	,044	-,120	,905	-,092	,082
Beauty	,077	,193	,400	,689	-,304	,459
PK	-,014	,071	-,200	,841	-,154	,126
Gentle	,121	,133	,911	,363	-,141	,383

Standardized coefficients

	coeff
Group	,339
PE	,280
PS	,090
SE	,331
Age	,104
Residen	,027
Educate	,022
Income	-,006
Beauty	,019
PK	-,013
Gentle	,074

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

Direct effect of X on Y

Effect	se(HC4)	t	p	LLCI	ULCI	c'_ps
,473	,144	3,278	,001	,189	,757	,339

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	,518	,111	,308	,744
PE	,169	,061	,063	,303
PS	,095	,075	-,039	,256
SE	,254	,076	,120	,416

Partially standardized indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	,371	,076	,226	,527
PE	,121	,043	,046	,214
PS	,068	,053	-,028	,182
SE	,182	,053	,087	,296

Appendix M

Moderated Mediation Analysis

The objective of the moderated mediation analysis: Examine whether health and environmental consciousness influence the effect of natural claims on perceived efficacy, perceived safety, and sensorial expectations, thus, impacting the relationship between natural claims and purchase intentions. Model 9 from the SPSS PROCESS macro developed by Hayes (2018) was used to test these hypotheses.

```
Model  : 9
    Y  : PI
    X  : Group
   M1  : PE
   M2  : PS
   M3  : SE
    W  : HC
    Z  : EC

Covariates:
 Gentle    PK       GP       Gender    Age      Living    School    Income    Work

Sample
Size:  256

**************************************************************************
OUTCOME VARIABLE:
 PE

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,3694      ,1364      ,8789     3,2777    14,0000   241,0000      ,0001

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant     5,2481      ,9203     5,7027      ,0000     3,4353     7,0609
Group         ,4063      ,1218     3,3367      ,0010      ,1664      ,6462
HC            ,0066      ,0782      ,0838      ,9333     -,1476      ,1607
Int_1         ,1257      ,1198     1,0492      ,2951     -,1103      ,3616
EC           -,2079      ,1000    -2,0800      ,0386     -,4049     -,0110
Int_2         ,3047      ,1235     2,4665      ,0143      ,0614      ,5480
Gentle        ,0701      ,0725      ,9669      ,3346     -,0727      ,2129
PK            ,0885      ,0616     1,4381      ,1517     -,0327      ,2098
GP            ,0198      ,0756      ,2618      ,7937     -,1291      ,1686
Gender       -,2496      ,1568    -1,5920      ,1127     -,5585      ,0592
Age          -,0067      ,0054    -1,2362      ,2176     -,0174      ,0040
Living        ,0004      ,0629      ,0069      ,9945     -,1234      ,1243
School       -,1306      ,0785    -1,6630      ,0976     -,2853      ,0241
Income       -,0488      ,0390    -1,2509      ,2122     -,1256      ,0280
Work         -,1499      ,1708     -,8774      ,3811     -,4863      ,1866

Product terms key:
 Int_1    :        Group    x        HC
 Int_2    :        Group    x        EC

Test(s) of highest order unconditional interaction(s):
          R2-chng     F(HC4)        df1        df2          p
X*W         ,0036     1,1009     1,0000   241,0000      ,2951
X*Z         ,0187     6,0838     1,0000   241,0000      ,0143
BOTH(X)     ,0282     3,9556     2,0000   241,0000      ,0204
----------
    Focal predict: Group    (X)
          Mod var: HC       (W)
          Mod var: EC       (Z)

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

```
         HC          EC      Effect    se(HC4)          t          p       LLCI
ULCI
     -,9945      -,9518      -,0087      ,1946     -,0446      ,9645      -,3920
,3747
     -,9945       ,0000       ,2813      ,1699     1,6559      ,0990      -,0533
,6160
     -,9945       ,9518       ,5713      ,2180     2,6212      ,0093       ,1420
1,0007
      ,0000      -,9518       ,1163      ,1648      ,7057      ,4811      -,2083
,4409
      ,0000       ,0000       ,4063      ,1218     3,3367      ,0010       ,1664
,6462
      ,0000       ,9518       ,6963      ,1736     4,0104      ,0001       ,3543
1,0383
      ,9945      -,9518       ,2413      ,2117     1,1396      ,2556      -,1758
,6583
      ,9945       ,0000       ,5313      ,1708     3,1111      ,0021       ,1949
,8677
      ,9945       ,9518       ,8213      ,2029     4,0485      ,0001       ,4217
1,2209

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   Group      HC          EC          PE          .
BEGIN DATA.
      ,0000     -,9945     -,9518     4,5576
     1,0000     -,9945     -,9518     4,5490
      ,0000     -,9945      ,0000     4,3597
     1,0000     -,9945      ,0000     4,6410
      ,0000     -,9945      ,9518     4,1618
     1,0000     -,9945      ,9518     4,7331
      ,0000      ,0000     -,9518     4,5642
     1,0000      ,0000     -,9518     4,6804
      ,0000      ,0000      ,0000     4,3662
     1,0000      ,0000      ,0000     4,7725
      ,0000      ,0000      ,9518     4,1683
     1,0000      ,0000      ,9518     4,8646
      ,0000      ,9945     -,9518     4,5707
     1,0000      ,9945     -,9518     4,8119
      ,0000      ,9945      ,0000     4,3727
     1,0000      ,9945      ,0000     4,9040
      ,0000      ,9945      ,9518     4,1748
     1,0000      ,9945      ,9518     4,9961
END DATA.
GRAPH/SCATTERPLOT=
 HC       WITH     PE       BY       Group    /PANEL   ROWVAR=  EC       .

************************************************************************
OUTCOME VARIABLE:
 PS

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,4226      ,1786     1,3436     4,7035    14,0000   241,0000      ,0000

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant     4,2975     1,1386     3,7745      ,0002     2,0547     6,5404
Group         ,9428      ,1514     6,2293      ,0000      ,6447     1,2410
HC           -,0678      ,0853     -,7950      ,4274     -,2358      ,1002
Int_1         ,1460      ,1507      ,9687      ,3337     -,1509      ,4428
EC           -,1051      ,1305     -,8056      ,4213     -,3621      ,1519
Int_2         ,0313      ,1618      ,1936      ,8467     -,2874      ,3501
Gentle        ,0777      ,1014      ,7659      ,4445     -,1221      ,2774
PK            ,0710      ,0749      ,9483      ,3439     -,0765      ,2186
GP           -,1584      ,0976    -1,6236      ,1058     -,3505      ,0338
```

```
Gender       -,2180      ,1868    -1,1675      ,2442     -,5859      ,1498
Age           ,0019      ,0068      ,2744      ,7840     -,0115      ,0152
Living        ,0378      ,0795      ,4759      ,6346     -,1187      ,1943
School       -,0223      ,1013     -,2201      ,8260     -,2218      ,1772
Income       -,0148      ,0550     -,2697      ,7876     -,1231      ,0935
Work         -,0029      ,2237     -,0128      ,9898     -,4436      ,4379

Product terms key:
 Int_1    :        Group    x        HC
 Int_2    :        Group    x        EC

Test(s) of highest order unconditional interaction(s):
          R2-chng     F(HC4)        df1        df2          p
X*W         ,0030      ,9383     1,0000   241,0000      ,3337
X*Z         ,0001      ,0375     1,0000   241,0000      ,8467
BOTH(X)     ,0037      ,5276     2,0000   241,0000      ,5907
----------
    Focal predict: Group    (X)
          Mod var: HC       (W)
          Mod var: EC       (Z)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   Group      HC         EC         PS         .
BEGIN DATA.
      ,0000     -,9945     -,9518     3,9213
     1,0000     -,9945     -,9518     4,6892
      ,0000     -,9945      ,0000     3,8213
     1,0000     -,9945      ,0000     4,6189
      ,0000     -,9945      ,9518     3,7212
     1,0000     -,9945      ,9518     4,5487
      ,0000      ,0000     -,9518     3,8539
     1,0000      ,0000     -,9518     4,7669
      ,0000      ,0000      ,0000     3,7538
     1,0000      ,0000      ,0000     4,6967
      ,0000      ,0000      ,9518     3,6538
     1,0000      ,0000      ,9518     4,6264
      ,0000      ,9945     -,9518     3,7864
     1,0000      ,9945     -,9518     4,8446
      ,0000      ,9945      ,0000     3,6864
     1,0000      ,9945      ,0000     4,7744
      ,0000      ,9945      ,9518     3,5863
     1,0000      ,9945      ,9518     4,7042
END DATA.
GRAPH/SCATTERPLOT=
 HC       WITH     PS       BY       Group    /PANEL   ROWVAR=  EC       .

*************************************************************************
OUTCOME VARIABLE:
 SE

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,4172      ,1741     1,1018     4,1648    14,0000   241,0000      ,0000

Model
             coeff    se(HC4)          t          p       LLCI       ULCI
constant     4,6183     1,0900     4,2368      ,0000     2,4711     6,7655
Group         ,5990      ,1445     4,1455      ,0000      ,3144      ,8836
HC           -,0507      ,1232     -,4115      ,6811     -,2935      ,1921
Int_1         ,1415      ,1592      ,8888      ,3750     -,1721      ,4550
EC           -,2363      ,1669    -1,4160      ,1581     -,5651      ,0924
Int_2         ,2691      ,1840     1,4624      ,1449     -,0934      ,6316
Gentle        ,0284      ,1265      ,2247      ,8224     -,2208      ,2776
PK            ,1845      ,0725     2,5443      ,0116      ,0417      ,3273
GP           -,0466      ,0942     -,4948      ,6212     -,2323      ,1390
```

```
Gender       -,0179      ,1822     -,0982      ,9219     -,3769      ,3411
Age          -,0003      ,0059     -,0578      ,9540     -,0120      ,0113
Living       -,0277      ,0751     -,3684      ,7129     -,1756      ,1203
School       -,2277      ,0841    -2,7061      ,0073     -,3934     -,0619
Income       -,0151      ,0506     -,2974      ,7664     -,1148      ,0847
Work          ,0903      ,2175      ,4152      ,6784     -,3382      ,5188

Product terms key:
 Int_1    :        Group    x        HC
 Int_2    :        Group    x        EC

Test(s) of highest order unconditional interaction(s):
           R2-chng     F(HC4)        df1        df2          p
X*W          ,0035      ,7900     1,0000   241,0000      ,3750
X*Z          ,0111     2,1386     1,0000   241,0000      ,1449
BOTH(X)      ,0189     1,8650     2,0000   241,0000      ,1571
----------
    Focal predict: Group    (X)
          Mod var: HC       (W)
          Mod var: EC       (Z)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   Group      HC         EC         SE         .
BEGIN DATA.
      ,0000     -,9945     -,9518     4,1275
     1,0000     -,9945     -,9518     4,3296
      ,0000     -,9945      ,0000     3,9025
     1,0000     -,9945      ,0000     4,3608
      ,0000     -,9945      ,9518     3,6775
     1,0000     -,9945      ,9518     4,3920
      ,0000      ,0000     -,9518     4,0770
     1,0000      ,0000     -,9518     4,4199
      ,0000      ,0000      ,0000     3,8521
     1,0000      ,0000      ,0000     4,4511
      ,0000      ,0000      ,9518     3,6271
     1,0000      ,0000      ,9518     4,4822
      ,0000      ,9945     -,9518     4,0266
     1,0000      ,9945     -,9518     4,5101
      ,0000      ,9945      ,0000     3,8016
     1,0000      ,9945      ,0000     4,5413
      ,0000      ,9945      ,9518     3,5767
     1,0000      ,9945      ,9518     4,5725
END DATA.
GRAPH/SCATTERPLOT=
 HC       WITH     SE       BY       Group    /PANEL   ROWVAR=  EC       .

************************************************************************
OUTCOME VARIABLE:
 PI

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,6894      ,4753     1,0780    26,5666    13,0000   242,0000      ,0000

Model
             coeff    se(HC4)          t          p       LLCI       ULCI
constant    -1,3490     1,0402    -1,2968      ,1959    -3,3981      ,7001
Group         ,4939      ,1469     3,3615      ,0009      ,2045      ,7834
PE            ,4112      ,0913     4,5065      ,0000      ,2315      ,5910
PS            ,0903      ,0791     1,1404      ,2553     -,0656      ,2461
SE            ,4091      ,0925     4,4217      ,0000      ,2269      ,5914
Gentle        ,1247      ,1326      ,9399      ,3482     -,1366      ,3860
PK           -,0097      ,0714     -,1362      ,8918     -,1503      ,1309
GP           -,0958      ,0801    -1,1959      ,2329     -,2535      ,0620
Gender        ,0614      ,1616      ,3797      ,7045     -,2570      ,3798
```

Age	,0108	,0050	2,1360	,0337	,0008	,0207
Living	,0399	,0640	,6238	,5334	-,0861	,1659
School	,0250	,0910	,2750	,7836	-,1542	,2043
Income	,0042	,0479	,0867	,9310	-,0902	,0985
Work	,0876	,1978	,4428	,6583	-,3020	,4771

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

Direct effect of X on Y

Effect	se(HC4)	t	p	LLCI	ULCI
,4939	,1469	3,3615	,0009	,2045	,7834

Conditional indirect effects of X on Y:

INDIRECT EFFECT:

Group -> PE -> PI

HC	EC	Effect	BootSE	BootLLCI	BootULCI
-,9945	-,9518	-,0036	,0820	-,1702	,1597
-,9945	,0000	,1157	,0747	-,0226	,2732
-,9945	,9518	,2349	,1026	,0552	,4593
,0000	-,9518	,0478	,0698	-,0790	,1976
,0000	,0000	,1671	,0623	,0597	,3000
,0000	,9518	,2863	,0948	,1230	,4867
,9945	-,9518	,0992	,0926	-,0632	,3004
,9945	,0000	,2185	,0880	,0687	,4101
,9945	,9518	,3377	,1141	,1411	,5842

Indices of partial moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
HC	,0517	,0531	-,0435	,1703
EC	,1253	,0580	,0196	,2499

INDIRECT EFFECT:

Group -> PS -> PI

HC	EC	Effect	BootSE	BootLLCI	BootULCI
-,9945	-,9518	,0693	,0658	-,0426	,2212
-,9945	,0000	,0720	,0667	-,0462	,2235
-,9945	,9518	,0747	,0725	-,0476	,2420
,0000	-,9518	,0824	,0757	-,0482	,2537
,0000	,0000	,0851	,0761	-,0531	,2499
,0000	,9518	,0878	,0809	-,0550	,2699
,9945	-,9518	,0955	,0902	-,0546	,3039
,9945	,0000	,0982	,0903	-,0575	,3014
,9945	,9518	,1009	,0940	-,0615	,3166

Indices of partial moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
HC	,0132	,0226	-,0179	,0731
EC	,0028	,0194	-,0373	,0455

INDIRECT EFFECT:

Group -> SE -> PI

HC	EC	Effect	BootSE	BootLLCI	BootULCI
-,9945	-,9518	,0827	,1096	-,1278	,3122
-,9945	,0000	,1875	,0955	,0113	,3855
-,9945	,9518	,2923	,1258	,0610	,5525
,0000	-,9518	,1403	,0981	-,0436	,3438
,0000	,0000	,2451	,0764	,1084	,4067
,0000	,9518	,3498	,1081	,1574	,5823

```
      ,9945     -,9518      ,1978      ,1256     -,0266      ,4602
      ,9945      ,0000      ,3026      ,1054      ,1179      ,5237
      ,9945      ,9518      ,4074      ,1267      ,1829      ,6815

      Indices of partial moderated mediation:
        Index     BootSE   BootLLCI   BootULCI
HC      ,0579      ,0657     -,0654      ,1984
EC      ,1101      ,0729     -,0256      ,2665


---
```