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Fake Healthy Products in the Food Retail: Impact of Marketing and Labeling on Consumer Beahviour

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Acknowledgments

More than a Master's dissertation, this thesis represents the closing of an academic chapter in my life. During this dissertation, I overcame several challenges, both personal and professional.

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RESUMO

A instabilidade do comportamento do consumidor ao seguir as novas tendências, no retalho alimentar, leva as marcas a responder com rapidez e qualidade às necessidades do seu público-alvo, e é isso que vai ditar a sua permanência e sucesso no mercado.

De uma forma geral, novas tendências alimentares têm surgido. É cada vez mais evidente a preocupação das pessoas em seguir um estilo de vida mais saudável, seguindo uma dieta padrão baseada em produtos "isentos", entre outros.

Segundo a Ordem dos Nutricionistas (Nuronha, 2018), 40% dos portugueses não percebem os rótulos dos alimentos. Portanto, a leitura dos rótulos é fundamental para nos separarmos do que é realmente um produto saudável e um produto que se diz saudável.

Uma vez que a procura por produtos que se enquadrem na categoria de saudável é uma tendência bastante procurada por um grande número de pessoas, as marcas querem satisfazer as necessidades desse grupo de consumidores e consequentemente entrar nesse mercado.

Isso traz ao mercado produtos que induzem o consumidor em erro, com embalagens e rótulos "isentos de" que parecem ser a escolha perfeita para incluir na dieta alimentar.

Porém, são comercializados como produtos saudáveis e podem ser encontradas no mercado diversas opções que apresentam uma rotulagem que à primeira vista agrada o consumidor, mas onde na verdade estão escondidos muitos açúcares, gorduras entre outros componentes prejudiciais à saúde, mas se disser que está "livre de" para o ponto de vista do consumidor é 100% saudável.

KEYWORDS: Saúde, Produtos alimentares, "livre de", consumidor, informação nutricional, embalagem

JEL Classification System: M31 Marketing; L66 Food

ABSTRACT

The instability of consumer behavior by following the new trends, in the food retail, lead the brands to respond quickly and with quality to the needs of the target audience, and that is what will dictate their permanence and success in the market.

In general, new food trends have been emerging. People's concern for a healthier lifestyle, following a standard diet based on "free from" products, among others, is increasingly evident.

According to the Order of Nutritionists (Nuronha, 2018), 40% of the Portuguese do not perceive food labels. Therefore, reading the labels is essential in order to make a separation from what is really a healthy product and a product that is said to be healthy.

Since the demand for products that fit into the category of healthy is a trend that is widespread for a large number of people, the brands seek to meet the needs of this group of consumers and consequently enter that market.

This, brings to the market products that induce consumers in error, with packaging and labels "free fromm" that appear to be the perfect choice to include in the diet.

Though, they are sold as healthy products and can be found in the market several options that present a labeling that at first sight pleases the consumer, but where in fact are hidden many sugars, fats among other components that are harmful to our health, but if it says it is "free from" for the consumer's point of view is 100% healthy.

Table of contents

Index of Figures

x

Index of Tables

Chapter 6

Glossary

DGS – Direção Geral da Saúde

WHO – World Health Organization

1. Introduction

1.1. Identification of Master Thesis

In order to complete the Master in Management at ISCTE Business School, students are asked to carry out a thesis within the areas studied throughout the master's degree. Taking into account all types of thesis immediately came to my mind the interest for research, data collection, its analysis and interpretation, connected with a subject that I was comfortable with and identified with.

1.2. Theme and Research Problem

This dissertation falls within the scope of Consumer Marketing and Behavior: "Fake Healthy Products in the Food Retail: Impact of Marketing and Labeling on Consumer Beahviour".

As the title indicates, it is intended to conduct an investigation through a sample of participants in which it is possible to conclude what are the most important criteria that impact the consumer in the purchase decision process and whether in fact labeling is an important factor.

It was chosen some criteria to understand the impact of labeling and marketing inherent to the various food products on the market.

1.3. Contextualization and Relevance of the Theme

There is an increasing demand from consumers for products that are better for their health.

The trend towards a healthier life leveraged the offer of products in the healthy category and it is from this perspective that the theme of this investigation emerged. The objective of this work is then to understand whether the criteria that are normally assumed to identify and evaluate a product as healthy and the perception of labeling, affect consumers' decision-making or not.

2. Literature Review

2.1. Health concerns and behaviours associated to food

2.1.1. The role of food and its impact on health

According to the Directorate General of Health (DGS) and the World Health Organization (WHO), the importance of practicing healthy eating is becoming more and more important each day, once it provides quality of life to the individuals and also prevents the appearance of chronic diseases.

Nowadays, diseases like obesity, cardiovascular disease and certain cancers are reaching more people each day. It is important to understand that some of these diseases can be prevented if consumers are educated to lead a healthy and active life. Despite the disclosure of information about the importance of following a healthy diet and lifestyle, it has been seen an increase of chronic diseases mainly caused by the consumption of foods with a high level of fat, sugar and poor in essential nutrients for our health (Markovic & Natoli, 2009).

Basically, all the foods are functional in the sense that they provide the necessary nutrients to maintain human life (Mei-Fang, 2013). Studies say that food is directly related to health (Mollet&Rowland, 2002; Young, 2000) and in fact a healthy and balanced lifestyle can cure and prevent some diseases by itself. Influenced by that, consumers are more interested in issues such as health and being self-conscious about their habits.

Health education can significantly low the rate of these diseases, and change consumer's attitude towards food, to get more conscious about what they are eating and why they are eating.

According to Sun (2008), results indicate that individuals that are more concerned about what they are eating have different food choices and a stronger consciousness about their health.

However, this food choice was associated to three factors, "the healthy motive, the price motive and the ethical concern motive". The study concluded that individual with a major concern about developing diseases would give priority to health, price and ethical issues during the decision process when choosing a product. (Sun, 2008)**.**

Consumers are currently developing a great interest in reducing the use of sugar and are getting more conscious about the health risks of sugar consumptions. Solutions for the obesity

rates and the substitution of sugar are not very clear at the moment, but in future it is expected to find the best solution for this "drug" called sugar (Edwards *et al.*, 2016).

Due to that, industries seek to get alternatives to substitute sugar. *Aspartame* and *stevia* are the most popular sweeteners that industries are using, however this type of sweeteners can easily substitute the sweet flavor but are not rich in what concerns nutritional value. Traditional sweetener can give to the consumer more benefit to his health, once it contains nutritional value and bioactive compounds (Edwards *et al.*, 2016).

The problem is that people are addicted to the taste of sweet, and the amount of sugar that is being consumed compared to the past changed a lot. In the past people would consume more natural sugar present in fruit, vegetables and other natural foods. Nowadays, the evolution of the world, more specifically industries and the increase in process food has changed the way consumers eat and nourish themselves, and consequently their health has changed.

According to WHO, worldwide obesity has almost tripled since 1975, and 39% of adults from 18 and over were over weighted, and 13% were obese (WHO, 2016). It is also important to take into consideration that use of sugar should be less than 10% of total food energy intake, to prevent this condition.

Although people are increasingly consuming sugar free products (with substitutes of sugar), they are still outpacing the daily suggested sugar consumption.

The use of artificial sweeteners may help to reduce dietary energy intakes, although their impact in rates of obesity is nuclear. Most traditional sweeteners are preferable alternative, but their effect on human body is also not clear yet.

2.1.2. Health consciousness and attitudes towards foods

According to a study about the role of food among different cultures (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999), food is a critical contributor to physical and psychological well-being. It is important to understand that food is one of the concerns of human beings, the need to eat and find a healthy way is becoming more important nowadays.

Due to that, there are negative and positive food aspects, people want a healthier life and live longer, but they also want to take pleasure in food.

A fact is that, people in the countries of central and northern Europe live longer than those of the south and one of the factors is their diet (Samuelson, 1990). However, the problem is not about what type of diet is followed but about the balance that consumers need to find in what concerns food and health.

Health consciousness is a concept that is getting more important each day, and help consumers to find this balance, once they want to be in their best shape in what concerns their state of health and well being (Michaelidou & Hassan, 2008).

Previous research (Grankvist and Biel, 2001; Lockie *et al*., 2002) has concluded that health and physical fitness are the main motives to the purchase of "organic"/"bio" foods. Consumers tend to be aware of their food choices, and once they are motivated to choose healthy/natural foods to improve their health, they are moved to think that "organic" and "natural" products are a healthier that the conventional ones (Michaelidou & Hassan, 2008).

Because of the high rate of obesity, many consumers are increasingly seeking a healthier lifestyle, food industries began to create "healthy" products by labelling them in the front package with words like "organic"/"bio"/"free-from" or any combination of other health-related buzzwords. Studies suggest that consumers link this buzzwords to health, and end by choosing these type of products instead of the ones that doesn't follow this trend. (Olivia Grev, 2016).

Though, it is important to understand how food industries communicate nutrition and health information to the consumer, in the extent that consumers don't know that carrying this type of buzzwords does not mean that the product is necessarily healthy, in many cases they are not.

2.2. Consumer behaviour

2.2.1. Consumer behaviour study

Consumer behaviour is too complex to be able to analyse and define. Dubois (1999) defends this, saying that as the consumer's aspects in the purchase are diverse, it is therefore not

possible to obtain an objective and restricted scheme that can explain the consumer's behaviour.

According to Cardoso (2009), the certainty that it is emotions that dominate human behaviour, more specifically in the field of consumption, has begun to become widespread. In this way, it turns out that people buy emotionally and then justify their decisions with logic, that is, with rational arguments.

For Elliot, Percy and Pervan (2011) understanding consumer behaviour is like the sequence of steps through which the buyer moves, gathering information and evaluating competitor's offers before reaching a decision and taking an action. They mention that in order to make a credible analysis of consumer behaviour, it is advisable to follow a model based on the buyer's rationality.

On the other hand, Kotler (2006) and Solomon (1998) classify consumer behaviour as a field in which people, groups and organizations are studied who select, buy and use services, products and ideas to satisfy their needs. For Kanuk and Schiffman (2000) "Consumer behaviour encompasses the study of what they buy, why they buy, when they buy, where they buy, how often they buy and how often they use what they buy". The same authors also point out that it is fundamental to study consumer behaviour, discover the reasons and influences that influence the individual's attitudes.

It is also known that the study of consumer behaviour facilitates and strengthens the relationship of companies with their target audiences. The better the choice and decision-making process is understood, the easier it will be for the company to offer products and services adapted to the expectations and needs of customers.

2.2.2. Purchasing decision-making process

The decision-making process is a very complex behaviour to analyze, since, behind it, there is an exhaustive process and the existence of factors that influence it. It involves studying and understanding the reasons for the various consumer decisions, from the emphasis on rational choice to focusing on irrational purchasing needs.

According to Martins (2013), the consumer purchase decision-making process ends when their needs are satisfied. These are supported by their emotional side, or on the other hand, the rational side.

The consumer goes through different stages until making his choices about products or services for consumption. Kotler *et al.* (1999) refer that the consumer's purchase decision-

making consists of a set of processes involved in the recognition of problems, in the search for solutions, in the evaluation of alternatives, in the choice between options and in the evaluation of the choice results. The figure below explains the phases of this process.

Figure 1: Decision Model from Kotler and Keller (2006, p.189)
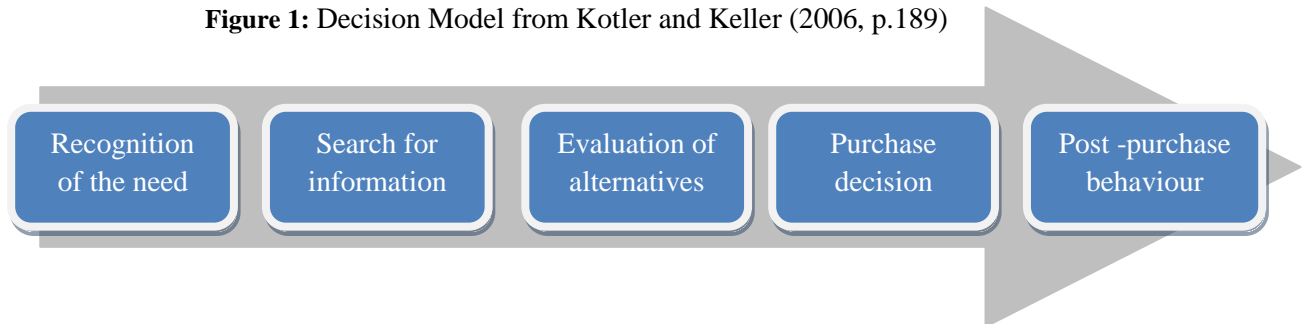
According to Kotler and Keller (2006) the steps are as follows: 1) Recognition of the need, 2) Search for information, 3) Evaluation of alternatives, 4) Purchase decision and 5) Post-purchase behaviour.

According to Martins (2013), consumers go through different phases until making their selections about products or services for consumption. Quoting, Mowen and Minor (2007) refer that the consumer's purchase decision-making consists of a set of methods involved in the recognition of problems, in the search for solutions, in the evaluation of alternatives, in the choice between options and in the evaluation of the results of choice .

Decision making varies depending on the type of purchase decision, that is, normally more complex and more expensive purchases imply more consideration on the part of those who buy. This is the stage in which the consumer creates preferences between the brands of the choice set, being able to give preference to a specific brand. (Kotler, 2006).

Solomon (2006), on the other hand, also refers to decision making as the stage in which a decision is made to make a purchase or not, and if there is a purchase, it defines what, when and where to buy and how to pay. At this stage, consumers use different rules, depending on the complexity of their decision and the importance of it. Another author Kumar (2011), tells that consumer decision making is about the sequence of steps involved in the decision process and distinguishes the products in terms of the level of involvement (high or low) , necessary to make the purchase decision.

2.2.3. Factors influencing consumer behavior

Any individual looking for a product or service to satisfy their needs can be defined as a consumer (Martins, 2013).

For Kotler (2000), the consumer goes through several influences, influences of cultural, social, individual and psychological factors. However, it can also be stimulated by the external environment that surrounds it: economy, technology, politics, and culture.

To analyze the influences suffered by consumers in the purchase process, Kotler (2000) presented his model divided into cultural, social, personal and psychological factors.

Figure 2: Factors that influence the purchase decision process from Kotler (2000: 183-196).

Cultural Factors	Social Factors	Personal Factors	Psychological Factors
Culture	Referenceg roups	Age	Motivation
Subculture	Family	Ocupation	Perception
Social Classes	Roles and social positions	Economic conditions	Learning
		Lifestyle	Beliefs and attitudes
		Personality	
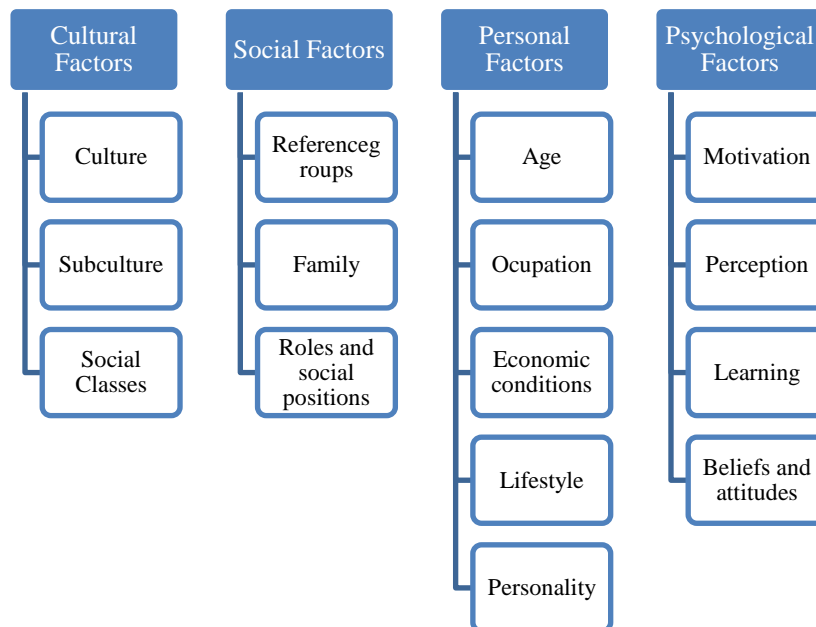
2.2.3.1. Cultural Factors

According to Kotler and Keller (2006), cultural factors represent a culture as the main determinant of the buying behaviour and desire of each person, and can be listed based on culture, subculture and social class.

Culture is a factor that influences a consumer's purchase decision process in different ways, both in the pre-purchase phase and in the purchase phase. In the consumption phase, culture also influences consumers' expectations regarding the use of products (Blackwell *et al*., 2005).

8

Each culture is made up of a set of subcultures, namely those related to nationality, religion, ethnicity, geographic region that provide more specific identification and socialization for its members. Minor and Mowen (2003) define subculture as a subdivision of national culture based on some unifying characteristic, whose members share similar patterns of behaviour.

With regard to social classes, Kotler and Keller (2006) state that they are also an important factor to take into account in consumer behaviour, since there are behaviours characteristic of people who belong to the same social class.

According to Minor and Mowen (2003) the upper classes focus on the future, are self-confident and wish to take risks, while the lower classes turn to the present and the past, seeking security for themselves and their families.

2.2.3.2. Social Factors

Social factors include reference groups, family, roles and social positions that end up influencing purchasing behaviour.

According to Giareta (2011), reference groups are those that influence consumer thoughts, feelings and behaviours.

According to Blackwell *et al*. (2005) the reasons why reference groups affect a consumer's purchase decision process are the needs for socialization or acculturation, protection or modification of self-concept, social comparison or compliance, through submission, which occur when the individual is content to accept the behaviours and beliefs of the reference group. Another reason, which leads these groups to influence a consumer's purchase decision process, is the search for acceptance needs, which occur when the individual really changes his / her behavior and action, in order to resemble the group of reference.

Family members are the most influential primary reference group. For Solomon (2006), the traditional family organization is decreasing and, as this happens, people are losing the concept of the family. It is necessary that there is a cohesive family, since it is its members, who help in the formation of values and attitudes that can influence the purchase decision.

According to Kotler (1998), roles and social positions influence all consumers, within the various social groups in which people take part throughout life, and they end up assuming such social roles and positions.

2.2.3.3. Personal Factors

For Martins (2013), personal factors take into account the particular characteristics of people, that is, moments and experiences that an individual goes through and ends up interfering with his habits and his buying decisions.

Age plays an important role in the analysis of consumer behaviour, due to the subdivision it causes. According to Martins (2013), needs and desires change over the course of their lives and for this reason it is important for companies, brands to take this into account in order to know which product is best suited to each stage of life.

In what concerns occupation, it is the work that each consumer exercises, will somehow influence decisions.

In agreement with the other authors, Solomon (2006) tells us that people characterize themselves in groups based on the things they like to do, how they like to spend their free time, their hobbies and even where they can spend your disposable income.

According to Martins (2013), each human being, each individual has a distinct personality that influences their buying behaviour. For Kotler (2000), personality is a set of psychological characteristics distinct from people that lead to consistent and lasting responses in their environment. Kotler (1998), further states that personality is an important variable for the analysis of consumer behaviour.

2.2.3.4. Psychological Factors

Finally, in psychological factors, according to Kotler (1998), there are four important psychological factors that influence consumer choices: motivation, perception, learning, beliefs and attitudes.

According to Kotler (2000), motivation is a need that is pressuring the individual to act. However for Solomon (2006), motivation only occurs when a need is stimulated and the consumer wants to do it.

For Kotler (1998), learning is the set of all changes initiated in the behaviour of an individual as a result of his experiences. This theory indicates that the issue can be developed for a product by associating it with strong impulses, using promoting suggestions and providing positive reinforcement.

In the end, Giareta (2011), tells us that, we are facing constant changes, and we also know that competition is increasing, so consumer needs should be considered as a maximum reference for the entire buying and selling process. Thus identifying how the consumer is influenced by the social world around him. It is necessary to understand that the entire purchasing process goes through several stages, first starting with the need, going through the acquisition of information about that same need according to its precepts and ending with an evaluation.

2.3. Packaging

Although many variables are involved, according to Lindon *et al*., (2011), the main types of priorities that can be set to build a solid marketing strategy are divided into four main points known as the four P's: product, price, distribution and promotion. Together, they form the Marketing-Mix - combination of the four elements of strategy to meet the needs and preferences of a market.

Kotler (1999), also define Marketing Mix as the group of controllable variables that the company uses to produce the response it wants to the target market.

Packaging is one of the components of marketing strategy and it influences the opinion of knowledgeable consumers that compares information on labels of food products, when choosing a product (Wyrwa & Barska, 2017).

Despite the fact that packaging is the container of the product, it is also important to enhance that packaging is also a promotional instrument of marketing mix in relation to

product, price, distribution and promotion, it is even defined as the fifth "P" of marketing-mix, according to Kotler and Keller (2006).

Nowadays, packaging is getting more involved in the strategy of a product to gain competitive advantage against other competitors, and it is seen as the "brand communication vehicle" (Underwood, 2003), to communicate the image and identity of the brand and to guarantee a good packaging, that attracts consumers to choose a specific product.

As mentioned above, packaging, as a marketing tool, communicates brand identity and differentiation, being an integral part of the product through many factors such as combination of colors, design, structure and message (Gómez *et al*., 2015).

Taking into account the whole role of packaging, it is also important to highlight the consumer decision process previously mentioned. This decision process is divided into five stages: problem recognition, information search, alternatives evaluation, purchase decision and post-purchase evaluation (Kotler and Keller, 2006). In this context, packaging plays an important role in what concerns consumers decision-making behaviour. And it is a useful marketing tool, attracting new consumers and maintaining existing ones (Gómez *et al*., 2015).

2.3.1. Concept of packaging

Packaging assumes a fundamental role with a promotional power over consumer's behavior, to the extent that it helps to attract their attention, be recognized and in the end gives them the desire to buy. In general, Lindon *et al*. (2011), argue that packaging assumes an important role as a "silent seller".

Besides the appealing marketing function that packaging has today, according to experts, the main role of packaging is to protect the product during transportation and storage process, as well as provide the necessary information about the product. (Agariya, Johari, Sharma, Chandraul, & Singh, 2012).

2.3.2. Levels of packaging

Thus, a package or set of packages is classified according to their functions, purposes and uses (Moura e Banzato, 1997, quoted by Bugs, 2004).

According to Lindon *et al*. (2000) there are three levels of packaging: primary, secondary and tertiary.

The primary packaging is the one that contains and make direct contact with the product. Is the case with paper packaging for sugar, beer bottles. Then, it comes the secondary packaging with the function of combining several units of consumption in order to establish one sale unit, i.e., creating one convenient pack. This level of packaging reinforces the protection of the product, as they pack the primary packaging and already have communication function, encouraging the purchase. It can be, for example a cardboard pick-up grouping six bottles of beer. Finally, the tertiary packaging allows the transportation of the secondary packaging safely, from the factory to the points of sale and facilitates its distribution. For example, boxes that bundle several dozen packs of beer. This third level has more logistical than marketing function.

In general, the primary packaging contains the product, the secondary packaging fulfills the function of communicating with the consumer, and the tertiary is used for transportation. However, there are cases where the primary packaging can also have the function of communicating the product, for example egg boxes.

2.3.3. Functions of Packaging

"The packaging has been rapidly following the demands determined by the consumer market, by playing several roles that transcend those with the purpose of protecting, transporting and / or identifying a product" (Santos e Castro, 1998, p.27)

Besides its technical functions and its primary use, such as storing, protecting, informing about the product and assisting with transportation, packaging over the years has come to be recognized as a marketing tool, that is, the visual impact, the recognition, identification as well as the positioning, argues Battistella *et al*., (2010) claims that packaging has a fundamental function: it is through it that the brand, the product, the company that offers the prod   uct make the most direct contact possible with the consumer, one is the one that is present at the moment of the purchase. According, to Newton (2006), a good packaging in addition to being functional, has the purpose to impact the point of sale, to enhance the product and give more credibility to the brand, encouraging purchase. In the view of Collaro

(2005), the impulse to buy is related with to the attention, which in this case can be focused on two different forms: the voluntary or active, which occurs when we voluntarily direct the look and interest towards a certain object. And the voluntary or when the object imposes its presence through design, forms or colors.

2.3.4. Color of Packaging

In a package, this is the factor that, first of all, reaches the buyer's eye. Hence, it is for the package that the first care should be directed, especially if we consider the emotional connections that it involves and the respective suggestive and persuasive power. It is therefore evident that the presence of color in the packaging represents an indisputable value (Farina, 1986, cited by Battistella, 2010).

Collaro (2005), states that after several studies on the attractiveness of color, orange has the greatest attractiveness.

Battistella (2010), also bet on orange as the color that attracts the most. Followed by red. Applied to the packaging, these colors draw attention to different types of products, especially for foodstuffs. Blue and green are also used for containers of different types of products, with some exceptions in food. Green is generally used for containers containing oils, vegetables and the like, in order to get closer to the nature of these products. Yellow, black, white and grey, when reproduced in a package, are considered to be quite weak to attract attention, unless they appear in combination with other colors, thus allowing original chromatic contrasts. It is undeniable that the basic colors are those that have more strength, and that is not involved in aesthetic judgment.

Even though certain people claim to like certain tones more, no one is unaware that the emotional strength of basic colors acts as a strong physiological stimulus. The soft colors cause opposite phenomena. For all these reasons, packaging does not usually take into account personal tastes, but rather these psychological and physiological effects of reaction to color, which are intrinsic to your human, regardless of your culture and socioeconomic level. The basic qualities that color can offer to the packaging are: visibility, impact and attraction.

2.4. Food Packaging

2.4.1. Nutritional labels and claims

With the increasing rates of obesity, the growing awareness in diet and health, and the social changes occurring in the food chain, companies found themselves forced to reformulate food products and create interesting options to fit in the market and promote healthier alternatives (Loebnitz & Grunert, 2018).

These adjustments to the needs of consumers are a really important marketing strategy for retail companies, with the aiming to make the product healthier and more appealing to consumers (Soldavini, Crawford, Lorrene, & Ritchie, 2012). Consequently, nutrition labels and claims on food packaging become an important source of information to consumers, while they are making their food choices (Murchu & Gorton, 2007).

Nutritional label in packaging is divided into FOP ("Front of Package") and BOP ("Back of Package"). FOP, as the name implies, is the front of the packaging and is the first contact the consumer has with product information. BOP is the back of the pack and contains all the nutritional information as well as the ingredients that the product contains. (Temple, Fraser, 2014).

Researches (Acton, Rachel *et al*., 2018), concludes that FOP labelling have more impact to the consumer when choosing a product, in the way that it shows immediately the content and healthiness of the product and also it can contain a health rating or nutrient-specific information, since they are typically more streamlined than the nutrition information panel on the back of the product (BOP). In addition, simpler labels have the advantage of capture the attention of less knowledgeable consumers at the nutritional level. Due to the fact, that the FOP label attracts the attention of consumers more quickly, it should have more BOP information, once it is better to incorporate the crucial information in the front package, such as high, medium and low levels of some nutrients, for a clearly and immediate vision to the consumers (Temple, Fraser, 2014).

2.5. Impact of Nutritional Claims and Consumer Perceptions

As mentioned above, nutritional labels and claims offer information to consumers about the nutritional properties of a particular food (Murchu & Gorton, 2007).

According to Kim, Nayga, & Capps (2000) there is a positive relation between the use of nutritional claims and the quality of consumers diets. Indeed, nutritional claims are a powerful tool in consumers understanding of the product, as they communicate information about food characteristics and its benefits.

In addition, a study of Murchu e Gorton (2007), says that more than 90% of people check nutritional information, mostly when buying a product for the first time, trying to lose weight, or buying certain type of food.

To avoid misleading and false information, health claims are intended to offer useful information for consumers (Nocella & Kennedy, 2012)

However, the interpretation of labels can often become confusing to the majority of consumers, and many of them struggle to understand the message once it requires a high level of knowledge about nutrition and health concepts. (Acton *et al*., 2018). Nocella & Kennedy (2012) shows that consumers understanding is divided into two stages. The first stage, attempts to measure how information affects consumer choices. The second, assess how consumers evaluation that information. This research found that consumers have difficulties in the evaluation process.

In what concerns, the understanding of consumer behaviours and perceptions of products, there has been an increased concern once consumers assume that if a particular product has a healthy characteristic, it will also be healthy in all other aspects.

This is called the halo effect that occurs when a healthy attribute of a product leads consumers to believe that the same product offers other positive attributes not implicit in the claim and consumers do not evaluate all attributes in the same way, i.e., there is a biased generalization process. (Sundar & Kardes, 2015).

Andrews, Netemeyer and Burton (1998) have shown that consumers erroneously infer that foods with "low cholesterol" claims are also "low in fat" or "less caloric". Soldavini, Crawford and Ritchie (2012), in a claim food study, showed that even fourth- and fifth-grade children perceived products with nutritional claims as healthier than products without any claims at all. These data then suggest that nutritional claims tend to create a halo effect,

leading consumers to believe that food contains other positive attributes (Wansink & Chandon, 2006).

The existence of "free-from" products has been increasing in recent times. This type of products, especially "gluten-free", represent categories of food products that are being overvalued by consumers, in the way that they are healthier than the conventional foods (Priven *et al*., 2015).

However, it is necessary to understand and change the consumer minds that sometimes a product that is "sugar free"/"gluten free"/"lactose free" is not necessarily good for their health, i.e., a sugar free product it is not completely healthy because it says that does not contain sugar in its composition. The sugar is somehow substituted by sweeteners and other components that put the health of the consumer at risk in the long term.

In addition, by examining the impact of these claims in the perception of consumers, it is expected that there will be a contribution to the prevention of possible poor dietary choices that could result in chronic illness, like obesity.

2.6. Retail Market

Retail includes a set of business activities that add value to products and services sold to consumers for their personal or family use, with the last part of the process being distribution (Levy and Weitz, 2012).

There is a tendency to think of retail as something that mainly involves the sale of tangible products. However, this also includes the provision of services (Berman and Evans, 2004). According to Levy and Weitz (2012) this sale does not only happen at the store level, but also in other distribution channels such as the internet.

2.6.1. Distribution Channels

A distribution channel is a set of companies that facilitate the movement of products from a production point to the final consumer (Levy & A. Weitz, 2012).

In a distribution channel that connects manufacturers to consumers, the retailer occupies the bottom position before reaching consumers, as shown in the following diagram, which illustrates a conventional distribution channel:
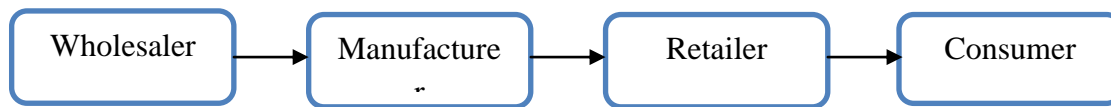
| Wholesaler | → | Manufacture | → | Retailer | → | Consumer |

Figure 3: Convencional channel distribution example (Levy & A. Weitz, 2012)

2.6.2. Retail Functions

Retailers often act as intermediaries between producers, wholesalers and the final consumer, performing various functions, including the provision of a set of products and services, "Breaking Bulk" in order to reduce transport costs for manufacturers and wholesalers ship products in large quantities, however it is up to retailers to sell in separate units to consumers, store stock and provide services (Levy & A. Weitz, 2012).

2.7. Food Retail

Food industry is essential to every consumer, it envolves many activities like manufacturing, producing, packaging, retailing and distribution of food products in many forms. According to FoodDrink Europe data trends, european household expenditure on products food and beverages have remained relatively stable, with the average expenditure on food being 14.6% of total consumer spending, in 2018.

In what concerns the national picture, FoodDrink Europe data say that France, Germany, Italy, UK and Spain are the biggest producers in the food industry, and Portugal is in the 21th place.

Regarding healthy and functional foods in recent years, consumers have seen new food products appear, which promise to contribute to the search for a healthier life. Functional foods are the new trend of the powerful food market at the beginning of the 21st century (Heasman & Mellentin, 2001). This type of products promise to help cure or prevent diseases. Over all the factors that explain the success of functional foods, Hasler (2000) cites the growing concern for health and well-being, changes in food regulation and the growing scientific evidence of the relationship between diet and health.

According to Nielsen 2019, food retail is divided into 5 main type of stores: hypermarkets, large supermarkets, small supermarkets, free-services and grocery stores.

1) **Hypermarkets:** stores that sell food products, personal hygiene, home cleaning and other products, operating under a free service regime and having a sales area equal or superior to 2500 square meters.

2) **Large supermarkets:** stores that sell food products, personal hygiene, home cleaning and other products, operating under a free service regime and having a sales area between 1000 to 2499 square meters.

3) **Small supermarkets:** stores that sell food products, personal hygiene, home cleaning and other products, operating under a free service regime and having a sales area between 400 to 999 square meters. There are stores with less than 400 square meters that are included in this store division.

4) **Free-services:** stores that sell food products, personal hygiene, home cleaning and other products, operating under a free service regime and having a sales area between 50 to 999 square meters.

5) **Grocery stores:** stores that sell food products, personal hygiene, home cleaning and other products, generally have counter servisse and having a sales área inferior to 50 square meters.

Supermarkets and free-services stores have 50% of the portuguese household spending, hypermarkets have 26%, grocery stores have 16% and the remain 8% is for other stores (Figure 4).

Figure 4: Importance of stores in household spending (Nielsen, 2019)
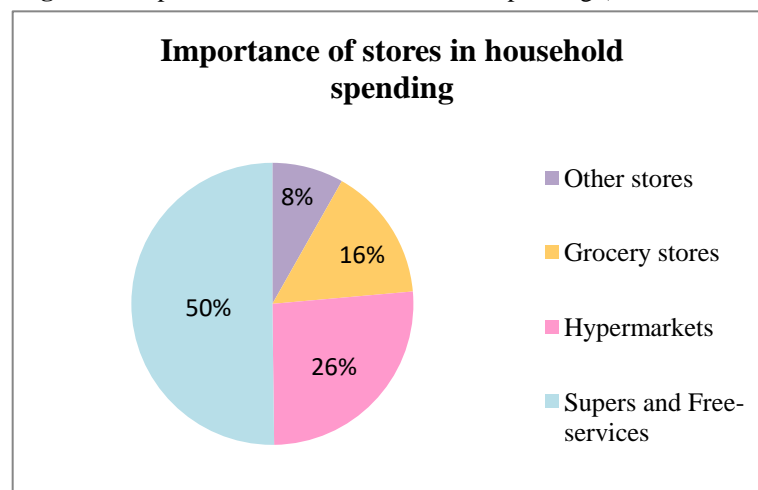
In 2019, each portuguese home went on average 136 times shopping, more 2,2% compared to 2018, and spent on average 2907 euros, more 3,2% compared to 2018 (Nielsen, 2019).

Food retail market in Portugal involves several chains among which are Jerónimo Martins, Sonae, Intermarché, Auchan, Lidl, Minipreço and others.

Sonae (27,9%) and Jerónimo Martins (26,1%) are the main chains in Portugal, in terms of household spending. Right after we have Lidl, Intermarché, Auchan and Minipreço. Besides that all the other stores present in Portugal represente 16,7% of the total househol spending.
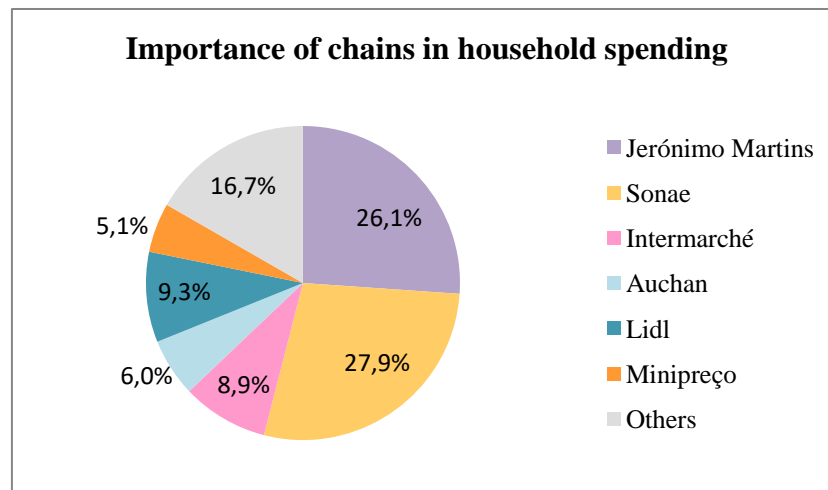
Figure 5: Importance of chains in household spending (Nielsen, 2019)

In 2019, each portuguese home went on average 136 times shopping, more 2,2% compared to 2018, and spent on average 2907 euros, more 3,2% compared to 2018 (Nielsen, 2019).

Nielsen 2019 analysis of the trend product classes conclude that in the food products markets, both INA + LIDL and INCIM registered, in 2019, a positive variation of + 4% and + 9%, respectively.

At INA + LIDL, the most dynamic sectors were: Pet Food (+ 7%), Vegetable Based Products (+ 7%), Confectionery and Appetizers (+ 7%), Frozen (+ 6%), Dehydrated (+ 6%) and Hot Drinks (+ 5%).

In Pet Food, the Animal Accessories market stands out, which is the segment that most contributes to this dynamism, with a growth of + 14%.

In the Vegetable Based Products market, Beverages grew + 10%, contributing significantly to growth.

At INCIM, the Beverages sector has grown by 14% while INA + LIDL has grown by 6%.

3. Conceptual Model and Hypothesis

The main objective of this study is to investigate the impact that marketing and labeling of different types of food has on the consumer.

Due to this, and based on research and bibliographic review concluded above, it is possible to identify several factors that influence the purchasing process of consumers and the impact that labeling has on them. In particular, the understanding nutritional information, the reading of labels, the first impact of the package, influence of packages that have labels like "free from"/"organic", correct distinction between healthy and non-healthy products.

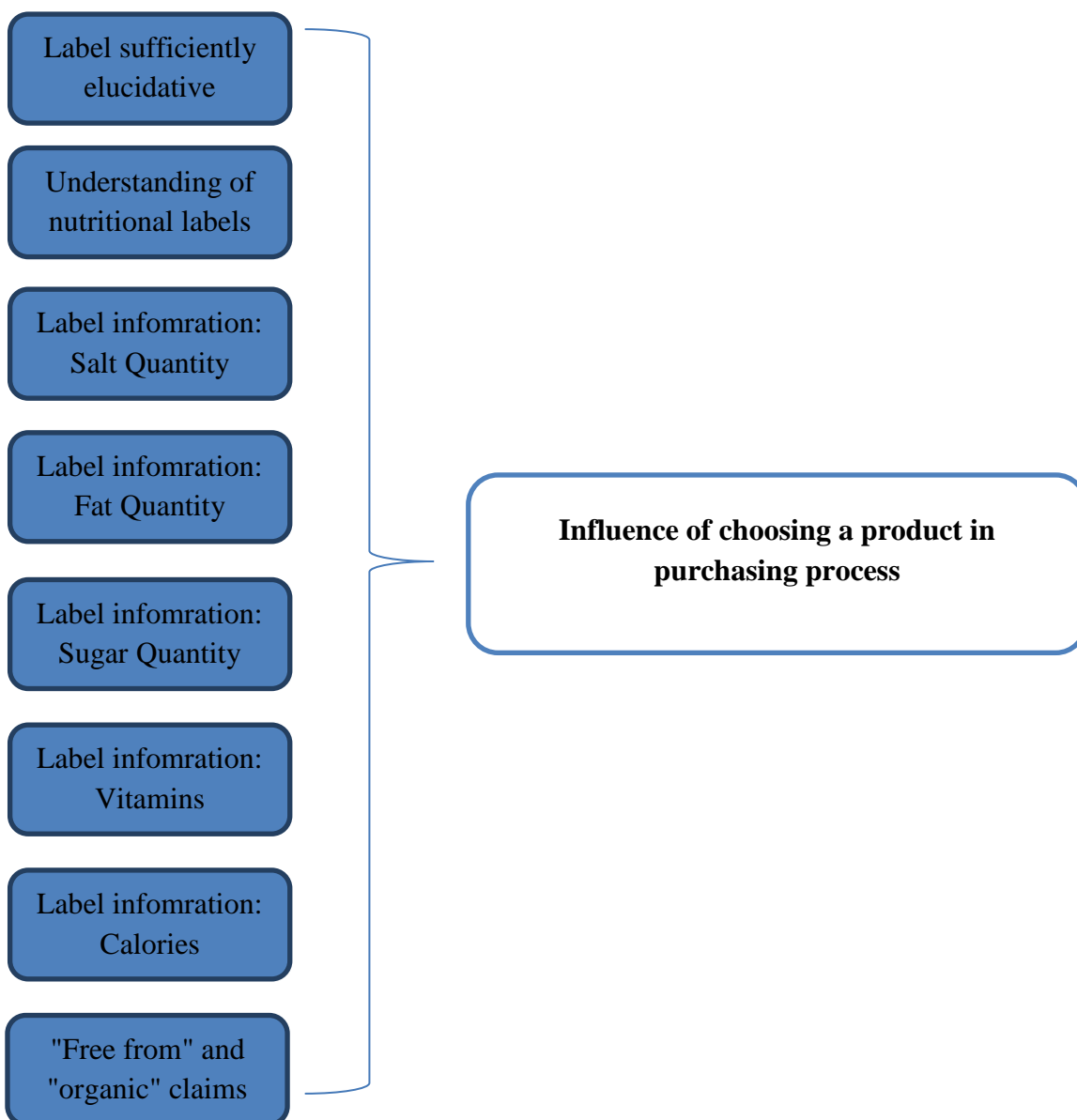Based on that, a Research Model was illustrated below:

Figure 6: Conceptual Model

4. Objectives and Hypothesis

The instability of consumer behaviour, by following the new trends in the food retail, force the brands to respond quickly to the needs of their target audience, and that is what will dictate their permanence and success in the market.

Nutritional labels and claims have been getting more importance to the consumers, with companies taking advantage to cause impact in the perception that consumers have about them, with the objective to get better results and sell more, which may eventually lead to increased product sales (Soldavini, Crawford, Lorrene, & Ritchie, 2012).

On the other hand, individuals have been more aware to products that have certain types of criteria that help them to make a decision (Aschemman-Witzel et al., 2013).

Consequently, industries are forced to "mask" certain food ingredients to adapt to new realities, for example, industries mask the word "sugar" so that consumers believe they are buying a product free from this ingredient, but in fact their being misled.

In fact, there is a need for a deeper research in what concerns food labels designs for consumers to actually understand their choices (Temple, Norma, Fraser, Joy, 2014).

With the development of this dissertation it is expected to be able to contribute more easily to identify the influence that food labeling has on consumers and the problems behind. To develop the knowledge and understanding of the consumer behaviour and choices in health food industry and examine how consumers interpret food labels and their awareness of what a healthy product really is.

Due to that, the main hypotheses in the present study are:

H1: It is expected that the individuals consider label sufficiently elucidative.

H2: It is expected that the individuals are not able to understand nutritional labels by themselves.

H3: It is expected that consumers consider Salt quantity in label information important.

H4: It is expected that consumers consider Fat quantity in label information important.

H5: It is expected that consumers consider Sugar quantity in label information important.

H6: It is expected that consumers consider Vitamins in label information important.

H7: It is expected that consumers consider Calories in label information important.

H8: It is expected that the individuals choose "free-from" and "organic" as healthier than the conventional ones.

5. Methodology

After conducting the literature review where the theoretical concepts were explored, it is now intended to expose the methodology to be used to obtain the data to be analyzed. In a first analysis, the contexts in which the data will be collected will be defined, as well as the methodologies to be used: qualitative, quantitative or both.

The goal of this type of research, is only quantitative, since the objective of the study is to cross variables and to realize through statistical analysis if there are relations between these variables. To this end, an online questionnaire was developed which appeared to be the best method of data collection for the study in question and also allows the collection of a considerable number of data (Saunders, Lewis, & Thornhill, 2012).

5.1. Sampling and data collection method

The sampling technique used is non-probabilistic for convenience since the sample selection was made primarily by the researcher and the *snowbal*l method was also used since it was also proposed to some respondents to share the questionnaire. (Malhotra & Birks, 2006).

The online survey consisted of 15 questions which were divided in many topics: questions about consumers' lifestyle, questions about consumers preferences when purchasing a product, questions consumers relation with packaging and reading nutritional labels. The questionnaire was available online from 16th to 30th October 2020 and it was distributed by e-mail and social media. Participants were asked for sincerity in their responses, alerting to the guarantee of anonymity and confidentiality of their data and responses. 211 responses were obtained (Attachement A).

In order to analyze the answers obtained from the online survey, it was used the IBM SPSS Statistics software version 27.0, with the purpose to understand how packaging and marketing influence consumers purchase intent of food packaged products.

6. Results Analysis

This chapter aims to expose the data obtained. In a first analysis, the respondents were explored from the point of view of their sociodemographic chracterization, lifestyle, product preferences and label perceptions. This analysis may be important to give us an idea of the weight that labeling and inherent marketing currently have on people's lives and how consumers make their decisions. Subsequently, some tests and their assumptions were carried out as well as the discussion of the results.

6.1. Descriptive analysis

6.1.1. Sociodemographic characterization of the sample

Of these 211 participants, 145 (68,7%) are female and 66 (31,3%) are male, with regard to age, 118 (55,9%) are between 18 and 24 years old, 56 (26,5%) are between 25 and 34 years old, 14 (6,6%) are between 35 and 44 years old and 45 at 54 years old, 4 (1,9%) are between 55 and 65 years old and 5 (2,4%) aged 65 and over.

With regard to Net Monthly Income, 80 (37,9%) are students, 14 (6,6%) are unemployed, 3 (1,4%) have incomes between 0€-499€, 35 (16,6%) between 500€-999€, 56 (26,5%) between 1000€-1499€, 14 (6,6%) between 1500€-1999€, 4 (1,9%) between 2000€-2499€ and 5 (2,4%) more than 2500€.

Table 1 – Sociodemographic characterization of the sample

		Frequency	Percentage
Gender	Female	145	68,7%
	Male	66	31,3%
Age	18 to 24 years	118	55,9%
	25 to 34 years	56	26,5%
	35 to 44 years	14	6,6%
	45 to 54 years	14	6,6%
	55 to 65 years	4	1,9%
	65 years or above	5	2,4%
Net Monthly Income	Student	80	37,9%
	Unemployed	14	6,6%
	0€-499€	3	1,4%
	500€-999€	35	16,6%
	1000€-1499€	56	26,5%
	1500€-1999€	14	6,6%
	2000€-2499€	4	1,9%
	>2500€	5	2,4%

6.1.2. Characterization of the sample lifestyle

Analyzing the response frequencies, this sample shows that of the 211 participants, 150 (71,1%) consider that they follow a healthy lifestyle, 61 (28,9%) do not consider that they follow a healthy lifestyle (Figure 7).

Regarding the type of diet they follow 174 (82,5%) say they do not follow any specific diet, 19 (9%) follow a diet with the aim of losing weight, 13 (6,2%) follow a vegetarian diet, 4 (1,9%) follows a weight gain diet and 1 (0,5%) follows a vegan diet (Figure 8).
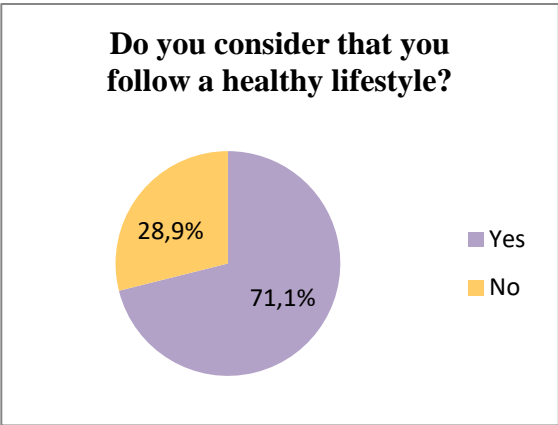
Figure 7: Descriptive analysis of consuer lifestyle
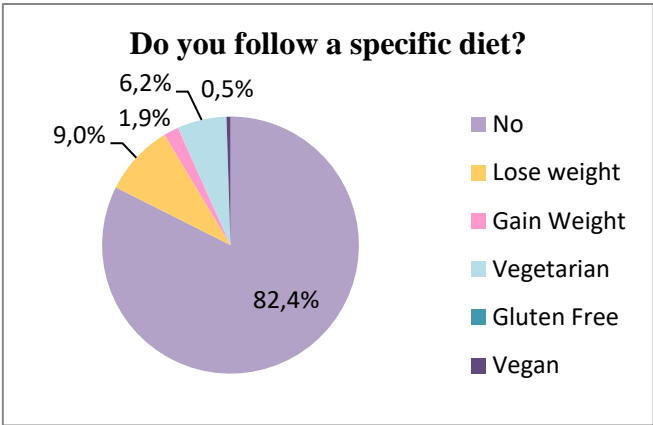
Figure 8: Descriptive analysis about consuer type of diet

6.1.3. Characterization of the sample product preferences

Consumers when asked if they give preference to "Diet" or "Light" products, 136 (64,5%) answer no, and 75 (35,5%) say yes (Figure 9). Those who answered yes were asked for the reasons for their response, of which 58 (77,3%) replied that diet / light products do not have sugars, fats, etc., 20 (26,7%) replied that they are healthier and 12 (16%) replied that they are more natural (Figure 10).
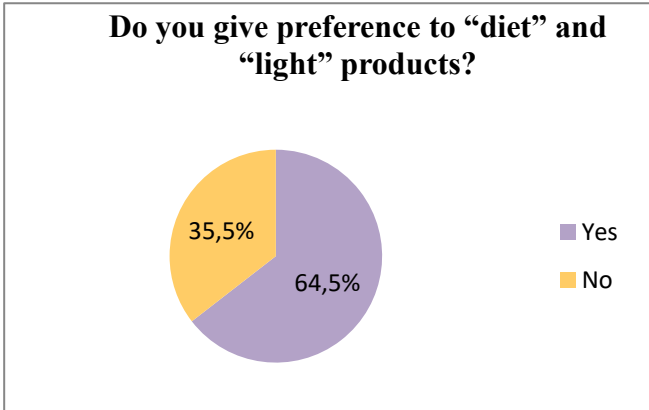
Figure 9: Descriptive analysis of consumer product preferences

If so, what are the reasons?

Does not contain sugar, fat, ect — 77,3%

Healthier — 26,7%

More natural — 16%
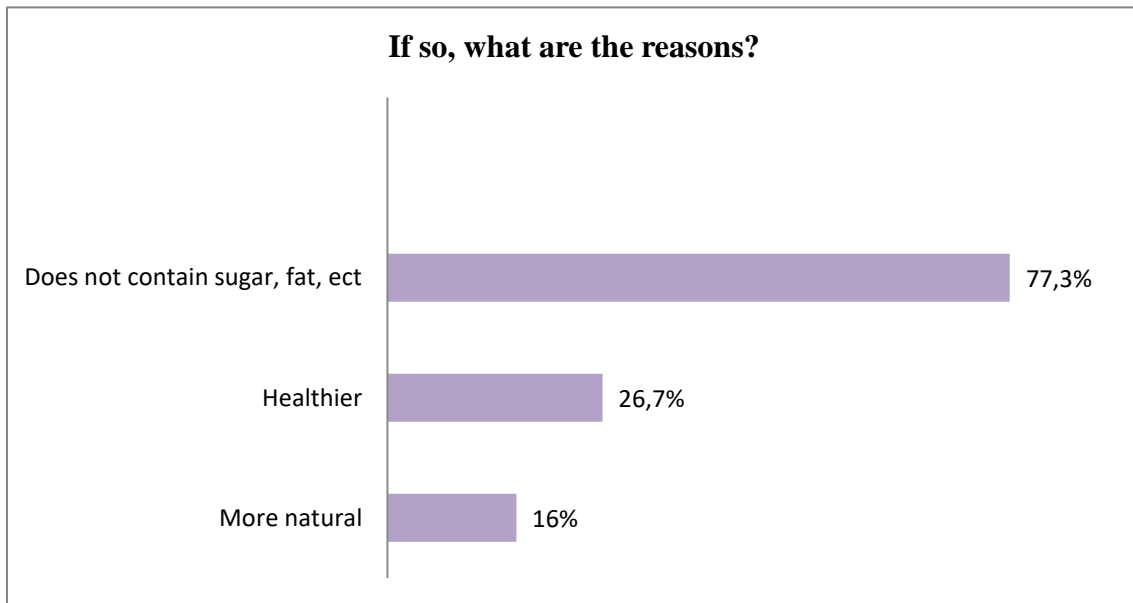
Figure 10: Descriptive analysis of the reasons why consumer prefer diet and light products

6.1.4. Characterization of the sample label perceptions

With regard to the consumer's relationship with labels, a number of questions were asked. Starting by knowing if consumers read labels before making a purchase, 132 (62,6%) answered yes, and 79 (37,4%) replied that they do not read labels (Figure 11).

Do you read the product packaging labels before purchasing?

37,4%

62,6%

■ Yes
■ No

Figure 11: Consuemer read packaging labels before purchasing

Respondents who read labels were asked whether they think the labeling is sufficiently clear, to which 75 (57,3%) answered yes and 56 (42,7%) answered no (Figure 12).
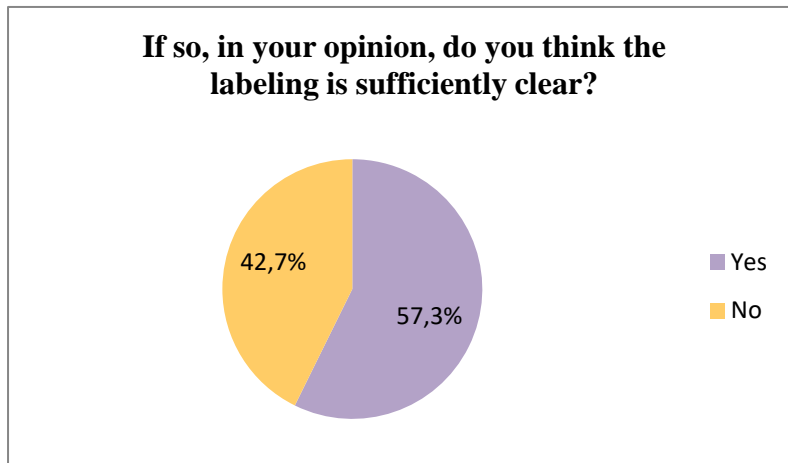
Figure 12: Consumers clarity about labels

It was also asked what are the biggest problems that the participants face when reading labels, 157 (74,4%) feel that the language is too technical and there is a use of terms unknown by them, 50 (23,7%) say they are little informed about nutritional information and 4 (1,9%) face the problem that nutritional information is not available in Portuguese (Figure 13).
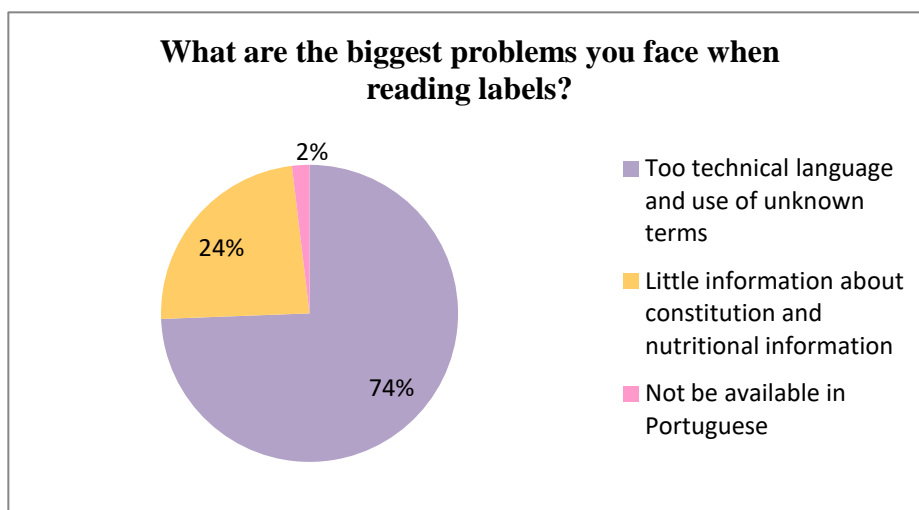
Figure 13: Biggest problem when reading labels

Regarding the information that the participants consider important to look for on the labels 182 (86,3%) answered the amount of sugar, 145 (68,7%) answered the amount of fat, 122 (57,8%) answered the amount of salt, 118 (55,9%) answered the calories, 66 (31,3%) answered vitamins and 3 (1,4%) answered that they do not read labels (Figure 14).
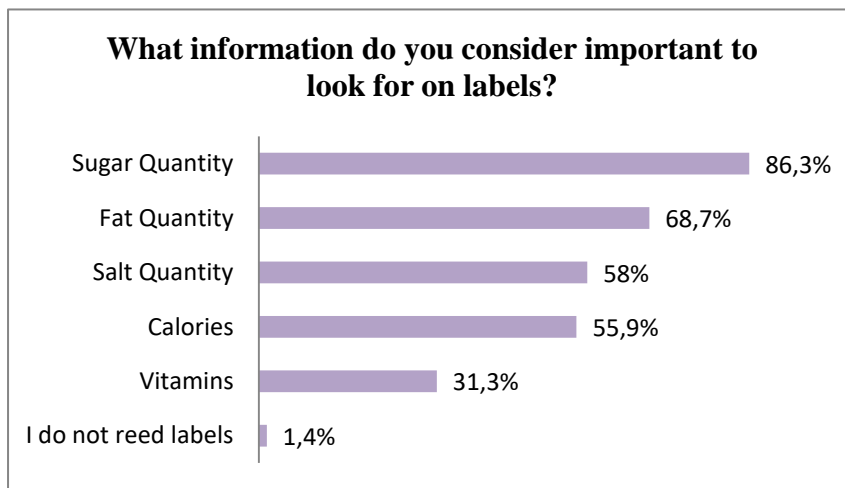
Figure 14: Important information to consider on labels

Consumers assessed the degree of importance based on a five-point Likert scale, the following topics.
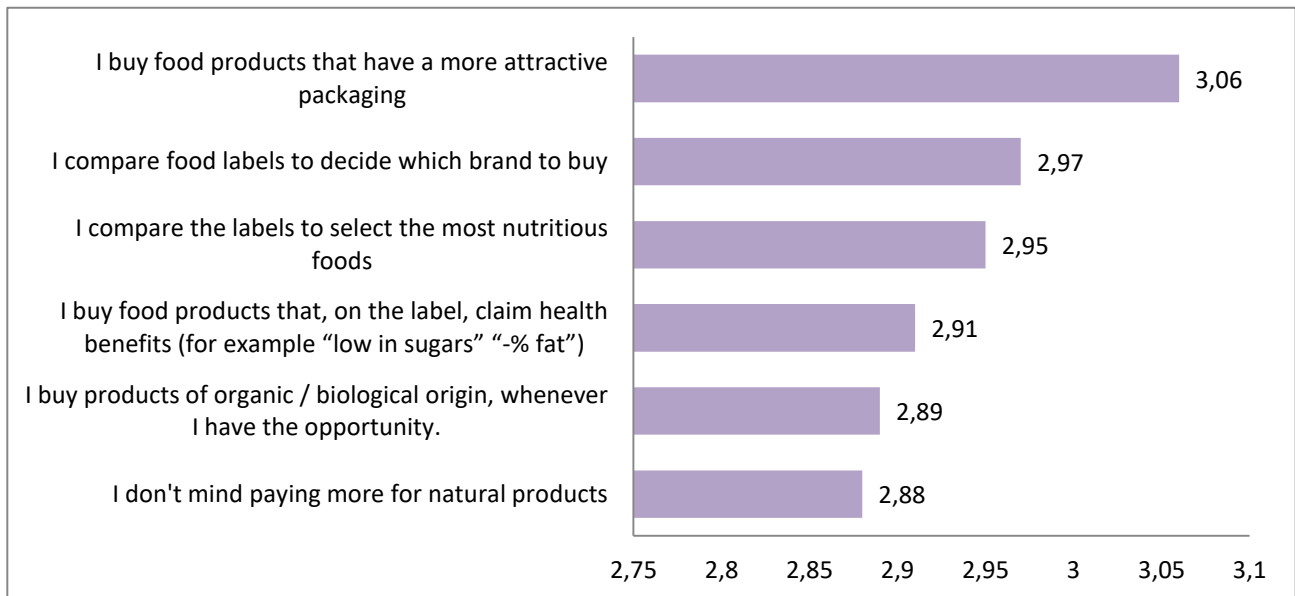
Figure 15: Descriptive analysis of consumer decisions whe choosing a product

For this question, the averages of each criterion were checked to have an overview criteria that have more weight for consumers. All criterias are really similar regarding their means, but buying food based on the packaging, compare food labels to decid which brand to buy and compare labels to select the most nutritious foos are the ones that respondentes considered more importante (Figure 15).

Participants were also asked whether they consider that all products that refer to "organic", "without sugars added" to the packaging are 100% healthy, 195 (92,4%) stated that they consider it and 16 (7,6%) consider it not (Figure 16).
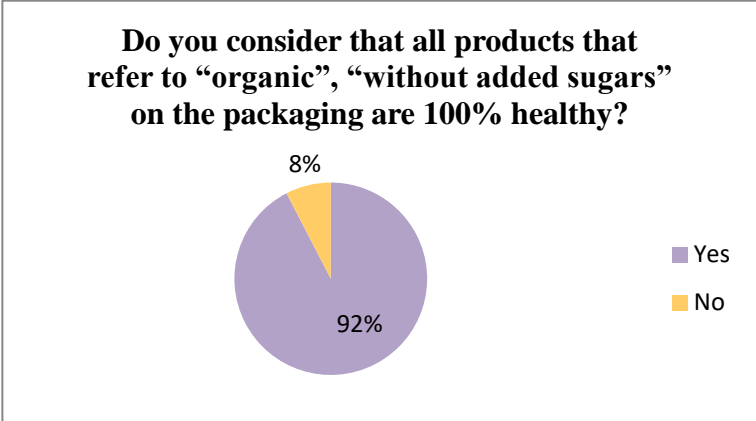
Figure 16: Consumers consideration about organic and no added sugars products

Finally, to facilitate the understanding of the consumer, it was asked in the opinion of the participants what should be changed in the information on the food labels, to which 102 (48,3%) responded that the language should be more accessible, 70 (33,2%) answered that there should be a better understanding of the information and 39 (18,5%) responded that the position of the information on the labels should be more visible (Figure 17).
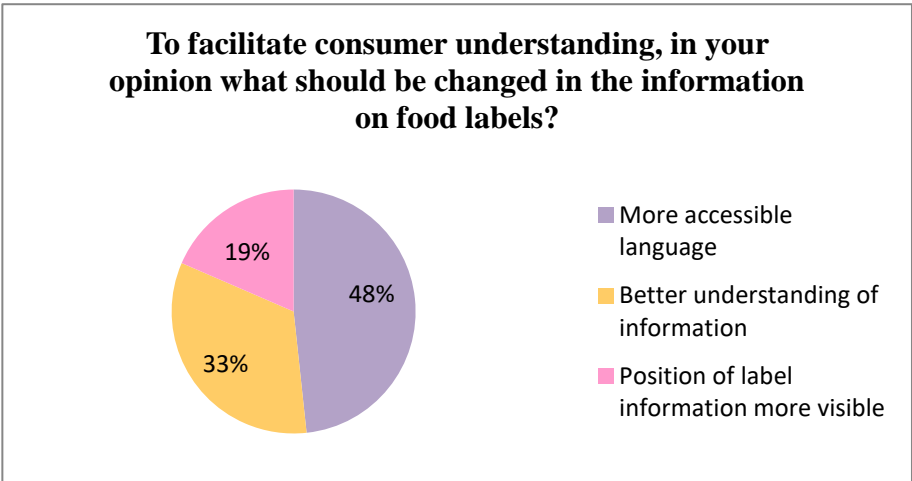
Figure 17: Consumers opinion about what should be changed in the information on food labels

6.2. Analysis of main components

The analysis of the main components is a factor analysis that aims to simplify the data by transforming the variables correlated with each other into components (Marôco, 2014).

The first test to be performed was the Kaiser-MeyerOlkin test together with the Bartlett Sphericity Test. The KMO test aims to analyze the homogeneity of dimensions. As for Bartlett's Sphericity Test it seeks to determine whether there are positive correlations between the various dimensions (Marôco, 2014).

Table 2 – KMO and Bartlett's Sphericity Test

Kaiser-Meyer-Olkin measure of sampling adequacy		0,636
Bartlett Sphericity Test	Approx. Chi-Square	244,895
	gl	15
	Sig.	0,000

N = 211; a According to Marôco (2014); b Level of significance considered in the analysis: $\alpha = 0,05$

A factorial analysis can be considered better and better, as the KMO statistic approaches one. Thus, indicating whether the analysis should be made with all data and interpreted taking into account the obtained value, which varies between zero and one. Therefore, the closer to one, the better the technical application of the factorial analysis of the data. The Bartlett test has the same type of analysis, that is, the null hypothesis is rejected, which means that factor analysis must be carried out. In the case presented, the KMO = 0,636 is considered a good value, the Bartlett test is 244.895 and a p-value (sig.) = 0,000, so it is concluded that there are indeed positive correlations between them, confirming together with the KMO test the adequacy of the dimensions (Table 1).

6.3. Analysis of reliability

Regarding the reliability analysis, Cronbach's alpha coefficient was used, which should vary between 0 and 1 according to Marôco (2014). Also according to the author Marôco (2014), in general, an instrument or test is classified as having adequate reliability, when α is at least

0.70. However, in some social science research scenarios, an α of 0.60 is considered acceptable as long as the results obtained with this instrument are interpreted with caution and take into account the computation context of the index.

Table 3 – Cronbach's Alpha Test

Cronbach's Alpha	N of items
0,625	6

Table 4 – Conbrach's Alpha Test

	Conbrach's Alpha
Compare food labels to decide which brand to buy	0,544
Buy bio / organic products whenever have the opportunity	0,549
Compare labels to select more nutritious foods	0,505
Don't mind paying more for natural products	0,586
Buy products that claim on the label ("low in sugars", "-% fat")	0,567
Buy products because they have more attractive packaging	0,696

The result presented in tables 2 allows to verify the existence of na acceptable internal consistency in the sample taken from the survey (α = 0,625).

As can be seen from Table 3, all variables have an alpha coefficient greater than 0.5, indicating measurement values are not the best. It should also be noted that the value of the "Buy products coefficient because they have more attractive packaging" presents a better measure of reliability than the others. Thus, the items present in the questionnaire have an acceptable internal reliability, however it is not the best.

6.4. Correlation between items

To analyze the correlations between items, Pearson's coefficient will be used. This coefficient makes it possible to identify relationships between variables and to evaluate the type and structure of the relationship between two variables, their magnitude (or intensity) and their direction. Pearson's correlation coefficient varies between -1 and 1, that is, perfect negative

and positive correlation, respectively, measuring the intensity and direction of the linear type association between two or more quantitative variables.

Pearson's correlation coefficient of 0,682, is the highest value in the relationships between items and corresponds to the association between the variables "Compare food labels to decide which brand to buy" and "Compare labels to select more nutritious foods". Pearson's correlation coefficient of 0.020 corresponds to the weakest relationship between the variables "Buy products because they have more attractive packaging" "Buy products because they have more attractive packaging".

There are also negative correlation values like -0,114 between "Compare food labels to decide which brand to buy" and Buy products because they have more attractive packaging ". And -0.036 between "Compare labels to select more nutritious foods" and "Buy products because they have more attractive packaging" (Attachment B).

6.5. Analysis of assumptions of linear regression

The research hypotheses of the present study will be tested using multiple linear regression. It is, therefore, necessary, in a first phase, to analyze the normality of the variables and validate the assumptions (Marôco, 2014). For this study, 6 simple linear regressions were necessary.

Table 5 – Linear Regression Assumptions

Dimensions	N	Normality		Independence of Errors	Multicollinearity	
		K-S	Sig.	Durbin-Watson	Tolerance	VIF
Is labeling sufficiently elucidative	211	0,378	0,000	1,862	0,909	1,100
Major problems of labeling reading	211	0,408	0,000		0,813	1,231
Label information: Salt Quantity	211	0,429	0,000		0,702	1,425
Label information: Fat Quantity	211	0,477	0,000		0,708	1,413
Label information: Sugar Quantity	211	0,536	0,000		0,889	1,124
Label information: Vitamins Quantity	211	0,421	0,000		0,798	1,254

Label information: Calories Quantity	211	0,342	0,000		0,848	1,179
Products that refer to "organic" "without added sugars" are 100% healthy	211	0,539	0,000		0,904	1,106
What should be changed in the label information	211	0,285	0,000		0,797	1,254

Dependent variable: What Most Influences Conusmer When Choosing a Product; Level of significance: α=0,05

Regarding the normality of the variables, this was validated through the Kolmogorov-Smirnov test, and it is possible to see that in all variables $\alpha<0.05$. This tells us that at the beginning all variables follow a normal distribution.

Regarding the assumptions of linear regressions, looking at the normal probability graph we can verify the distribution of errors. Once the errors are distributed around the line, we can validate that the errors have a normal distribution (Attachment C).

Then the assumption of homogeneity of the residues was analyzed, and, looking at the Dispersion Diagram (Attachment C), we can see that the residues are around zero, so they are considered constant. Looking now at the assumption of error independence, an assumption that is verified by the Durbin-Watson test, we can verify that the residuals are not very correlated since the value of this statistic is close to 2, validating the assumption. Finally, the values of the Variance Inflation Factor (VIF) and Tolerance were verified to confirm the assumption of the absence of multicollinearity and it was concluded that there is no correlation between the variables since the VIF values are less than 10 and Tolerance greater than 0.1. Once the assumptions are verified, we can validate the research model and perform linear regressions.

6.6. Hypothesis Test

In order to test the research hypotheses H1, H2, H3, H4, H5, H6, H7 and H8 a multiple linear regression was used, using the Product Selection Criteria as independent variables and the What Most Influences Conusmer When Choosing a Product as a dependent variable, Taking into account Table 5 below, we can see that 11,1% (adjusted R2: 0,111) of the influence of choosing a product is explained by the independent variables.

Table 6 – Linear Regression

Variables	Coefficients			
	β	t	Sig,	B
(Constant)		5,135	0,000	1,166
Is labeling sufficiently elucidative	0,309	3,569	**0,001**	0,403
Major problems of labeling reading	0,014	0,149	0,881	0,017
Label information: Salt Quantity	-0,156	-1,577	0,117	-0,214
Label information: Fat Quantity	-0,102	-1,039	0,301	-0,157
Label information: Sugar Quantity	0,067	0,766	0,445	0,163
Label information: Vitamins	0,263	2,846	**0,005**	0,357
Label information: Calories	-0,035	-0,389	0,698	-0,045
Products that refer to "organic" "without added sugars" are 100% healthy	0,006	0,073	0,942	0,017
What should be changed in the label information	-0,039	-0,419	0,797	-0,033

R_2 adjusted: 0,111; F(9)=2,809; ρ < 0,01

Method: Insert; Predictors: (Constant), Is labeling sufficiently elucidative, Major problems of labeling Reading, Label information: Salt Quantity, Label information: Fat Quantity, Label information: Sugar Quantity, Label information: Vitamins Quantity, Label information: Calories Quantity, Products that refer to "organic" "without added sugars" are 100% healthy, What should be changed in the label information,

Dependent variable: What Most Influences Conusmer When Choosing a Product; Level of significance: α=0,05

β = Standardized Coefficient; B: Unstandardized Coefficient

It is concluded that the model is statistically significant since the values of the F test indicate that there is a rejection of the null hypothesis (F(9) = 2,809; ρ <0,01), This means that there is at least one independent variable explaining the model,

Regarding the impact that each independent variable has on the influence of choosing a product, we can now verify that in relation to the variable "Major problems of labeling reading" (β=0,014; t=0,149; ρ>0,05), although this is positively correlated (β> 0) this is not statistically significant since ρ> 0,05, The "Label information: Salt Quantity" (β=-0,156; t=-1,577; ρ>0,05), "Label information: Fat Quantity" (β=-0,102; t=-1,039; ρ>0,05), "Label

information: Sugar Quantity" (β=0,067,; t=0,766; ρ>0,05), "Label information: Calories Quantity" (β=-0,035; t=-0,389; ρ>0,05), Products that refer to "organic" "without added sugars" are 100% healthy (β=0,006; t=0,073; ρ>0,05) and What should be changed in the label information (β=-0,039; t=-0,419; ρ>0,05) are also not statistically significant for the study since ρ> 0,05,

Finally, we can see that only the variables Is labeling sufficiently elucidative (β=0,309; t=3,569; ρ<0,05) and Label information: Vitamins Quantity (β=0,263; t=2,846; ρ<0,05) are statistically significant for the study in question and can be validated.

Table 7 – Validation of hypothesis

Hypothesis	Validation
H1: It is expected that the individuals consider label sufficiently elucidative.	**Validated**
H2: It is expected that the individuals are not able to understand nutritional labels by themselves.	Non-validate
H3: It is expected that consumers consider Salt quantity in label information important.	Non-validate
H4: It is expected that consumers consider Fat quantity in label information important.	Non-validate
H5: It is expected that consumers consider Sugar quantity in label information important.	Non-validate
H6: It is expected that consumers consider Vitamins in label information important.	**Validated**
H7: It is expected that consumers consider Calories in label information important.	Non-validate
H8: It is expected that the individuals choose "free-from" and "organic" as healthier than the conventional ones.	Non-validate

7. Conclusions

7.1. Discussion of results

This study aims at the Impact of Marketing and Labeling on Consumer Beahviour to understand the weight of the different criteria in the consumer purchase decision process, and whether there is in fact a false marketing around the products.

For a better understanding of this study it was realized a literature review, where several themes were explored around health concerns and behaviours associated to food, consumer behavior and the process and factors inherent to the purchase decision process, the impact o f nutritional claims and consumer perceptions, and other important topics.

Also, it was used the use of quantitative methodologies, namely, the development of a questionnaire to obtain the necessary data for the investigation (Saunders *et al.*, 2012).

Food is a biological need in our lives and following a healthy lifestyle is a practice that is an increasingly important practice for consumers, results indicate that individuals that are more concerned about developing diseases and their energy intake have different food choices and a stronger consciousness about their health Sun (2008). This can be seen in the questionnaire made to various participants, in which more than half (about 71,1%) consider that they follow a healthy lifestyle. This is good for the healthy food industries that seek consumers that are or want to be concerned with their own health.

The choice for better and better products should be important, and consequently that choice implies a good reading of the product, namely its composition through the labels. A study of Murchu e Gorton (2007), says that more than 90% of people check nutritional information. Yet, the interpretation of labels can often become confusing to the majority of consumers (Acton *et al*., 2018). It was possible to notice that a large part of the participants read the labels of the products they buy (about 62.2%), and that the labeling is sufficiently clear for many participants (about 57.3%). However, it remains an unknown topic for others. It is quite evident that knowledge in this area leads consumers to have some doubts about the language being inaccessible (48.3%) and little understanding of the information inherent in the labels (about 33.2%).

This study was carried out with the objective of understanding the relationship that consumers have with labeling in their decision to buy, and which criteria influence their choices the most.

Subsequently, the data were analyzed and statistically validated and after multiple linear regression was performed, it could be inferred that the criteria presented only explain about 11,1% of what most influences conusmer when choosing a product.

This result can be interpreted by the fact that many criteria that define the consumer's choice are present in most products and consumers already take for granted that they exist, not leading to a reason that would later affect the purchase decision. In addition, another factor that may justify this low explanatory value of the independent variables may be the fact that there is not so much knowledge on this topic that requires consumers to make a considered decision when choosing a product.

After the dimensions were analyzed in detail, it was realized that the only statistically significant dimensions for the study were *Is labeling sufficiently elucidative* and *Label information: Vitamins.*

The dimension Is labeling sufficiently elucidative explains 30.9% of what most influences conusmer when choosing a product what can make sense from an interpretive point of view. Although most of the participants who read labels claim that the labeling is sufficiently clear, a claim food study, suggest that nutritional claims tend to create a halo effect, leading consumers to believe that food contains other positive attributes (Wansink & Chandon, 2006). It can be concluded that there are a number of factors that can really weight in making decisions about choosing a particular product.

Due to that, it is important to mention that although they consider the language sufficiently elucidating, the majority also stated that the language of the labels is too technical and that there should be greater accessibility in this aspect, which may indicate that there is a lack of knowledge when reading labels and inherent technical words.

The Label information: Vitamins dimension explains 26,3% of what most influences conusmer when choosing a product.

This can be explained by the fact that, nutrition labels and claims on food packaging become an important source of information to consumers, while they are making their food

choices (Murchu & Gorton, 2007). So, consumers seek health benefits more than the calories the product contains. And also the vast majority consider it relatively important to compare labels to select the most nutritious food.

Interpreting the study in general, it is considered that the interpretation and clarity of the labels is complex and we realize that these last two dimensions really influence the consumer when choosing a product.

7.2. Academic Contributes

The present investigation aimed at this complementarity to the existing studies in the area, trying to contribute and deconstruct the complexity of the subject, gathering knowledge from a sample of consumers.

This study sought to realize the criteria that impact, or not, the choice of a product by consumers and it may be interesting to use some aspects present in the study that fall within the scope of the consumer profile in other marketing dissertations.

7.3. Pratical contributes

Using the literature review, it was understood the importance of labeling and packaging in consumer behavior, affecting the purchase decision process.

In a succinct way, this study can be interpreted as a way of realizing that the labeling on the products can be elucidative for the majority of consumers, however it presents some aspects to be improved in order to be more differentiating. It will therefore be interesting to invest in improving product labeling, and in this case, having products that really differentiate the labeling on the product.

7.4. Limitations and suggestions for future investigations

The fact that most of the hypotheses have not been validated may have affected the interpretation and respective conclusions of the study, and there may be the possibility of drawing more insights if the dimensions chosen had more weight in the dependent variable. In this way, I suggested that more criteria should be found to define what most influences a consumer when choosing a product, and that the weight that these criteria have in the choice of the consumer be studied. Another possibility would be to study the reasons that lead a

consumer to consider the labeling of a product important and thus try to create several consumer profiles with different needs.

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9. Attachments

Attachment A – Online Survey

What is your gender?

- o Male
- o Female

What is your age?

- o 18 to 24 years
- o 25 to 34 years
- o 35 to 44 years
- o 45 to 54 years
- o 55 to 64 years
- o 65 years or above

What is monthly net income?

- o Student
- o Unemployed
- o 0€-499€
- o 500€-999€
- o 1000€-1499€
- o 1500€-1999€
- o 2000€-2499€
- o >2500€

Section 2 – Consumer lifestyle

Do you consider that you follow a healthy lifestyle?

- o Yes
- o No

Do you follow a specific diet?

- o No
- o Lose Weight
- o Gain Weight
- o Vegetarian
- o Gluten free
- o Other:

Section 2 – Consumers product preferences

Do you give preference to "diet" and "light" products?

- o Yes
- o No

If yes, what are the reasons?

- o Are more natural
- o Does not have sugars, fat, etc
- o Are healthier

Section 3 – Consumers label percetions

Do you read the product packaging labels before purchasing?

- o Yes
- o No

If so, in your opinion, do you think the labeling is sufficiently clear?

- o Yes
- o No

What are the biggest problems you face when reading labels?

- o Too technical language and use of unknown terms
- o Little information about constitution and nutritional labels
- o Not be available in Portuguese

What information do you consider important to look for on labels?

- o Salt quantity
- o Fat quantity
- o Sugar quantity
- o Vitamins

- o Calories
- o Otherr:

To what extent do you agree or disagree with each of the following statements: Strongly agree (1) Strongly disagree (5)

I don't mind paying more for natural products

I buy products of organic / biological origin, whenever I have the opportunity.

I buy food products that, on the label, claim health benefits (for example "low in sugars" "-% fat")

I compare the labels to select the most nutritious foods

I compare food labels to decide which brand to buy

I buy food products that have a more attractive packaging

Do you consider that all products that refer to "organic", "without added sugars" on the packaging are 100% healthy?

- o Yes
- o No

To facilitate consumer understanding, in your opinion what should be changed in the information on food labels?

- o More acessible language
- o Better understanding of information
- o Position of label information more visible

Attachment B – Pearson's correlation test

Correlações

		Comparo rótulos dos alimentos para decidir que marca comprar	Compro produtos de origem bio/orgânica sempre que tenho oportunidade	Comparo rótulos para seleccionar alimentos mais nutritivos	Não me importo de pagar mais por produtos naturais	Compro produtos que no rótulo alegam ("baixo em açucares", "-% de gorduras")	Compro produtos por terem embalagem mais atrativa
Comparo rótulos dos alimentos para decidir que marca comprar	Correlação de Pearson	1	,268**	,682**	,156*	,264**	-,114
	Sig. (2 extremidades)		,000	,000	,023	,000	,099
	N	211	211	211	211	211	211
Compro produtos de origem bio/orgânica sempre que tenho oportunidade	Correlação de Pearson	,268**	1	,319**	,466**	,249**	,020
	Sig. (2 extremidades)	,000		,000	,000	,000	,773
	N	211	211	211	211	211	211
Comparo rótulos para seleccionar alimentos mais nutritivos	Correlação de Pearson	,682**	,319**	1	,170*	,320**	-,036
	Sig. (2 extremidades)	,000	,000		,013	,000	,606
	N	211	211	211	211	211	211
Não me importo de pagar mais por produtos naturais	Correlação de Pearson	,156*	,466**	,170*	1	,205**	,075
	Sig. (2 extremidades)	,023	,000	,013		,003	,276
	N	211	211	211	211	211	211
Compro produtos que no rótulo alegam ("baixo em açucares", "-% de gorduras")	Correlação de Pearson	,264**	,249**	,320**	,205**	1	,137*
	Sig. (2 extremidades)	,000	,000	,000	,003		,048
	N	211	211	211	211	211	211
Compro produtos por terem embalagem mais atrativa	Correlação de Pearson	-,114	,020	-,036	,075	,137*	1
	Sig. (2 extremidades)	,099	,773	,606	,276	,048	
	N	211	211	211	211	211	211

**. A correlação é significativa no nível 0,01 (2 extremidades).

*. A correlação é significativa no nível 0,05 (2 extremidades).

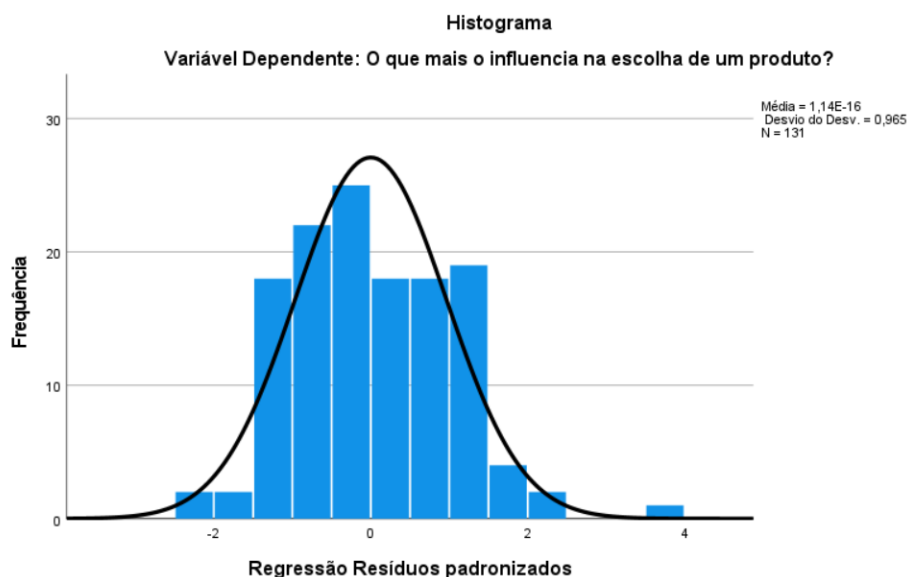## Attachment C – Linear Regression Assumptions

Histograma

Variável Dependente: O que mais o influencia na escolha de um produto?

Média = 1,14E-16
Desvio do Desv. = 0,965
N = 131

Gráfico P-P Normal de Regressão Resíduos padronizados

Variável Dependente: O que mais o influencia na escolha de um produto?
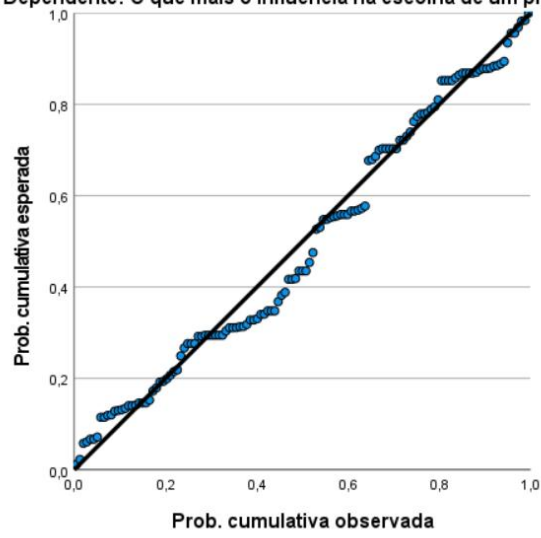

Gráfico de dispersão

Variável Dependente: O que mais o influencia na escolha de um produto?