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Fake News vs. Healthy Diet

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Dissertation submitted as partial requirement to obtain the degree of
Master in Business Administration

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September, 2019

Acknowledgements

Foremost, I would like to express my sincere gratitude to my advisor, Professor Dr. Renato Costa, for his unconditional support and help during this thesis dissertation. His guidance was critical for the success of this journey, and I feel very honored to have received his valuable and experienced recommendations, furthermore Professor Dr. Renato Lopes da Costa was always ready to help and patiently guided me throughout the thesis.

I would also like to show my gratitude, to Dr. Lídia Tarré, Administrator at *Gelpeixe*, who suggested, during my master's degree, the implementation of an academic work in her company, which gave way to the theme of this thesis dissertation. Additionally, I need to thank Dr. Lídia Tarré, for introducing me to my advisor, Professor Dr. Renato Lopes da Costa.

My sincere thanks also go to the nutritionist Filipa Abreu, who very diligently clarified all my technical uncertainties and a critical help during the interviews process.

I am very grateful to my aunt, Dr. Joana Vasconcellos, who helped me with the language review. Despite holding an advanced certificate in English, English is not my mother tongue. Hence my aunt, for whom English is the second language, gave me a useful hand with the language challenge.

Last, but not least, a deep thank you goes to my family, for all the support, inspiration and understanding during the master's degree and thesis dissertation. They were always ready to help in each and every way they could, always very encouraging and enthusiastic throughout the process.

Abstract

Today we live in a globalized world, with no boundaries, and where we can be updated of any information by the minute. This globalization phenomenon has a lot of advantages as well as disadvantages. It is wonderful to know the news by the minute, however the easiness and swiftness real news spreads, same goes to the false news. Tools, such as search engines like *Google, Bing, Yandex*, etc. Social Media (i.e. *Facebook, Instagram, Twitter*) or Blogs, are turning the information sharing easier, but uncontrolled. Online it is very difficult to assess the reliability of news or information. On these lines, at present, a hotly debated and widely spread topic deals with diets and a healthier life. I mean to say, people are adopting new diets and consuming products that someone online declares they are healthier and offer added benefits. Therefore, this study seeks to understand the reliability of these new diet trends, who are these people that shared the information, and the impact of it on the society.

Keywords: Advertising, Marketing, International Transfer of Knowledge and Sponsorship

JEL classification:

- M300 Marketing and Advertising: General
- O330 Technological Change: Choices and Consequences; Diffusion Processes

Resumo

Actualmente vivemos num mundo globalizado. É possível estar constantemente informado sem qualquer tipo de barreiras. Este fenómeno a que chamamos de globalização vem trazer à sociedade um conjunto de vantagens assim como de desvantagens, o facto de podermos saber o que se passa no mundo ao minuto é um excelente avanço, contudo com toda a facilidade de partilha de informação é difícil apurar a veracidade da mesma. Ferramentas como motores de busca (*Google, Bing. Yandex*, etc) Redes Sociais (ex. *Facebook, Instagram, Twitter*), ou Blogues, têm facilitado a partilha de informação, contudo esta mesma partilha não tem qualquer controlo. Como consequência, actualmente é difícil apurar a veracidade da informação disponível online. Seguindo esta linha de pensamento, um tópico actual bastante debatido e partilhado diz respeito a dietas e estilo de vida saudável. As pessoas estão a começar a adoptar novas dietas e produtos que "alguém" online afirma ser mais saudável e ter um conjunto de benefícios para a saúde. Com base nesta tendência, esta dissertação procura compreender a veracidade e autenticidade destas novas dietas, quem são estas pessoas que estão a partilha-las, e o impacto que esta nova tendência pode ter na sociedade.

Palavras-Chave: Publicidade, Marketing, Transferência Internacional de Conhecimento, Patrocínio

Classificação JEL:

- M300 Marketing and Advertising: General
- O330 Technological Change: Choices and Consequences; Diffusion Processes

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List of Abbreviations

CHD: Coronary Heart Disease

SFA: Saturated Fatty Acids

WOM: Word-of-Mouth

Chapter I – Introduction

1.1. Contextualization

We are living in a world of constant change, the ideas spread so easily and quickly that we do not have the time to determine the impact that they can cause. People all over the world are in constant contact among themselves and able to discuss ideas and news by the second. This is what we like to call "globalization".

A few decades ago, before the internet explosion all over the world, when someone needed to learn more about something there were two options. One was to read books, articles, scientific research, among other published material. The other option was to consult a specialist on the research field and ask about it. Both options are considered good and reliable, because in both cases the information came from someone well informed about it who studied the subject.

Now, with the internet explosion and the existence of social media, it is possible to find any information everywhere anytime. There is no need to read publications or consult specialists in order to understand something. We just need to look for it online and a lot of information immediately appears. However, while the old fashion way of research is reliable, this new trendy way is not. The information available online can be written by anyone, with little or no proven knowledge or studies on the subject, so it cannot be totally reliable.

By the time people started to adopt this new way of research, whenever someone needs to know something, the source is always online search. It could be for instance news, academic research, health issues, diet issues, astrology, finance, politics, among any other topics. The online publications do not follow any prior check or ethical rules. Let's take the case of a journalist who found something and wants to publish it on the newspaper/magazine she/he works for. She/he needs to have real evidence/facts of it to show to her/his director prior to its publication. Online is pretty different. I can publish anything, anytime, anywhere, true or false, and it can even go viral. There is little ethics online.

With the lack of online rules, the so called "fake news" emerged, and by "fake news" I mean stories, developed as being a genuine piece of news, yet not true with some hidden agendas to deceive people. Curiously false news normally goes viral and have a certain impact on the

society. One remarkable case happened in the United States 2016 elections when multiple false news about candidate Hillary Clinton emerged, with the view to manipulate the opinion of the voters against her. The fake news that circulated during the United States 2016 elections were the most spoken ones until today, yet there are tons of fake news all over the internet.

Following the previous example of fake news, it is defended by many people, that this fact triggered Donald Trump's election, I ask myself how many more fake news we are reading daily, thinking that it tells the truth. How can we tell it's right or it's false? And if in the end it affects our life or worse our health? As far as we can see, managers and marketers already saw an opportunity for marketing activities with online options and take advantage of this fact.

1.2. Research Issue

As previously described, there is an increasing problem around fake news, better said its outcomes. The challenge is that people are using the "online" platform as the primary source of research despite being unreliable. Therefore, it becomes easy to spread false information on any subject.

In Portugal, there is a growing trend for "healthy diets". Everywhere people are talking more and more about it and are showing an increasing concern about what to eat. However, this concern is more visible online, for instance the social media sites are full of influencers talking about new diets, "superfoods", where to buy it and how to eat better.

The idea of being healthier by changing our eating habits and eat cleaner is great, yet the majority of those who promote it on social media or publish articles on blogs do not hold any degree in nutrition, so maybe they are not the best people to advise anyone on this topic. Nevertheless, people still think of these sources as reliable and keep following their ideas and suggestions.

Knowing this, and after I understood that there is few scientific research work about it, what I want with this thesis dissertation, is to explore three main subjects:

- The first one is related with healthy diets, in this one I want to understand the true meaning of "healthy diet", because most people see diet as a means to lose weight rather than our daily eating habits. And then the history behind the food industry manipulation, if it is an actual problem or if it is something that is happening for a long time and how. Finally I wish to know the new trendy diets and products that are being promoted online and what the authors think about them;

- The second is related with fake news. Where the objective is, to understand the true concept of fake news, how it spreads, which impact it can have and how can we detect one.

- To finish, I wish to analyze the relationship between both topics, in other words, how the food industry uses fake news to sell more and how it is affecting the society, based on real examples.

1.3. Theoretical and Empirical Objectives

Concerned with this topic, only one author already wrote about it. Marion Nestle, a nutrition professor, with no relation with *Nestlé S.A,* wrote some books about the manipulation of food companies, not specific with fake news but closely related with this subject. Yet, besides this author, no other author wrote anything specific about it, there is some scientific research about specific diets or products, other scientific research about fake news and social media, but there is nothing connecting everything like Marion Nestle's work.

With the lack of investigative work about the topic and knowing that although there is research about a few details but almost nothing linking everything and connecting the dots, this thesis dissertation is developed with the goal to understand the entire scenario, not only based in theoretical research but also empirical research. Therefore, the theoretical objective (Table 1) is to combine all the research work about every subject and connect it. Then, the empirical objective (Table 1) is to confirm the theoretical conclusions with Portuguese nutritionists and the general public.

In the end, knowing the lack of investigative work about this subject, the goal is to contribute to the improvement of knowledge within the scope of the study, which is the impact of false news on health. Moreover, even though the empirical research is based on the Portuguese society, it can be a starting point for further investigations.

Table 1. Specific objectives of this investigation

Theoretical level	**Empirical level**	**Having in mind the lack of investigation about the topic**
Identify the theoretical base that constitutes the analysis platform for the empirical work, by explaining and defining the main concepts. Stand out: • Identify the concept of "healthy diet", defining what is in fact an healthy diet and the goals of it; • Explore the concept of "fake news", describing what it is and how it works; • Analyze the new trendy diets and if they are considered "healthy diets" according to the authors.	Strengthen and deepen research about healthy diet and false news by developing a set of interviews with nutritionists and the general public with the following goals: • Verify the authors' opinion about these new diets with other specialists; • Identify if this is a positive trend or not; • Analyze the true impact of it; • Identify the nutritionist awareness for this; • Identify the general public awareness for this.	• Contribute to the improvement of knowledge within the scope of the study, which is the impact of false news on health; • Contribute to the development of professional literature; • Submit a study that shows the impact of food/diet false news on the Portuguese population and what nutritionists think about it; • Understand the role of food companies in what is happening.

Source: Author's elaboration

1.4. Thesis Structure

The structure of this thesis is divided into two main parts. The first part (Figure 1), integrates the theoretical foundation of the topics covered and is divided into two subparts.

The first subpart is related to healthy diet and begins to outline this concept in order to understand which concept we are developing throughout the thesis. Clarified the concept, I made some research in order to understand the food tendencies throughout the years and where the first manipulations started. Then, I analyzed whether it is an actual problem or not and the influence of the food industry on society's eating habits. To finish this first subtopic, there is a brief explanation of how companies could manipulate the information in order to persuade consumers to use their products.

The second subpart is related to fake news. The primary objective of this subpart is to clarify what is in fact a fake or false news, if this is something recurrent or if it something that happens sporadically. After understanding the true concept of fake news, the goal is to analyze how to identify it in any context and how to avoid it.

Bearing in mind the topic of this thesis, still in the second subpart, it is also important to explain the correlation between fake news and social media, knowing its ever-increasing number of users and how social media is a great way to spread fake news. And, to finish this subpart, I want to have understood the impact of it on society's eating habits.

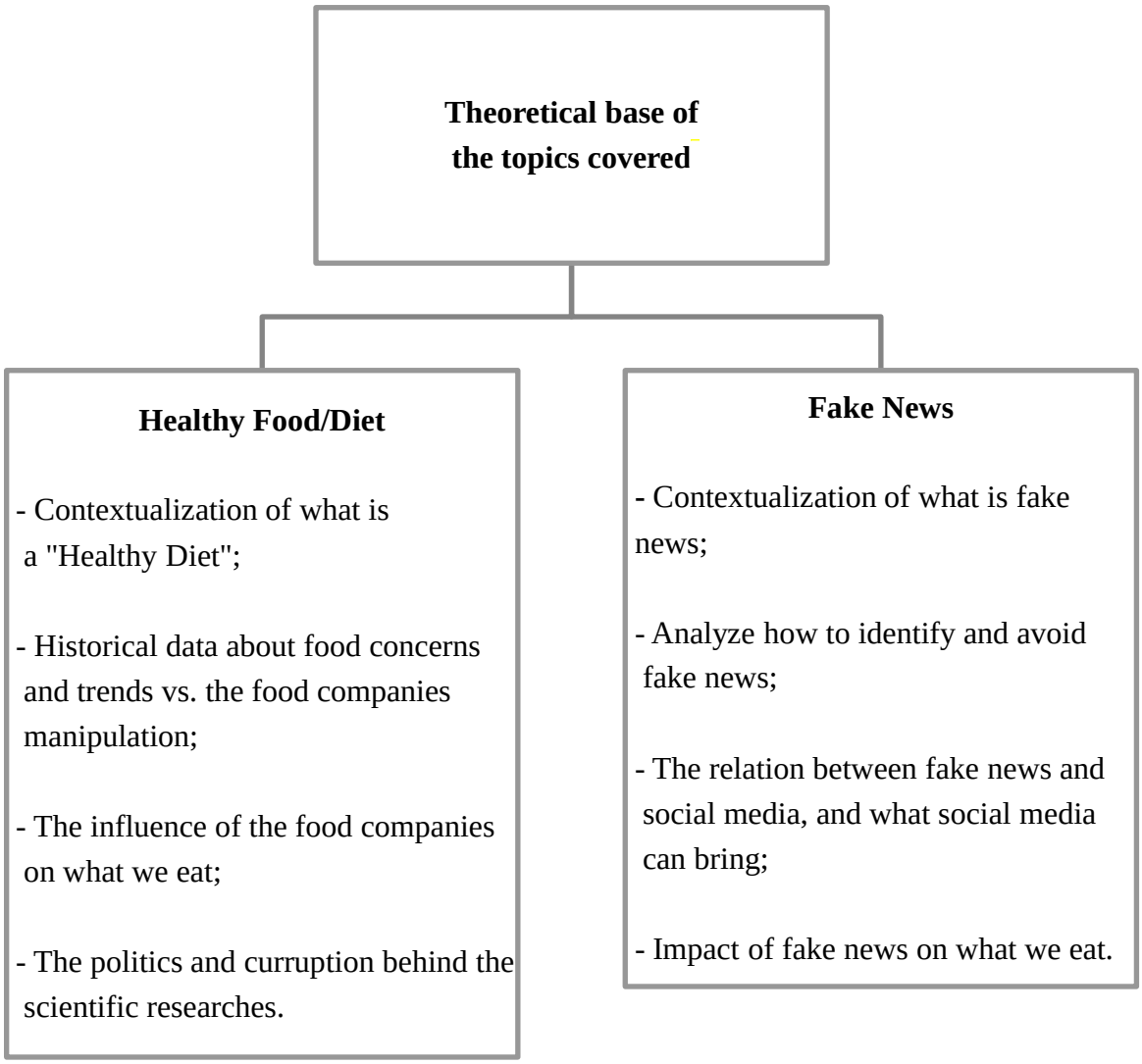
Following this theoretical part, the second main part (Figure 2) of this thesis will be the empirical one. This part is also divided into two subparts.

The first subpart relates to the interviews developed with nutritionists. This sample of nutritionists is entirely Portuguese, and the goal is to clarify the previous theoretical conclusions. In other words, this subpart seeks to conclude what nutrition professionals think about these new diets full of food restrictions, what they think about all this easy access to information and whether this online information is reliable or not. To understand their opinion about people without a qualified background in nutrition promoting diets and food. And to finish whether they consider all these “healthy” campaigns positive or negative in the long term.

The interviews conducted with the general public, also an entirely Portuguese sample, will be part of the second subpart. These interviews aim to conclude the true impact of it on the society by a set of questions, for instance if they already heard about any of these diets, and where they heard about them. If these people have any food intolerance and if yes, if they did the proper medical check to know it. And if they already bought any food product that they saw online. In order to have a representative sample the interviews were conducted with people who normally do the shopping by themselves and have own account on social media.

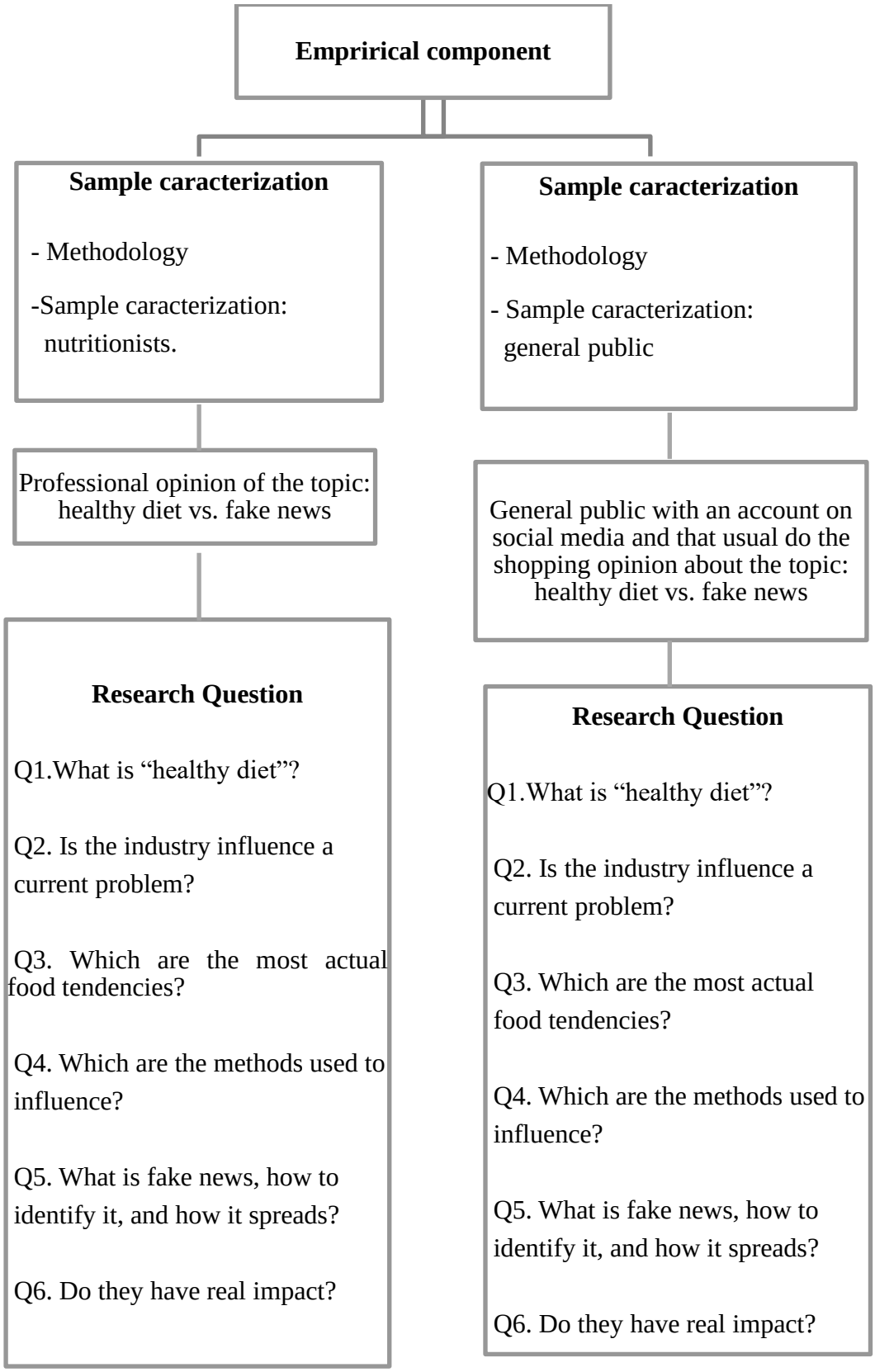
After-these two main parts, both theoretical and empirical conclusions were compared to understand the true impact this false news has on what we, as consumers, eat. The primary objective is to conclude whether the society with all this awareness for healthy diet is becoming in fact healthier on the long term or not, and if the society understands the true concept of healthy diet and does not mix it with weigh loss diet. These are two different cups of tea!

Figure 1. Structure of the first part



Source: Author's elaboration

Figure 2. Structure of the second part (empirical) of the thesis



Source: Author’s elaboration

Chapter II – Healthy Food/Diet

2.1 Contextualization

Healthy food, or healthy diet, is a very wide concept. When we use the word "healthy" before food or diet, is implied that is something that promotes good health and reduces the risks of chronic diseases (Cannon, 1992). There are many guidelines in order to explain how to eat and which products are better, one example is the *Portuguese Food Wheel* (Food Education Campaign, 1977), which demonstrates, in average, how much of each category of product we should add to our diet in order to have a healthy life. According to the *Food Wheel* we should eat mostly carbo hydrates such as bread, rice, potatoes, seeds and pasta, and almost the same proportion of vegetables and fruits. It advises for a shorter portion of dairy products and a very little slice of beans, meat or fish and fats.

This kind of illustration of what the society should eat is used in other countries with different shapes, for instance a pyramid. In Portugal the first diagram was made in 1977 for a Food Education Campaign but have changed over the years. Yet, with the spread of information, the idea of healthy diet changed completely, and today it is impossible to define an exclusive Food Wheel that will be accepted by everyone as "healthy" suggestion. Nowadays, not only because of the number of food industries, but also because of the amount of information available covering this topic, the different ideas about "what we should eat in order to be healthy" are numerous.

Some people agree with the traditional *Food Wheel*, some say that the goal is to eat as much as you can. So, previously, in the *Food Wheel* the goal was to eat as much carbo hydrates as vegetables and fruits, now the goal is to avoid carbo hydrates for plenty of reasons, which make large portion of the *Food Wheel*. With respect to fruit and vegetables, the idea remains the same, eat a lot, but with respect to meat it is very difficult to establish, if not impossible, the right amount we should eat to be healthy. The challenge is that ideas are continuously changing.

These Days there are several predispositions to healthier diets, and some nutritionists argue that if a diet has a name it is not reliable. Yet, named diets are increasing. One of the oldest ones is the Functional Diet, based on the Hippocrates (father of medicine) saying "Let food be thy

medicine and medicine be thy food". This diet suggests that if we consumed some products in certain quantities, because of their biologically active compounds, it can reduce the risk of some diseases. Examples of products naturally functional are the olive oil and omega 3 fatty acids. And the products can be modified in order to be functional. One example is the existence of Gluten Free and Lactose Free products.

Another well-known diet is the Macrobiotic. This one is not only a diet but also a lifestyle, following "healthy mind in a healthy body" motto. This diet claims that the sodium-potassium balance is ideal and eat daily cereals (40% to 60%) and vegetables (20% to 30%), weekly fish, seeds and fruits, and monthly meat, eggs and dairy products (Portuguese Macrobiotic Institute, 1985).

A very popular and wide-spread diet in the current days is the vegetarianism, which a lot of people confuse with veganism. Vegetarianism is only a diet, it can be ovo-lacto vegetarianism that excludes meat and fish but includes eggs and dairy products; ovo-vegetarianism that excludes meat, fish and dairy products, but include eggs; lacto vegetarianism, that excludes fish, meat and eggs, but includes dairy products; semi-strict vegetarianism that excludes every animal product except honey, and strict vegetarianism that excludes every animal product. Whereas veganism, is a way of living, where the diet is vegetarianism strict. However, a vegan individual not only avoids eating animals but also does not use leather clothes, cosmetics tested in animals, among others. (Berkeley, 2017)

In 2019 we have 5 popular diets, all with a name (Matthews, 2019). One is the Paleo Diet, the basis of this diet is what de Paleolithic man ate. Knowing that in the Paleolithic the agriculture was not discovered, they only ate meat, fish, fruits and vegetables. Another is the Ketogenic Diet, a high-fat, low-carb diet that is responsible for some impressive weight loss changes but is also notoriously difficult to follow. The main proposition is that by lowering carb consumption, the body will be forced into a state of ketosis, which means it burns fat instead of carbohydrates for energy. Only about 10 percent of daily calories will derive from carbs, while 80 percent from fat (like avocado, nuts, and oil). Which means that bread, some starchy vegetables, oats, and fruit are out of the diet. This diet is so restrictive that many dietitians generally advise against following the plan.

The Whole30 is other of the five popular diet of the year. It was developed as an elimination diet to help people figure out how food impact them physically and mentally. The core foundation is to eat nothing but vegetables, fruit, nuts and meat for 30 days. And, at the end of the 30 days, supporters claim you will feel transformed. Follows the DASH (Dietary Approach to Stop Hypertension) diet, a doctor-backed diet that was developed to prevent and lower high blood pressure. This diet is heart healthy and may help in losing weight and lower heart disease risk too, with no strange rules, and no food groups eliminated.

The last popular diet is very old but in 2013 was questioned when *the News England Journal of Medicine* published a study that claimed the Mediterranean diet reduced the risk of heart attack and stroke. The Mediterranean diet is the one followed in countries around the Mediterranean Sea and emphasize a plant-based eating approach, loaded with vegetables and healthy fats, including olive oil and omega-3 fatty acids from fish.

2.2 Historical Data

About 10,000 years ago, the agriculture was not developed, and human beings got their food through hunting, gathering, and fishing. “Most recently, as farming emerged, nomadic hunter-gatherers gradually disappear, and the society had the idea that we are trapped in Stone Age bodies in a fast-food world, what is driving the existing enthusiasm for Paleolithic diets” (Gibbons, 2013). The attractiveness of these Stone Age diets is grounded on the idea that modern humans progressed to eat the way hunter-gatherers did during the Paleolithic (from about 2.6 million years ago to the start of the agricultural revolution) and that our genes do not have enough time to get used to this farmed foods. Yet, the real Paleolithic diet was not all about meat, it is a fact that “hunter-gatherers around the world crave meat more than any other food and usually get around 30 percent of their annual calories from animals. But most also endure lean times when they eat less than a handful of meat each week” (Gibbons, 2013). The reason of it is very easy to explain, hunter-gatherers despite of trying hard, do not have success every day in hunting, so meat was not a daily food, sometimes they succeed only one or twice per week. “It turns out that “man the hunter” is backed up by “woman the forager,” who, with some help from children, provides more calories during difficult times. When meat, fruit, or honey is scarce, foragers depend on “fallback foods” (Brooks, 2013).

Henry (2013), a paleo biologist at the Max Planck Institute for Evolutionary Anthropology in Leipzig says that "There's been a consistent story about hunting defining us and that meat made us human,", but according to Gibbons (2013), author of *The First Human: The Race to Discover Our Earliest Ancestors*, it is only half of the story. They want meat for sure, but what they actually live on is plant nutrients. "What's more, she found starch granules from plants on fossil teeth and stone tools, which suggests humans may have been eating grains, as well as tubers, for at least 100,000 years—long enough to have evolved the ability to tolerate them."
The notion that we stopped evolving in the Paleolithic period cannot be true since our teeth, jaws, and faces have gotten smaller, and our DNA has changed since the invention of agriculture. And another piece of evidence is lactose tolerance. "All humans digest mother's milk as infants, but until cattle began being domesticated 10,000 years ago, weaned children no longer needed to digest milk. As a result, they stopped making the enzyme lactase, which breaks down the lactose into simple sugars. After humans began herding cattle, it became tremendously advantageous to digest milk, and lactose tolerance evolved independently among cattle herders in Europe, the Middle East, and Africa. Groups not dependent on cattle, such as the Chinese and Thai, the Pima Indians of the American Southwest, and the Bantu of West Africa, remain lactose intolerant" (Gibbons, 2013).

Wrangham (2013), a Harvard primatologist argues that "the biggest revolution in the human diet came not when we started to eat meat but when we learned to cook. Our human ancestors who began cooking sometime between 1.8 million and 400,000 years ago probably had more children who thrived. Pounding and heating food "predigests" it, so our guts spend less energy breaking it down, absorb more than if the food were raw, and thus extract more fuel for our brains. "Cooking produces soft, energy-rich foods," says Wrangham. Today we can't survive on raw, unprocessed food alone, he says. We have evolved to depend upon cooked food."

All these historical data prompt a twist on "You are what you eat" motto, it is more accurate to say, "You are what your ancestors ate". "There is tremendous variation in what foods humans can thrive on, depending on genetic inheritance. Traditional diets today include the vegetarian regimen of India's Jains, the meat-intensive fare of Inuit, and the fish-heavy diet of Malaysia's Bajau people. The Nochmani of the Nicobar Islands, off the coast of India, get by on protein from insects" (Gibbons, 2013).

2.3 The food industry influence

"It's been an important topic in the pharmaceutical world, and now it's becoming a much more important topic in the nutrition world," said Wiss (2016), a member of Dietitians for Professional Integrity. For decades we are listening and are aware of the influence of pharmaceutical companies on health care and treatment of diseases, on the other hand it is not obvious the influence of food companies on healthy eating habits of the population as well as the consequences of bad eating habits. One of the causes is the fact that the society sees food in a totally different way from medicines, although the public in general knows how food can affect the health (in a good or bad way). The medicines are automatically linked with health improvement and seen like a “good” drug. Only the fact that to get hold of medicines we need a physician’s prescription and to buy food we have full responsibility with direct access, which turns food into a lot more “casual” matter. Of course it is, but the truth, is that nutrition influences a lot our health condition in the long term, and by following the wrong diet for some years it can have serious effects in the human body.

In what concerns medicine, people are more aware and cautious. They look for sources of information and trust mostly recognized specialists, the ones with a degree from a certified medical school, such as certified medical doctors and pharmacists. But then in what respects food people do the opposite, they do not consult or seek specialists, even though there are well known certified specialists. People in general trust anything they read, mostly online, that looks like a good idea for what they need at that moment. The problem is that the consequences of today’s bad food choices are not shown in the immediate future, will be shown later. Same goes for the good consequences. Now, in the immediate future, it can look like it does improve the health or reduce weight, but in some years’ time it can trigger some serious diseases (Wiss, 2016).

The way people see food, in a such casual way, gave room to very successful marketing campaigns of food companies, even more with the power of internet that gave them total reach by spending much less money. But this is not just an internet problem, years before the internet big boom situations related to food companies influencing indirectly what the society eat happened too, not those regular marketing campaigns like billboards, but “promotional campaigns” based on sponsored studies and opinion leaders. Below follows some examples of those strategies.

a) Sugar Industry (1950's)

In the 50's high rates of coronary diseases started to appear. Now it is known that some specialists, inclusive a few from the Sugar Industry, knew that the likelihood of the major cause was the sugar, although the news on the papers reported "fats" as the main cause.

To be able to announce that the main cause of CHD were the saturated fat and dietary cholesterol, the Sugar Industry through the Sugar Research Foundation conducted several studies where they "identified a strategic opportunity for the sugar industry: increase sugar's market share by getting Americans to eat a lower-fat diet". In order to do that, they led nutritionists to point out "the chemical connection between high-fat diet and the formation of cholesterol which partly plugs our arteries and capillaries, restricts the flow of blood, and causes high blood pressure and heart trouble" (Kearns *et al*., 2016).

Although in 1962 some evidence showed up of how diets low in fat and high in sugar could elevate serum cholesterol level. Three years later the News York Herald Tribune ran a full-page article on the Annals articles stating that "Sugar increased the risk of heart attacks." But the Sugar Research Foundation did not quit and only 2 days after the article, the executive committee approved a literature review on Carbohydrates and Cholesterol Metabolism by Hegsted and Robert McGandy. "Hegsted will receive $500 ($3800 in 2016 dollars) and McGandy $1000 ($7500 in 2016 dollars)" (Kearns *et al*., 2016), half of the amount would be paid at the start of the project, and the remainder when the article has been accepted for publication.

Due to this CHD research project sponsored by the Sugar Industry for several years, the society were cutting on saturated fat and adding sugar to their daily basis nutrition, thinking that they were avoiding CHD, but the fact was they were increasing the risk.

Nowadays there is more insight into the effects of sugar on health, yet, the sugar industry still holds an enormous power over the consumers. The main problem nowadays is not the sugar in itself, the cane sugar, but the artificial sugars added to food. These are the truly unhealthy "sugars", and these are the ones available in a lot of products present in our daily diet.
Companies such as *Coca-Cola, Nestlé, Danone,* among others, are selling products full of these added sugars. The fact is that for decades they are market leaders, irrespective of how many

pieces of new information linking diet and health appear, and this kind of companies still are on the top food companies (Nestle, 2002).

b) Eggs situation (1970's)

Following my previous statement that dietary cholesterol was bad for the heart, another food substance to be avoided, showed up, in the 70's. This time the problem were the eggs, and this idea remained for decades. This idea developed with some studies of the early part of the 20th century that "led to the somewhat simplistic conclusion that because cholesterol was the key component of the classic atherosclerotic lesion, dietary cholesterol must be central to the aetiology of the disorder in both animals and humans" (Mann, 2001).

At the time, the recommended dose of eggs per week were only two. The misinterpretation of the relationship between dietary and blood cholesterol "originated in part from the erroneous belief that the cholesterol we eat converts directly into blood cholesterol, but also from the strong dietary messages about egg restriction that emanated primarily from the United States" (Mann, 2001).

Recently this all idea changed completely and today eggs are seen as an excellent addition to the daily diet. This all idea has change, and according to Vander Wal *et al*. (2005), the "eggs are a nutrient-dense food that, contrary to popular opinion, are not high in SFA or in energy." They are also rich in cholesterol and however "the total fat and SFA content is not high and the fat in eggs is predominantly unsaturated", an egg is also relatively low in energy. The eggs are also "a valuable source of many essential micronutrients and a rich source of high quality protein", and because of it "there is also emerging evidence from the US that eggs could help to promote weight loss in overweight and obese subjects by increasing feelings of satiety and reducing short-term energy intake."

Nowadays experts no longer set limits on the number of eggs people should eat, provided they are consumed as part of a healthy diet that is not high in SFA, and even the eggs are sawn as a relatively inexpensive source of nutrients for the people with lower incomes.

c) Leaflet of Villejuif (1970/1980)

Another well-known example was “the widely circulated ‘Villejuif leaflet’ (also known as the ‘Villejuif flyer’ or ‘Villejuif list’). The leaflet listed a number of safe food additives with their E numbers as alleged carcinogens. The leaflet caused mass panic in Europe in the late 1970s and 1980s. One of the entries on the list was citric acid (E330)” (González-Vaqué, 2018).

According to a leaflet in 1976, brands such *Coke, Schweppes, Martini, the Amora Mustard, Banga orange juice*, among others, “contained additives which despite being authorized in France actually would be toxic or carcinogenic. To warrant this fear, the leaflet referred to an anonymous source: a "Hospital in Paris" (there are 37 hospitals in Paris) having conducted research on food additives. The leaflet presented a threefold classification of all food additives "authorized for consumption by the French Ministry of Health"; 17 were said to be "toxic and carcinogenic," 27 were "suspect" and under "current scrutiny," and the others were labeled "innocuous." To encourage consumers to boycott the dangerous brands and products, the leaflet lists all food additives pertaining to these three categories, each additive being referred to by its code name” (González-Vaqué, 2018: 468).

Sometime later, more precise information appeared, such as the name of the hospital, that was Villejuif Hospital, with specialization in advanced research in cancer, and the name of other dangerous brands. Although this case was considered a rumor because there were no proofs of it, a lot of people kept linking those brands to cancer and stopped to buy it for decades.

d) Gluten-Free Products (2004)

After the millennium some news tendencies showed up, and around 2004 started the Gluten-Free phenomenon. People with no celiac disease or intestine problems started to cut on gluten and eating only gluten-free products. This because “specialist” are saying that gluten is bad for the health and “nutritionists” recommend to avoid gluten to lose weight, and all of these recommendations are having such impact that “between 2004 and 2011 the market for gluten-free products grew at a compound annual growth rate of 28%” (Gaesser *et al*., 2012).

According to Gaesser *et al*. (2012), “despite the health claims for gluten-free eating, there is no published experimental evidence to support such claims for the general population. In fact,

there are data to suggest that gluten itself may provide some health benefits, and that gluten avoidance may not be justified for otherwise healthy individuals." Yet, in the last few years, a lot of celebrities endorse the Gluten-Free Diets for weight-loss, although there are no studies proving that, and in fact there are reports of weight change in people with celiac disease (the one who truly need a gluten-free diet) and "these reports indicate that for a significant percentage of overweight or obese patients with celiac disease, body weight may actually increase on a gluten-free diet." The reason of it is the high percentage of fat and total energy present on gluten-free products.

Another point that none of those Gluten-Free "influencers" talked about are the health benefits of gluten. In addition to the potential benefits of gluten for improving blood lipid levels gluten may play a role in blood pressure control and may also boost the immune system in humans. "There is no evidence to suggest that following a gluten-free diet has any significant benefits in the general population. Indeed, there is some evidence to suggest that a gluten-free diet may adversely affect gut health in those without celiac disease or gluten sensitivity" (Gaesser *et al*., 2012).

e) Smart Choices (2009)

In 2009 Smart Choices Program arise with the objective to help people to identify healthier food choices. In order to do it, Smart Choices Program asked various nutritionists to join them.

Yet, "the first product labeled with the Smart Choices logo: Froot Loops – a kid's cereal providing 44 percent of its calories from added sugars." Facing this, Newsman (2009), a New York Times reporter made a front page with the title "For your health, Froot Loops", where the president of Smart Choices, Kennedy[1] (2009), explain that "You have a choice between a doughnut and a cereal… So Froot Loops is a better choice". The Economist interpreted this as "It's practically a spinach!"

[1] Referred in: Nestle, M (2018). Unsavory Truth: How Food Companies Skew the Science of What We Eat. Basic Books: New York

By doing this they made people believe that this kind of products are healthier and of course it made children eat more cereals than fruits and vegetable (it's more attractive from the beginning). In the following year, Smart Choices was history because was considered rather marketing and not healthier choices.

f) Lactose intolerance

In the past decades, more and more people are becoming "lactose intolerant" and as a consequence the consumption of dairy products are decreasing and the consumption of substitutes as soymilk, or almond milk, are increasing. The experts who presents the television documentary *Ask the Doctor* (2017) made a full episode about this lactose intolerance question. And the fact is that one of the experts, Dr. Naik (2017) considers himself as lactose intolerant without making any test, and as Dr. Naik (2017) there are a lot of people, who are actually avoiding dairy products and never made any test. People are avoiding dairy based on online consulting, family consultation or media reference. And these are not trustworthy sources.

In order to better understand these theme Dr. Golley (2015) made a study where first of all she and her colleagues refer to the importance of dairy: "The benefits of the consumption of dairy foods are numerous. They are the biggest source of Ca in the Australian diet and whole milk and other dairy foods provide a unique package of other essential nutrients including protein, vitamins (A, B12 and riboflavin) and minerals (P, Mg, K and Zn). Not consuming these foods risks insufficient dietary Ca intake and has been known to result in reduced bone mineral density, increased incidence of fracture, and other risks to health and well-being" (Yantcheva *et al*., 2015: 1).

Yet, as was with the Gluten-Free situation, if we have a real intolerance or allergy of course we need to get alternatives. And there are alternatives for the nutrients present on dairy products, for example if we eat almonds or broccolis, we will get Calcium too, it is a question of research about it.

But the truth about this lactose intolerance is mostly a question of fashion and self-analysis, and in order to prove that Dr. Golley (2015) and her colleagues made a research with 1184 participants where "188 indicated that they were currently avoiding dairy products. Of this number, fifteen reported avoiding dairy products because of a medically diagnosed condition, mostly

cardiovascular, and thirty-four gave diverse reasons unrelated to symptoms or diagnosed conditions. Explanations given included: concerns about levels of saturated fat; personal dislike of taste; calorie and weight management; and the view that dairy foods were not appropriate for human adult consumption. The remaining 139 reported symptoms and negative reactions to the consumption of dairy products, including nine people (0·8 %) who reported having been formally diagnosed with coeliac disease. All subsequent analyses focused on the remaining 130 symptomatic dairy avoiders" (Yantcheva *et al*., 2015: 3). So, 130 out of 188 participants who avoid lactose, are avoiding lactose by self-diagnose. This is more than 60% of the sample.

Is true that "milk and wheat both contain components that can trigger adverse serious physiological reactions. Principally, these components are a disaccharide (lactose) and protein (gluten), respectively, and the intolerances that they trigger are diagnosed clinically. However, the avoidance of dairy foods for symptom control, as found previously for wheat appeared to rely substantially on a non-medically diagnosed connection between ingestion and symptoms" (Yantcheva *et al.*).

The conclusion of the referred study was that: "In addition to the many adult Australians avoiding consumption of wheat or both wheat and dairy products, a similar further number reports avoiding dairy products, similarly mostly without a formal diagnosis, and citing largely similar, primarily gastrointestinal, symptoms. The accuracy of self-diagnoses, the actual sources of symptoms and the physiological mechanisms, remain to be established; in addition, the tendency for dairy avoidance to be associated with more worry about illness identifies both symptom severity and psychological responses to symptoms attributed to dairy as targets for further investigation. Most significantly, though, the findings are further evidence of a widespread tendency for people to seek to exercise control over their health by eliminating dietary factors considered suspect without medical evidence or oversight. Avoiding foods to alleviate adverse symptoms should be weighed against the consequences of eliminating dietary factors and their related nutrient profiles. In the case of dairy foods, those consequences could be significant for individuals and, given the apparent scale of the avoidance behavior, for society in the long term" (Yantcheva *et al*., 2015: 7).

g) "Biological/Organic" Products

A more recent tendency is the biological/organic foods. It is true that the food we eat is full of antibiotics and pesticides, and the only reason for it is the fact that the planet is overpopulated and the only way to give food to all the people is to produce it industrially. By industrially it is implied full of chemicals in order to grow faster and have long shelf life. Therefore, knowing that most of the food we eat is not biological/organic, people now are looking for biological/organic food options.

In order to be a biological fruit or vegetable, it implies organic farming (produced in such a way as to avoid soil depletion through the practice of crop rotation), any usage of herbicides, pesticides, chemical fertilizers or insecticides. What concerns meat, the animal needs to be born and live in an open environment and cannot take any antibiotics during its entire life. It needs to grow healthy without chemicals and with biological natural food. The fish cannot be considered biological, but "wild fish", and wild fish is the fish captured at the open sea/ocean by respecting all the fishing rules (size of fishing net, amount of fish captured, and season).

The market for this kind of products are increasingly growing over the past years, this market "was valued at $27.8 billion in 2004. North America and Europe together comprise 96 per cent of global revenues" (Shears, 2010). And, in order to show to the consumer whether a product is biological or not it used a logo.

This logo can only be used under certain specific rules following approved legislation and certification. To have this certification the products need to be fully tested and examined. These tests are mainly related to the percentage of pesticides and antibiotics present in the product. Yet, it is not so simple to determine if a product is truly organic or not, "in terms of organic farming in the UK, the key features are avoiding the use of artificial fertilizers and pesticides, and the use of crop husbandry to maintain soil fertility and control weeds, pests and diseases", but, "there is no foolproof way to check whether a particular food on a supermarket shelf has been produced organically because there are so many different criteria and most are hard to verify scientifically. For example, synthetic fertilizers (banned in organic farming) are almost impossible to distinguish from natural ones." And "one of the criteria that define organic meat involves the use of antibiotics. Organic meat farmers are only allowed to use them to fight infections once each year. For pigs, turkeys and chickens that probably means once in their

lives. However, some farmers give their animals frequent, low-level doses because animals without infections are likely to be hungrier and die heavier. But this risks losing the "organic" status and price. Whilst the level of antibiotics in an animal can be measured after death, there has been no way of testing the history of an animal's antibiotics regime" (Shears, 2010: 206-207).

Despite the thoughts of how the biological and organic products are better for the health, the society in fact are paying more for a certain product that is considered healthier, which in fact no one can prove 100% whether it's truly biological and organic or not.

h) Paleo Diet

According to the *Paleo Diet Organization*, this diet is "(…) a nutritional approach that focuses on eating only foods that are high in nutrients, unprocessed, and based on the foods that were available and eaten by humans in Paleolithic times. The main idea behind the paleo diet is that if humans were not able to consume a food thousands of years ago- before industrial agriculture, the domestication of animals, and modern food processing existed- than humans should not consume these types of foods today, because the human body is not adapted to them."

In the past few years this diet was promoted by many international celebrities, such as nutritionists as the ultimate way to be healthy and lose weight at the same time.

Andersen and Kuhn (2017), two film makers, explored a little more ~~about~~ the food industry and made a television documentary named *What the Health?*. This documentary explore a lot of food topics, but one is extremely related to this tendency. In order to make a trustworthy documentary, they talked with different doctors and experts on the subjects and some explained that although we are learning for decades, it is not the sugar the ultimate problem of diabetes type II, we can spent an entire life without eating too much sugar, but if we eat too much meat we can still have Diabetes, in a few words and without too much explanation, by eating too much meat our body becomes incapable of absorb insulin, and that's the primary cause of diabetes.

Yet, the claim to increase the amount of fruits and vegetables in our daily diet is a great choice. In fact, if we think at the basics of this diet, the Paleolithic men were unable to eat protein every day, because at the time they needed to hunt, and it was not so easy to do it. So, their main diet

consisted of grains, vegetables and fruits. However, as it happens nowadays, there are a lot more access to all kind of foods, people are increasing the amount of protein and that is why this "Paleo Diet" can be harmful to health in the long run.

"Many paleoanthropologists say that although advocates of the modern Paleolithic diet urge us to stay away from unhealthy processed foods, the diet's heavy focus on meat doesn't replicate the diversity of foods that our ancestors ate" (Gibbons, 2013).

Table 2. Allowed and forbidden products in Paleo Diet

Allowed	**Forbidden**
All read and white meat;	Grains and cereals
All fruits and vegetables;	Vegetable oils (sunflower oil)
Nuts and seeds	Dairy products
Eggs	Refined and processed products
Healthy oils (avocado oil)	Legumes/vegetables and peanuts

Source: Author's elaboration

i) Detox

Lately, a massive market of detox products (mainly juices) has increased. "Advertised everywhere, it is fervently recommended by newspaper columnists and celebrity icons. Publishers and authors (some of whom should know better) make wads of money out of this fashionable fad" (Dixon 2005: 261). The claims about the benefits of these products are the purification of the body, weight loss and a lot of claims about toxin elimination such as its accumulation "which threaten our physical and mental health. And we can get rid of them by following a "detox diet" or drinking herbal teas", yet, "what is weird about the more profound, faddish use of the term is that the alleged toxins are never define" (Dixon, 2005).

"The most common reasons cited by naturopathic doctors for prescribing detox therapy are environmental exposure to toxins, general cleansing/preventative medicine, gastrointestinal disorders, autoimmune disease, inflammation, and fibromyalgia chronic fatigue syndrome and weight loss." And, despite of the booming of the detox industry, there is very slight clinical

evidence to support the use of these diets. “There is preliminary evidence to suggest that certain foods such as coriander, nori and olestra have detoxification properties, although the majority of these studies have been performed in animals.” Until now, no rigorous clinical investigation about the detox effects have been conducted, and one that made the studies about those products harder is the fact that “commercial detox diets rarely identify the specific toxins they aim to remove or the mechanisms by which they eliminate them, making it difficult to investigate their claims” (Dixon, 2005).

The big concern about this diet is the lack of regulation and the risks associated to it, such as vitamin and protein deficiencies caused by the extreme fasting, and the risk of overdose on supplements, laxatives, diuretics or even water. However, the idea of this diet is very seductive” because of the “promise of purification and redemption, which are ideals that are deep-rooted in human psychology” (Dixon, 2005).

As the Professor Klein and Doctor Kiat (2014) defend on their research: “There is no doubt that sustained healthy habits are of greater long-term value than the quick fixes offered by commercial detox diets.”

2.4 Food Politics

It is known that industries can influence the society in many ways. They can introduce new trends, they can define if the society consume more of a product or less of another, and in order to understand how the industries do it, an American academic, also nutrition professor and writer, did some research about this specific topic and published her achievements in several books. One of the first things that Nestle wrote in her 2003 book was that “most of us believe that we choose foods for reasons of personal taste, convenience, and cost; deny that can be manipulated by advertising or other marketing practices.”

The fact is, for centuries the industries are defining diets, but what we believe is that is our choice, and Nestle (2003) explained how this happens; in order “to satisfy stock holders, food companies must convince people to eat more of their products or to cat their products instead of those of competitors. They do so through advertising and public relations, of course, but a so by working tireless and to convince government officials, nutrition professionals, and the

media that their products promote health—or at least do no harm." And to do it, "they go right to the heart of nutrition as a profession. Indeed, co-opting experts—especially academic experts—is an explicit corporate strategy. A guide to such strategies explains that this particular tactic "is most effectively done by identifying the leading experts and hiring them as consultants or advisors or giving them research grants and the like."

This strategy is applied by food companies "to engage nutritionists as allies in various ways, some evident but some less so. They routinely provide information and funds to academic departments, research Institutes, and professional societies, and they support meetings, conferences, journals, and other such activities." Commonly Food companies "sponsor the educational activities of nutrition professional societies as well as the research of individual investigators, and nutrition academics routinely consult for food companies on these and more product-oriented matters." The Center for Science in the Public Interest made a survey in the mid-1970s in order to "identified frequent payments by food companies to agriculture and nutrition faculty for consulting services, lectures, membership on advisory boards, and representation at congressional hearings", and more recently a similar British study found out that "58 of 46 members of national committees on nutrition and food policy to consult for or receive funding from food campaigns."

It is understandable the industries' strategies to define the consumers preferences through health specialist, although it is not understandable and is ethically questionable why those professionals accept that, but Sievenpiper[2] (2018), an investigator who sometimes partners with food companies, explained to a reporter the reason why. Sievenpiper[3] (2018) explained that "It's very hard to fund randomized trials properly… You have to engage the food industry to get those trials done… [We] see it as our role to try to influence [companies] and produce healthier foods and promote healthier foods"

The problem about food companies funded and sponsor this kind of studies is that in the great majority the studies will support the idea of the company, no matter the results they will find a way to match the expectations. Nestle made an experiment about it and explained that she "had

[2] Referred in: Nestle, M (2018). Unsavory Truth: How Food Companies Skew the Science of What We Eat. Basic Books: New York

[3] Referred in: Nestle, M (2018). Unsavory Truth: How Food Companies Skew the Science of What We Eat. Basic Books: New York

collected 168 studies sponsored by food companies or conducted by investigators with financial ties to food companies. Of there, 156 reported results favoring sponsor's interests; only 12 did not." Such as Nestle (2003), others made the same experiment, an example is Sacks (2014) and his colleagues at Deakin University in Melbourne that "used systematic methods to find out how much nutrition research funded by food companies or conducted by researchers with financial ties to such companies. They examined every peer-reviewed research article published in the fifteen most-cited nutrition journals in 2014. Their as yet unpublished results show that of more than four thousand studies, the great majority were funded by government agencies or foundations. Only 14 percent disclosed food-company funding or financial tries. But of that cohort, more than 60 percent reported results favorable to the sponsor, whereas 3 percent came to unfavorable conclusions."

Another example of what they are saying are the studies of aspartame, "NutraSweet, the maker of aspartame, funded seventy-four studies; all concluded that the sweetener was safe. But among ninety-two independently funded studies, eighty-for – more than 90 percent – questioned is safety" (Nestle, 2003).

Jacobson[4] (1976), director of the Center for Science in the Public Interests were concern about the conflict advisories, made the following statement at the Congressional Record: "Nutrition and food science professors at Harvard, at the University of Wisconsin, Iowa, and Massachusetts, and at many other prominent universities work closely and often secretly with food and chemical companies. Professors sit on the boards of directors, act as consultants, testify on behalf of industry at congressional hearings, and receive industry research grants. Many professors with corporate links also serve as "university" representatives in Federal advisory committees… One can only come to the conclusion that industry grants, consulting fees and directorships are muzzling, if not prostituting nutrition and food science professors."
But this strategy is not only about health specialist and funding, in a documentary named What the Health? , the producers found out a link between the major diseases' associations and some companies. American associations such as the *Susan G. Komen Association* (Pink Ribbon), and other related to diabetes, cancer, or heart diseases are promoting on those websites foods that are not recommend in order to prevent those diseases. An example given was that the World

[4] Referred in: Nestle, M (2003). Food Politics: How the food industry influences nutrition and health (3th edition). United States: University of California Press

Health Organization advertised: “The experts conclude that each 50 gram portion of processed meat eaten daily increase the risk of colorectal cancer by 18%”, whereas in *American Cancer Association* website there is an area with suggestions of foods we should eat and one of them is processed meat. Then, the documentary producers dig a little deeper and found out that this specific association is sponsored by companies such as *Tyson* (meat), *Yum!* (Owner of *KFC, Pizza Hut* and *Taco Bell).* Also *Susan G. Komen Association* is sponsored by *KFC, Dietz* & Watson (processed meet) and *Yoplait* (yogurts). Also, although all the existent information about hearth diseases and fast food, meat or even sugar, the *American Heart Association* is sponsored by companies such as *Mars, Texas Beef, Subway, Domino’s, Nestlé, PepsiCo*, among other similar.

2.4.1 Marketing, Not Necessarily Science

For a very long time we have “guidelines for health promotion and disease prevention universally recommend diets that are largely plant-based, meaning that they include plenty of fruits, vegetables, grains, beans, and nuts. The US dietary guidelines also recommend food in the “protein” category. Grains, beans, and nuts are good sources of protein, but the guidelines use “protein” to mean low-fat dairy, lean meats, and fish. Recommend eating patterns include all these foods, relatively unprocessed, but with minimal addition of salt and sugars” (Nestle, 2018). But we are constantly hearing about the benefits of single foods or single combinations that are better or worse for our health. We heard about how chocolate or coffee can prevent cancer, how avocados are a “superfood”. But in the other hand we hear a lot about diet patterns, and how we need to have a certain pattern, and this “refers to diets as a whole, not to single nutrient. No single food makes a diet healthful. The healthiest diets include a wide variety of foods in each of the recommended categories in amounts that balance calories” (Nestle, 2018).

There is where the marketing appears, industries want to sell, and each industry sells a single category of product. And “when marketing imperatives are at work, sellers want research to claim that their products are “superfoods”, a nutritionally meaningless term. “Superfoods” is an advertising concept” (Nestle, 2018). All this “superfoods” such as avocados, blueberries or pecans could have in fact health benefits, but we will not improve our health by only eat them. And this part is not explained in all the studies that talk about the “superfoods”.

While food companies made marketing strategies in order to promote their single products, the society will not be influenced to eat a little bit of everything. The oldest theories about nutrition is that we should eat a little bit of everything, more of certain products rich in fiber and other nutrients important to the health, but the called null calories are also important for the health. This null calories are called null not because they do not have calories, but because they do not have any visible beneficial calories, yet, on the long run it is important to eat everything, more of nutritive products and less of the other, but not avoid any (except in cases of allergies or intolerances). However, marketing campaigns are made by food companies, and consciously or unconsciously, these campaigns are those defining a great percentage of what we choose to eat or not. And those campaigns never defend that we should eat a little bit of everything, that we should have the most diversified diet, they promote their own products as the best and healthier, and that is the principal reason why the society is avoiding certain products and eat a lot of others (Nestle, 2018).

2.4.2 *Coca-Cola Company* Case Study

In the past few years a major concern about obesity increased, and one of the problems pointed out were the sodas. Sodas in general are only a mix of water and sugar, with some additives and pigments, with no nutrients or benefits to health. Yet, the sodas industries are very powerful industries and for some reason people still drinking this kind of products.

The influence of companies such as *Coca-Cola Company* is bigger than we can imagine, if we go back to 2016 US presidential race, there were some e-mails stole by hackers and posted on *WikiLeaks* website, and others on *DC Leaks* (the ones related with Hillary Clinton and her staff). Although it seems a different subject, it's the same, because some of the e-mails where "messages exchanged between an advisor to the Clinton campaign, Capricia Marshal, and Michael Goltzman, a vice president of the *Coca-Cola Company*. While working with Clinton, Marshal was also consulting for Coca-Cola and billing the company $7,000 a month for her services" (Nestle, 2018). This didn't have any influence in the 2016 elections, although it shows the network of this company.

Despite the powerful network, *Coca-Cola Company* had invested a lot of money in funding researches, in March 2016, "updates estimates of the company's funding of research and partnerships since 2010 to $132.8 million. (…) the company did a further update to $140 million

in December 2017" (Nestle, 2018). One of the studies were the *International Study of Childhood Obesity, Lifestyle and Environment*, and it began in 2010 with six thousand children between 9 and 11 years old. "The investigators divided dietary responses into two broad categories, "healthy" and "unhealthy" (Nestle, 2018). Healthy diets contained vegetables, fruit, whole grains, and low-fat milk. Unhealthy diets were those with fast-food, hamburgers, soft drinks, sweets, and fried food. "The investigators did not look for a correlation between obesity and intake of sodas, soft drinks, or sugars, and they did not find one." But "they conclude that the most important correlates of obesity in children were low physical activity, short sleep duration, and frequent television viewing" (Katzmarzyk *et al*., 2013).

Simplifying, we can still drink soda, because if the children sleep well, did exercise and see less television, they will be healthy. That's a perfect conclusion for the main sponsor: *Coca-Cola Company*! Such as, Coca-Cola's vice-president and chief scientific and regulatory officer, Rhona Applebaum, react to those results with e-mails saying, " A great study is published!!", "A very happy day!", " Indeed, a glorious day!! I raise my glass to the researchers and the ISCOLE staff for being the First!!"(Applebaum *et al*, 2015)[5].

This is one of the many examples given by Nestle (2018) in her book about how *Coca-Cola Company* is "paying" researches all over the years in order to make the society believe that there are no problem in drink *Coke*. And this is a specific example, the same happens with other companies and industries. Although all this information appears about *Coca-Cola Company*, this company is not the only one with this kind of strategies. As explained before, there are a lot more companies that fund and sponsor researches and associations in order to prove that the problem is not their product, is any other factor that the experts can manage with the money given.

[5] Referred in: Nestle, M (2018). Unsavory Truth: How Food Companies Skew the Science of What We Eat. Basic Books: New York

Chapter III – Fake News

3.1 Contextualization

A Fake News is a piece of news in an article that are intentionally and verifiably false, with the purpose to mislead readers, and can be published in several types of websites. The main motivation for most of the fake news producers is that news articles that go viral on social media can draw significant advertising revenue when users click to the original site. The growing problem related with fake news nowadays is directly correlated with the increasing access to information. The society now has access to all kind of information, this information is always updated and most of the times is not verified. Now, if someone read an online article, does not verify the sources, but because it is interesting shares it on social media, consequently this article will have a lot of views despite lack of any scientific support, and this is the basics of fake news (Lazer *et al.*, 2018).

In what concerns the fake news topic, several articles speak about political issues, but the information can be applied to all the areas, as Lazer *et al* (2018: 1094) says in *Science of Fake News*, "fake news has primarily drawn recent attention in a political context but it also has been documented in information promulgated about topics such as vaccination, nutrition, and stock values." In this same article the authors define fake news as a news "fabricated information that mimics news media content in form but not in organizational process or intent (…) Fake news overlaps with other information disorders, such as misinformation (False or misleading information) and disinformation (false information that is purposely spread to deceive people)", this definition of fake news can be applied to all subjects, from politics, to economic, to food.

The big problematic of fake news is how far and quickly it can be spread, as Buckee *et al*. (2016: 525) compare in *Study epidemiology of fake news*, a *Fake News* can be compared with an infectious disease, "the propagation of such information through social networks bears many similarities to the evolution and transmission of infectious diseases. (…) For example, disease strains can evolve and compete in a host population, much like rumors, and infections and opinions are both shaped by social contacts. Modelling of competing disease strains indicates that, as contacts become more localized, the diversity of circulating strains can increase" and "as more people turn to social networks as a primary news source, transmission models com-

bined with appropriate data could help in exploring the dynamics of this news media landscape." A real life example of what the authors were talking about was the 2016 US elections where an exclusive IPSOS poll conducted for Buzz Feed News found that 75% of American adults who were familiar with a fake news headline viewed the story as accurate (this was an online survey with of 3,015 US adults, between November 28th and December 1st, conducted and published by *Buzz Feed*. The major source of this type of news dissemination are the social media and the blogs, because the information doesn't have any type of filter and users just read the title and don't confirm the sources of information. And that is how false news are spread. As the authors of *Science of Fake News* report "47% of Americans overall report getting news from social media often or sometimes, with Facebook as, by far, the dominant source. Social media are key conduits for fake news sites. Indeed, Russia successfully manipulated all of the major platforms during the 2016 U.S. election, according to recent congressional testimony."

"Technological advances in online communication have increased the potential for disseminating Fake News immeasurably (often under the guise of anonymity and in ways that make it hard to trace). Moreover, globalization means that information of every kind (including Fake News) can reach the five continents at the speed of light. At the same time, the universalization of English means that the (same) news can reach a wide variety of media outlets" (González-Vaqué, 2018: 13).

Fake News stories are typically *sui generis* in nature, spreading false information about diseases, product withdrawal, the use of harmful ingredients, etc. The consequences of such stories are often so dramatic that refuting them is unadvisable as it only serves to further diminish consumer trust. Another concern is that fake news often generates premature and incorrect alerts concerning the precautionary withdrawal of certain foodstuffs" (González-Vaqué, 2018: 13).

3.2 How to identify fake news

In 2016, Oxford Dictionaries announced post-truth as Word of the Year, and librarians realize that they need to educate people for critical thinking, that is a critical skill when navigating online. There are a few steps suggested by *The International Federation of Library Associations and Institutions* "to discover the verifiability of a given news-piece in front of you.

Download, print, translate, and share – at home, at your library, in your local community, and on social media networks. The more we crowdsource our wisdom, the wiser the world becomes", the first step suggest is to develop a critical mindset, because one of the main reasons fake news are such a big issue is because they are very believable and sometimes written in order to create shock value. It is important to check if this particular news is trying to sell a product or make the viewer click in some other site. The second step is to check sources, if the news arise from some source that we never heard before it is an alert to search a little more about the publisher.

Other important thing is to check the URL of the page, URLs that end in extensions like ".info net" and ".offer," rather than ".com" or ".co.uk," or that contain spelling errors, may mean that the source is suspect. Other important step is to check if someone else is reporting the same story in organizations like *Reuters*, *CNN* and the *BBC* where stories have been checked and verified beforehand. Then, it is important to examine the evidence, "a credible news story will include plenty of facts – quotes from experts, survey data and official statistics, for example." Finally, it is necessary to use the common sense and check if that sounds right, because if a story sounds unreal probably is because it is.

According to González-Vaqué (2018: 14) "we can identify false news in the food sector by checking and verifying the information. Common sense, logic, our own cultural baggage and technical knowledge can all help us in this task. We should also find out if the competition or an ex-employee is aware of a vulnerability on our part, even if the activity in question is legal. In the case of competing firms, this might involve omitting a certain ingredient, or using it in lesser quantities than we do. Likewise, we need to find out if other countries are trying to discredit our products in order to replace them with their own."

"Unfortunately, automatic fake news detection is a challenging problem in deception detection, and it has tremendous real-world political and social impacts. However, statistical approaches to combating fake news has been dramatically limited by the lack of labeled benchmark datasets (and not only in the food industry)" (González-Vaqué, 2018: 14).

Rendering Nestle (2018), if we saw "a study suggesting that a single food (such as pork, oats, or pears), eating pattern (having breakfast), or product (beef, diet sodas, or chocolate) improves health, I look to see who paid for it. This is possible because most professional journals now require scientific articles to include special sections where authors must disclose who paid for their study and whatever financial arrangements they might have with the funder or a similar company."

3.3 Social Media Network

Social media platforms are especially conducive to fake news for three main reasons. First the fixed costs of entering the market and producing content are vanishingly small, which increases the relative profitability of the small-scale, short-term strategies often adopted by fake news producers, and reduces the relative importance of building a long-term reputation for quality. "Second, the format of social media, composed by thin slices of information viewed on phones or news feed windows, which can make it difficult to judge an article's veracity. Third, as Bakshy, Messing, and Adamic showed in 2015, *Facebook* friend networks are ideologically segregated between people who report ideological affiliations in their profiles, and people are considerably more likely to read and share news articles that are aligned with their ideological positions, which suggests that people who get news from *Facebook* (or other social media) are less likely to receive evidence about the true state of the world that would counter an ideologically aligned but false story" (Allcott & Gentzkow, 2017: 221).

"Social media platforms such as Facebook have a dramatically different structure than previous media technologies. Content can be relayed among users with no significant third party filtering, fact-checking, or editorial judgment. An individual user with no track record or reputation can in some cases reach as many readers as *Fox News*, *CNN*, or the *News York Times*" (Allcott & Gentzkow, 2017: 211).

Nowadays, “advertising through social media has become an essential part of the integrated marketing communication efforts of companies in marketing their products and services” (Gaber, 2014). Most of the companies are increasing their advertising budget for social media. In 2013 was made by Nielsen (2013) a survey about that where “Most of the marketers surveyed indicated that they are planning to shift a part of their advertising budget from traditional media to social media. Moreover, the study showed that 89% of the marketers are adopting the free social media tools and 75% of them are adopting the paid advertisements together with the free tools on social media" (Nielsen, 2013).

Social Media are having a giant impact on advertising and have a better impact near the consumers because not only people see more advertisements of what they like (advertisements on Social Media can have a criteria such as gender, age, likes, dislikes, etc.), but because it “enables consumers to have more of a say in the products and services that marketers create to meet their needs. Thus, social media marketing added a fifth P to the traditional 4Ps which is the Participation” (Tuten & Solomon, 2013). Adding the fact that on social media people can share the advertisements and that is free marketing for the companies.

Although it is a great opportunity for marketers, for the general public it can be a threat. In 2018 a study was made in “the University of Liverpool, presented at the European Congress on Obesity today (Wednesday, 23 May), highlights the negative influence that social media has on children's food intake. Current research shows celebrity endorsement and television advertising of unhealthy foods increases children's intake of these foods. However, children are increasingly exposed to marketing through digital avenues, such as on social media, and the impact of marketing by *YouTube* video bloggers (vloggers) on these outcomes has, until now, not been known.” My conclusion of this study is the real problem lies in that young people see those Social Media “influencers” and celebrities as role models and persons who know everything, and if they stand behind these foods it is because it is true. So, if these people promote a certain diet (independently whether it is healthy or not and whether they know anything about nutrition and health conditions or not), young people will follow their message. And this, on the long run is a problem.

Social media are largely unregulated platforms, like a depository of all sorts of ideas and comments about diets that are regularly shared, and believed as right, by millions of internet-users. “In a recent survey, US dieticians said Facebook was the main source of confusion on nutrition

for patients seeking a quick fix for their dietary dilemmas. Professor Louis Levy, head of nutrition science at Public Health England, says: 'We're very concerned because we're trying to help people make the right choices, and conflicting messaging makes this so much harder" (McFarlane, 2018).

In the last few years, some food fake news appeared on social media and were shared by millions of people. The problem of this fast proliferation of news is that the sources are not confirmed, and people make the mistake of blindly believe in them, hence apply those ideas to their diets. In order to better understand the impact of those false news and how they proliferate on social media, follow some real-life examples given by McFarlane (2018) in the article *Pedlars of fake food news: Are Gwyneth Paltrow and a Canadian mother of one who claims to cure arthritis by an all-beef diet 'putting us all at risk'?* for the *Daily Mail*.

a) Meat-only diet cures arthritis

Mikhaila Peterson, a 28 year old Canadian women with 57,000 Instagram followers and about 100,000 more subscribe to her YouTube channel. Mikhaila claims she cured her severe arthritis by cutting out almost everything from her diet except meat. According to her videos, because of this diet choice she no longer takes medication, her pain and inflammation has evaporated, and her memory and energy has improved. Plus, she also lost weight (McFarlane, 2018).

So, this diet that includes nothing but meat, salt and water is now being heavily promoted across social media. Also her father, the controversial Canadian pop psychologist Jordan Peterson, produced a video for *YouTube* where he explained how this diet 'cured' his depression and has 783,000 views.

Yet, here is no evidence besides Mikhaila's own personal testimony, "that a meat-only diet can treat rheumatoid arthritis, which is caused by the immune system turning inward and attacking healthy joint tissue. The condition is known to spontaneously resolve itself, however" (McFarlane, 2018), and the Government advice is for people "not to consume more than 1 lb of red meat a week to limit the risk of bowel cancer, dieticians have branded the carnivore diet 'disastrous' and warn that following it would lead to nutritional deficiencies, gut problems and heart disease" (McFarlane, 2018). Also dieticians warned about it, as dietician Marcela Fiuza

who says that ‘this is another nonsense fad. You wouldn’t get the nutrition you need and your gut will not function optimally due to lack of fiber. You can end up in very poor health.’

b) Coconut oil stops Alzheimer's

A US doctor, Dr. Mary Newsport, made a video claiming that by taking a few spoons of coconut oil every day it is possible to cure Alzheimer’s, and this video was watched by hundreds of people. There are a lot of information online and across social media about the advantages of switching to coconut oil such as, eating it can help you lose weight, make your skin, hair and teeth better and help in the fight against heart disease, epilepsy and, yes, dementia, and this information was shared uncountable times. As a result, UK sales of coconut oil have rocketed by nearly 500 per cent in just five years (McFarlane, 2018).

Yet, there is no evidence coconut oil can cure Alzheimer’s and some evidence states it could even make it worse by raising levels of a harmful protein in the brain called acetylcholinesterase. Researchers have found levels of the protein are higher in people with Alzheimer’s and current treatments aim to lower them. Also, *the American Heart Association* announced coconut oil had ‘no known offsetting favorable effects’ on heart disease risk (a position echoed by the *British Nutrition Foundation*).

Professor Pete Wilde, from health research company *Quadram Institute Bioscience*, says the focus on coconut oil came after recent studies showed some of the fats in it could have health benefits because they were quickly ‘burned’ by the body for energy. He adds: Just 40 per cent of coconut oil is made from these fats. The rest of it is fat linked with increased cholesterol and cardiovascular disease, so excessive consumption may have a negative effect on health” (McFarlane, 2018).

c) Gwyneth's soup diet cleanses your body

On *Instagram*, if we search the hashtag detox throws up a staggering 13.1 million posts. Gwyneth Paltrow’s Goop website is at the forefront of the “detox” movement. The Goop Detox Diet, revised every year, featured a 75 item shopping list and involved cutting out caffeine, alcohol, dairy, gluten, corn, tomatoes, eggplants, peppers, potatoes, soy, refined sugar, shellfish, white rice and eggs. It also advised buying new cookware ‘to get the most out of every clean meal’,

including a £600 platinum saucepan and a £250 griddle pan (all available on the Goop website) (McFarlane, 2018).

There is also the *Facebook* group that advocates 'detoxing heavy metals and pollutants' from the body (and has 56,000 members), while a YouTube video by US-based 'doctor of natural medicine' Josh Axe (watched by more than half a million) advises how to detox using just essential oils and herbal extracts. On Amazon, a search for detox products provides over 30,000 results including 'detox capsules', 'colon cleanse' products and 'detox tea' (McFarlane, 2018).

But here's the key fact: the word 'detox' has no clinical meaning outside of treatments for drug addiction or poisoning. The reason is simple. Our bodies already do it pretty well. Prof Levy explains: 'We already do detox – that's what the liver and kidneys do all the time. There's no real mechanistic process by which not eating, or eating certain foods or drinks, is going to remove other things from your body' (McFarlane, 2018).

d) Diet Coke causes Brain tumors

Going back to the man-made sweetener aspartame, used in everything from fizzy drinks (including Diet Coke and Coke Zero), to chewing gum, causes cancer, multiple sclerosis, blindness, depression, memory loss and birth defects. Despite being vigorously discredited, the concept has gained news life thanks to websites that push fake health news. Since it was launched in 1990, showed studies suggesting that aspartame could be linked to increased rates of brain tumors and leukemia in rats, leading to worrying headlines (McFarlane, 2018).

Today, websites with names such as *aspartamekills.com*, which describes the sweetener as a 'neurotoxin', and *sweetpoison.com*, which calls it a 'dangerous chemical', continue to promote the idea that it is harmful. Recently Dr. Joseph Mercola, self-proclaimed US 'natural health expert', shared a video in Facebook which has been viewed more than 81,000 times, claiming that consuming aspartame leads to cancer, heart disease, dementia and strokes (McFarlane, 2018).

In 2015, *Pepsi* dropped aspartame from its *US Diet Pepsi* drink in response to consumer fears over safety, replacing it with sucralose, another type of sweetener. Yet the overwhelming evidence from robust, scientific trials is that aspartame is safe. No human studies have found any

link to cancer or other problems, and two major reviews, by the *European Food Safety Authority* and *US National Cancer Institute*, have concluded the sweeteners are safe.

Sophia Lowes, health information manager at *Cancer Research UK*, claims that 'the link to cancer was between sweeteners and animals but it was never translated into a link in humans. Showing a link in a mouse or rat isn't the same as showing one in a human.', also Gunter Kunhle, associate professor in nutrition and health from *Reading University*, points out that 'all licensed additives are assessed for risk by European and world bodies' (McFarlane, 2018).

e) Carrot juice cures cancer

By searching 'cancer cures' in *Google*, the first website that appears, after *Wikipedia*, is a natural health site called *The Truth About Cancer*, which claims that drinking vegetable juice is 'a strategy that works to cure cancer. This article, shared more than 6,000 times on *Facebook*, gives details of scientific studies identifying compounds in fruit and vegetables which can kill or restrict the proliferation of cancer cells. Other website, called *Beat Cancer.org*, defends that by 'drinking juice made from carrots, dark leafy greens and other fruits and vegetables is an effective way to counteract the growth of cancerous cells and tumors in the body' (McFarlane, 2018). Also social media is full of groups that promote juice as the 'healthy' or 'natural' alternative to chemotherapy, including one, *Cure by Carrot Juice*, which has thousands of members.

Meanwhile, videos claiming that beetroot juice has cured cancer for centuries, by a group called *Let's Beat Cancer*, have been viewed 174,000 times, while another video on the group's Facebook site (with 7.4 million views) suggests that extract from the brushwood berry can cure cancer in just 48 hours.

Dr. Mangesh Thorat, a breast cancer specialist at *Queen Mary University of London*, warns that some compounds could even be dangerous, because 'large supplemental doses of beta carotene, the orange pigment found in carrots, has been linked to an increase risk of lung cancer in some groups'(McFarlane, 2018), similarly Martin Ledwick, head information nurse at *Cancer Research* UK, says that 'conventional medicine gets criticized by so-called wellness warriors who say "You don't research this stuff", but we do. We research it properly and don't rely on anecdotes. We're trying to tell the truth, not spin fairy tales to make people feel better' (McFarlane, 2018).

3.4 Impact on food preferences

Social Media advertisement like all the other types of online advertisement can have great impact on food preferences and behaviors, as Kelly (2015: 4) explains, "Firstly news media facilitates peer endorsement of, and personal communications with brands. Secondly, children have been found to have much lower recognition of advertisements on webpages than they would for identifying spot advertising on television at the same age. (…) Thirdly, some of the more immersive forms of news media, such as branded online gaming, engage children for extended periods of time. The diversification of messages into news media also allows for further integration of commercial messages across multiple media platforms, which independently influence children's responses, and also reinforce each other to magnify responses. Fourthly, sophisticated web analytics and surveillance now allow marketers to monitor interactions and social relationships online, and to test and precisely refine their messages and approach for maximum impact. Lastly, parents are likely to be less aware of food marketing on news media, thereby reducing the potential for any moderating effects from caregivers, through discussion of marketing intent and messages."

Although this was more connected with children, it can be applicable to all life stages, genders and communities, because while watching television we are conscious of what is advertisement or not and we are able to skip it, on Social Media this is not possible, yes it is possible to block the ads but there are so much advertisement that we see unconsciously. A simple example is when we follow a certain celebrity or "influencer" and she/he posts a photo with a certain product for a certain brand, or a discount code for a certain brand. We did not choose to see the advertisement, we are note following this brand, but we are seeing the products, and this could lead us to go to the product's website and we could even buy something.

In addition to the advertising aspect, "social media outlets are no longer just a venue to connect with friends but are increasingly a mechanism for consumers to learn about food. The Web is populated by an abundance of bloggers all talking about food in one form or another. Food is a main topic of conversation on Facebook and Twitter" (Reau, 2013). Even the *National Cattlemen's Beef Association* has a twitter account, which provides advice on purchasing, preparing, and enjoying beef. And besides this, social media application such as Instagram (used for photo sharing) is often used for sharing food pictures that are then posted to sites across the Internet, not only on social media but on the browsers too.

Nevertheless, a survey by *Clicks and Cravings Survey* was made in order to understand the influence of *Social Media* on food preferences, and they found that "49 percent of online adults reported they learn about food via social networking. Forty percent of online adults reported they learn about food via websites, apps or blogs. Survey participants were asked if they spend more time reading about food from print or online sources. Forty-six percent of online consumers reported they spend more time reading online and 31 percent said they spend equal amounts of time reading about food online and from print sources" (Reau, 2013: 1). All ~~of~~ these statistics are important factors to consider when marketing a food product, and this is, nowadays, the way used by food companies to promote their products. It is cheaper than television or radio, it reaches more people and it can be personalized.

Not only the advertisement on social media have impact, but also the "word-of-mouth (WOM) via social media has become a key driver of brand recommendation among consumers, prompting an increasing number of companies to promote their products and services through social media in order to stimulate consumer conversations, increase consumer loyalty, and acquire new customers" (Liu & Lopez, 2014: 2). Social media consumer-to-consumer exchange is a relatively news type of online WOM.

A study developed by Liu & Lopez (2014), shows that "consumer exposure to WOM on various social media sites can be a significant driver of consumer purchasing behavior. Further, consumers' conversations about brands and nutritional aspects of CSDs have a significant impact on their preferences." Having real people talking about these diets and products, and give their feedback and opinions make the trend much more appealing and reliable, that is why companies now use "famous" and influence people to appear with their products. It makes the product real and trustworthy.

Chapter IV – Theoretical Approach

During the investigation taken for the purpose of the literature review, many were the conclusions taken, some similar among authors and other with different points-of-view. As a result of such investigation and the present conclusions, a set of key questions emerged which will be driving the following discussion.

The very first question that I wanted to understand before the remaining research is what really means the concept of "healthy diet". And this question is very important because a "healthy diet" is very commonly confused with a diet to get fit where the results are checked on a short term. But, as Cannon (1992) explains, a "healthy diet" is a diet that improve health in a long term, not related with esthetical benefits.

This is a very relevant question because nowadays when people in general talk about "healthy diets", in most of the cases, they are pertaining to esthetical benefits. The general commonplace idea is; if my goal is losing weight, and the diet makes me lose weight it is a "healthy diet". And most of the time those diets do not improve health in a long term, even on the other hand, such as Gibbon (2013) refer for *National Geographic*, some of those "healthy diets" cause health issues on the long term. So, understanding the true concept of "healthy diet" is the best starting point for this research. - **What is "healthy diet"?**

Understanding the true concept of "healthy diet", the goal was to recognize if the influence of the industries in what we, as society, consider healthy food is an actual problem. This question arises because people easily believe in all diets, promoted online or on social media (González-Vaqué, 2018), without confirmed sources or the veracity of the information, and apply it immediately to their daily diet without second thoughts. And as Kearns (2016) explains, this is not a current problem, it happened before the internet boom.

Then as Wiss (2016) explains, the challenge is the way people see diets and food. If the topic were medicines, people will talk with specialists, confirm sources and ask for second opinions. The daily diet is such a common topic and most people are only worried about it in order to gain or lose weight. They do not care whether the information is reliable or not, whether it has a serious impact on our health in the long term. And although in 733 BC Hippocrates already talked about how the food should be our medicine, people nowadays do not see diet in that way.

I could conclude until here, this is a very actual problem, and an example of it is the fact that for decades we hear about the need to eat a little bit of everything in order to be health; less sugars (Kearns, 2016) and processed foods and more fruits and vegetables, but always a little bit of everything. Yet, in the past few years a lot of diets that promote the avoidance of certain products appeared online, and in the long term those avoidances will provoke some serious health issues that people do not take in consideration. - **Is the industry's influence a current problem?**

Following the previous point, arises the question about what are the recent food tendencies? A lot of new diets arose in the last few years, such as to avoid gluten and lactose, do low carb diets, to avoid meat or other proteins. Although the authors disagree, which new diets are good or bad, all agree in one thing, all new diets require the avoidance of one product.

The most popular food avoidances nowadays are the lactose and gluten. Although, in the case of gluten, such as Gaesser *et al*. (2012) explains, if a person is not truly gluten intolerant, this avoidance in the long term can cause severe health issues such as decrease immunities. And, in what concerns lactose, although a huge amount of people claims to be lactose intolerant, Yant-cheva (2015) and his colleagues developed a study were it was conclude that almost no one really made the test to know it for certain. These results were presented by Andersen and Kunn (2017) in their documentary *What the Health?*.

A very popular diet is the Paleo Diet that could be a great diet if well explained. The goal of this diet is to eat like the cave man, but what people are doing is to eat meat and meat products in every meal, and in the long term it will have undesirable consequences. But, as Gibbons (2015) explained for *National Geographic*, the cave man did not eat meat every day, they needed to hunt, and in some days they succeeded and in others not at all. So, this amount of protein consumption is not consistent with the cave man's diet and in the long term it is not healthy.

Another popular tendency nowadays are the "Detox Diets", where the goal is to detox our body with a mix of fruits and vegetables that together do the detox function. But, as Dixon (2005) explains with her research, this miraculous idea of doing a detox to our body is not possible,

the only way to detox is the natural one, through our liver. However, this is a growing tendency. - **Which are the latest food tendencies?**

The information above lead me to the question of how the industries influence the society. As Marion Nestle explained among her books (*Food Politics*, 2003, and *Unsavory Truth: How Food Companies Skew the Science of What We Eat*, 2018) and some other authors corroborated the information over the years, when we read a study about something, it is of the utmost importance to check who the sponsors are, because it says everything. Big companies such as *Nestlé*, *Coca-Cola*, *Danone*, among others, are sponsoring specialists and academics to develop studies to prove that what these companies are selling is not harmful to our health.

Technically when companies sponsor studies the result should be neutral, although the proven tendency is for the study end favoring the sponsor. This kind of sponsorship is a win-win solution. For specialists and academics is almost the only way to have funds to execute their studies, and for the companies is a way to prove that their products are healthy, hence safe to promote them.

An important point to highlight is the difference between what science is and what marketing is, and a great example of that are the "superfoods". Through the research, and knowing that at least once we were faced online with a new trend diet or a campaign for "super-foods", and knowing that companies are using the online tools to promote their own products, the question that emerge is if we, as society, are becoming healthier by adopting these new diets and products, or if it is only marketing.

Such as Nestle (2018) explained, the "superfoods", a widely promoted online as ~~a~~ very healthy products that we must add to our daily diet, but on the other hand, very expensive products, are "a nutritionally meaningless term. "Superfoods" is an advertising concept." So, in what concerns single products, this online promotion is pure marketing. Nevertheless the products can be good for the health, but they are not the ultimate tool to be healthy. - **Which are the methods used to influence?**

Knowing that, is important to understand what a fake news is and how to identify it. All authors agree that a fake news is a fabricated news, commonly spread online, that does not reflect the reality. And, by this definition, an important question emerged related with the reliability of

online news. It is subscribed by all authors that the online information is not reliable, and that people believe in the first thing they see online without confirmation of the sources. Such as Silverman and Singer-Vine (2016) concluded during their research for *Buzz Feed News*, "that 75% of American adults who were familiar with a fake news headline viewed the story as accurate."

It is very easy and cheap for companies to manipulate information in order to sell more of their products (Tutan & Solomon, 2013). And, with the online world it is not even necessary a study to make people believe, there are a lot more tools available such as real people talking about it and showing it, and these tools are cheaper and quicker. And better than it, is the fact that people share the news, so a single online publication could travel around the world (Lazer *et al*., 2018).

Knowing what a fake news is and how easily it can spread, the big question is how can we identify it, and in this point the majority of authors, such as Gonzalez-Vaqué (2018), recommend a simple thing that is to always check the sources, if it is a news, one ought to check the newspaper or website that shared it and one ought not just read the title. In case of scientific studies, besides the sources and who made it, it is very important to check who fund it, which company or institution, because it can tell a lot about the conclusions. - **What is a fake news, how to identify it, and how it spreads?**

The last, but not least, question that emerged from this literature review, was a direct correlation between this part of the online promotion and with the new diets, is if the fake/manipulated news have real impact in what we, as society, eat. This is the core question of this entire research, understand the true impact of false news in our daily diet. And on that question, all authors agree that there is a real impact, and the cause of that lies in the internet in general.

Reau (2013) made a research were conclude that 46% of people check food news and news trend diets only online and more than 30% claims that check both online and offline. The fact is that the online information is very credible, and one of the reasons that people love to check information online is because of what Liu & Lopez (2014) called word-of-mouth. WOM is the capability to discuss a certain piece of information online in order to give real time feedback, and it made people feel safe to try a new thing.

Another evidence of the real impact of that manipulated news is, such as Kelly (2015) explains, the Social Media. If there would not be a real impact, the companies would not pay to “influence” people to promote their products on their social media. And the reality is that day by day we can see an increasing number of “influence” people promoting on their social media several products. – **Has the industry’s influence real impact?**

Chapter V – Methodology

5.1 Investigation model

The research methodology is a discipline derived from logic and its objective is the study of the scientific method (Tarski, 1977). The scientific method is an empirical method of acquiring knowledge that has characterized the development of science and involve "careful observation, applying rigorous skepticism about what is observed, given that cognitive assumptions can distort how one interprets the observation. It involves formulating hypotheses, via induction, based on such observations; experimental and measurement-based testing of deductions drawn from the hypotheses; and refinement (or elimination) of the hypotheses based on the experimental findings. These are principles of the scientific method, as distinguished from a definitive series of steps applicable to all scientific enterprises" (Newton, 1999).

In what concerns this investigation, the model adopted is the pragmatic model that not pursuit the truth in itself but try to move from doubts to certainties (Piece, 1877), with a inductive character, where we do not aim to get conclusions from true premises or already validate data, but get to a conclusion trough research, interviews, and comparisons among them. Throughout the investigative process there is an interaction between theory and empirical research, mutual feedback (Vieira-Tenreiro, 1999).

This investigation was conducted with a convenience sample, because I wanted people with a specific knowledge and experience to answer the interviews. The first sample was comprising Portuguese people with a bachelor of Nutrition Science. These people were personally invited to participate in an interview according to their availability. The second sample was comprising any Portuguese person who has an account on social media networks and usually does the monthly shopping. In total, 18 interviews were made for the first sample (Appendix 1), and 38 for the second (Appendix 2).

However, it is important to mention that both samples were intentionally formed for the purpose of this project, the chosen participants were those who best represented the research question in terms of knowledge and access to the information. The response rate is considered satisfactory, knowing that the minimum for a satisfactory response rate is 15 interviews, however the

conclusions must be read carefully because the sample is not so big and it can only be considered in respect of the population of Portugal. Accordingly, given the impossibility of realizing generalizations, this factor is the main limitation of this investigation, with the proper reassurance that generalization was not a primary objective.

In both cases, the applied character resulted from the attempt to investigate a contemporary phenomenon in the real-life context, which was assisted by the presentation of an exploratory section, given the lack of a great systematized knowledge about the research question. In what concerns the way, the present investigation was based on a set of primary sources, from the application of surveys on the form of structured interviews to Portuguese nutritionists and Portuguese people with account on social media, and from secondary sources, through bibliographical research and information processing, included in the systematic study developed in books, magazines, scientific articles and electronic networks.

In terms of the qualitative methodology used, knowing that this is a social research method that uses descriptive data collection techniques and is characterized by a careful analysis. This technique is different from statistical research and the scientific experiment. The qualitative methodology resulted from the analysis of a set of interviews, which looks to measure the phenomenon of study and understanding the real impact of food fake news in people's real life. To interpret the data founded in the interviews, it was translated into a content analysis, attempting to relate the semantic (meaningful) structures to the sociological structures (meanings) of the statements, in order to articulating the surface of the texts with the factors that determine their characteristics. Table 3 shows the categorization and coding of the interview model that gave rise to the qualitative analysis.

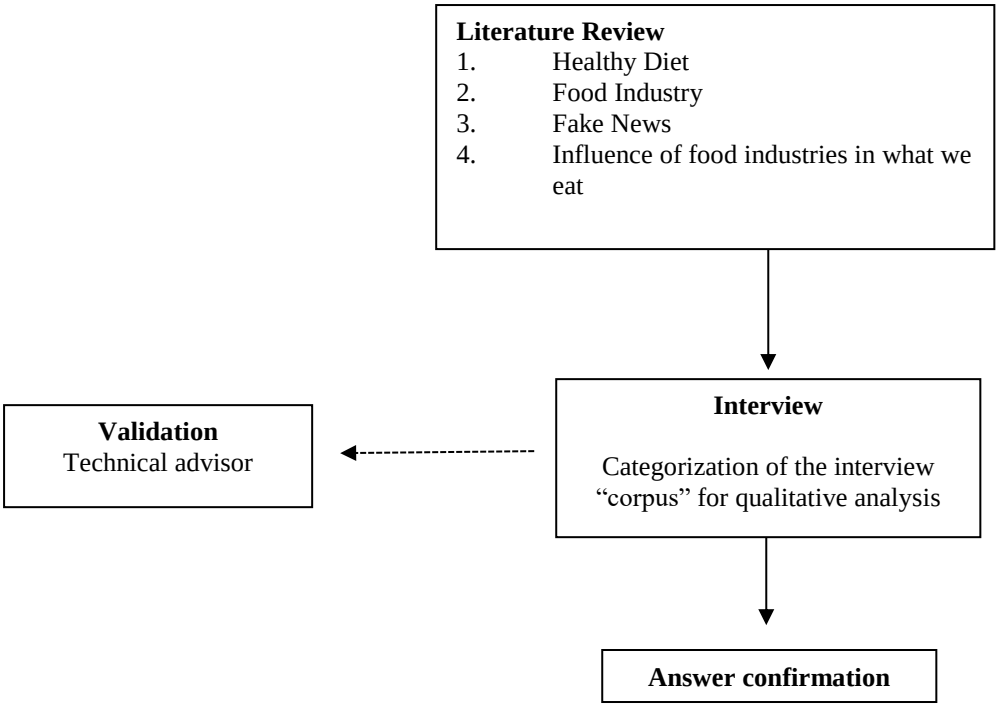
The information was analyzed in an inductive way, this method begins with particular questions until gets generalized conclusions, which can only be achieved by observing, collecting and analyzing the scientific facts in loco.

Such as explained in the *Content Analysis* of Bardin (1977), firstly I gave space to the organization of ideas, then I explored all the material and data founded, and at the end the treatment and the respective interpretations of the obtained results. Having in mind the goal of this theses I need to bear in mind that this is a very recent topic with not so much scientific research about it. The interviews were the most suitable method for the primary data collection. Although all

the scientific research can provide a lot of information about it, the interviews are the only method that can prove whether the theory is applicable to the Portuguese society or not. Plus, the fact that, only with the nutritionists' interviews I could really confirm the theory about the reliability of some diets.

For the interviews the technique chosen was structured because this is a theme that we could easily move away from the topic. Hence I pre-defined some open questions and some other close ones, and at the end I gave space for the interviewee to give his/her additional opinion, comments or place other questions. This technique can be seen as more formal and inflexible, yet the results are more uniform and it is easier and clearer to compare results among the interviewed individuals.

Table 3. Investigation Model Design



Source: Author's elaboration

In conclusion, the present investigation had four steps: the first step, which was based on bibliographical research and information treatment; the second one consisted in transferring the theoretical construct to the field of observation in order to obtain the best possible confidence in terms of results; the third step, concerns the collection of data from interviews; and the fourth, which consisted of a qualitative analysis of data collected from the interviews.

On Table 4 it is possible to analyze the relationship between the objectives of the study, the research questions elaborated in the chapter of the theoretical approach and the respective connection with the literature review made previously.

Table 4. Relationship between the literature review, objectives and research questions

Objective	Research Question	Literature Review
Objective 1. Understand the concept of "healthy diet"	**Q1**.What is "healthy diet"?	Cannon (1992); Gibbons (2013)
Objective 2. Analyze the industry influence in what we consider healthy	**Q2**. Is the industry's influence a current problem?	Kearns (2016); Gonzalez-Vaqué (2018); Wiss (2016)
	Q3. Which are the latest food tendencies?	Dixon (2005); Gaesser *et al*. (2012); Gibbons (2013); Yantcheva *et al*. (2015); Andersen and Kunn (2017)
Objective 3. Understand the influence process	**Q4**. Which are the methods used to influence?	Nestle (2003); Nestle (2018);
Objective 4. Analyze the concept of fake news	**Q5**. What is a fake news, how to identify it, and how it spreads?	Tutan & Solomon (2013); Silverman and Singer-Vine (2016); Lazer *et al*. (2018); Gonzalez-Vaqué (2018);
Objective 5. Understand the impact of fake news on the diet	**Q6**. Do they have real impact?	Reau (2013); Liu &Lopez (2014); Kelly (2015)

Source: Author's elaboration

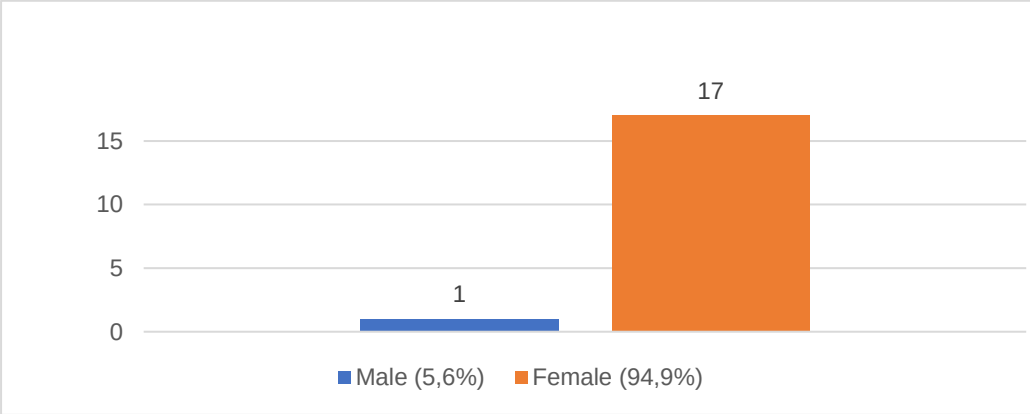
5.2 Sample characterization

This investigation was developed under a structure base, where the questions among people were the same, with the exact equivalent order. These interviews were made with nutritionists or people with a bachelor's degree in Nutrition Sciences, in order to understand the technical part, everything related with diet and health, of this subject. And, with the support of a known nutritionist that put me in contact with several university colleagues and professional-peers, was possible to have different testimonials of professionals with different ages, experiences and areas of expertise.

First of all, I made an analysis of all the variables that could statistically characterize the sample objectively, especially in terms of current profession, age, gender and academic background, in order to understand the existing sample with respect to its nature and the dimension of professional experience and knowledge. Then, I analyzed the content of the answers, in order to obtain analytical data that allowed us to draw theoretical and empirical conclusions.

From the nutritionists' interviews, were made 18 interviews. And, in what concerns the socio demographic questions, the ages of the interviewed were between 23 and 59 years old, 17 (94, 9%) female and 1 (5, 6 %) male.

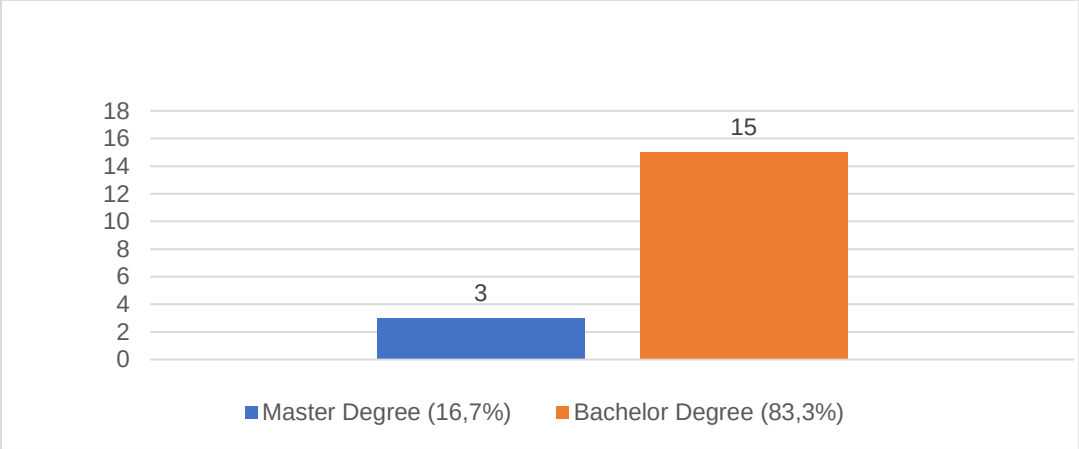
Figure 3. Gender distribution



Source: Author's elaboration

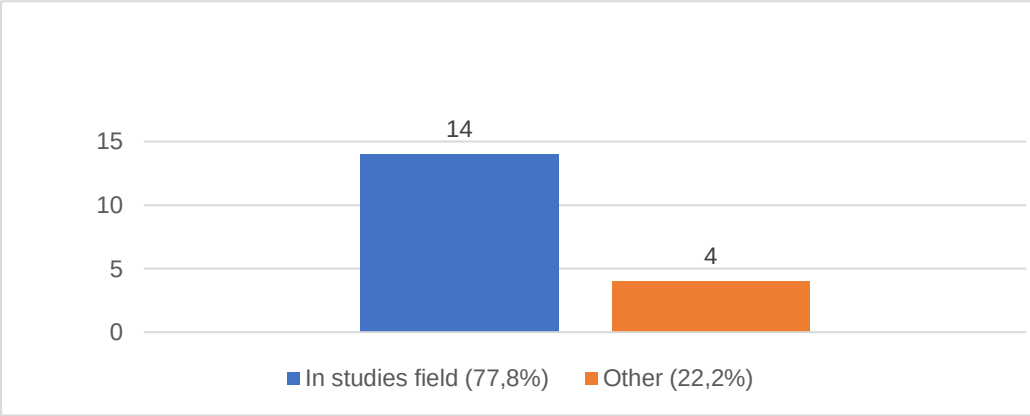
The academic habilitations where mostly bachelor's degree, 15 (83, 3%), and 3 master's degrees (16, 7%). All with a degree in nutrition sciences, and 14 (77.8%) working in their field of studies. From this 77, 8%, 9 (64, 3%) work in their field of studies for less than 2 years, 3 (21, 4%) between 2 and 5 years and 2 (14, 3%) for more than 5 years. The 4 (22, 2%) who do not work in their field of studies work in similar industries such as pharmaceutical industry or health care.

Figure 4. Academic habilitations distribution



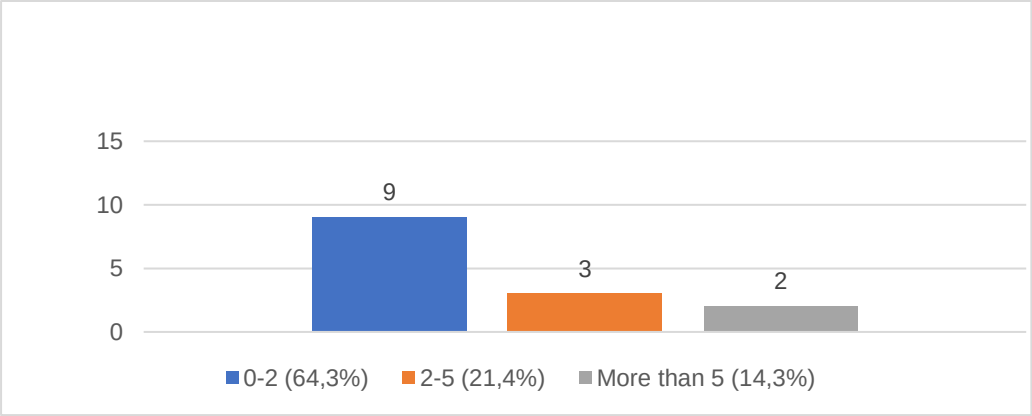
Source: Author's elaboration

Figure 5. Field of work



Source: Author's elaboration

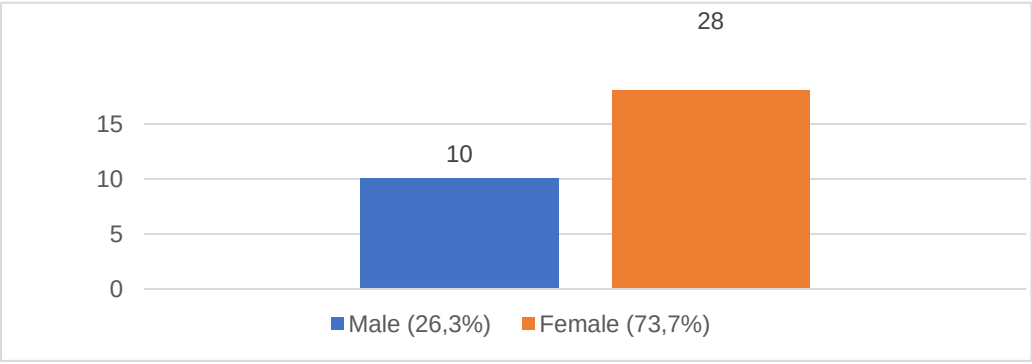
Figure 6. Experience in the field



Source: Author's elaboration

From the people with an account on social media and usually do the monthly shopping interviews, were made 38 interviews were people were selected by convenience. For this propose I selected people that I know, who are aware or not, of this kind of topic and people that other people know. In what concerns the socio demographic questions, the ages of the interviewed persons were between 21 and 60 years old, 28 (73, 7%) female and 10 (26, 3 %) male.

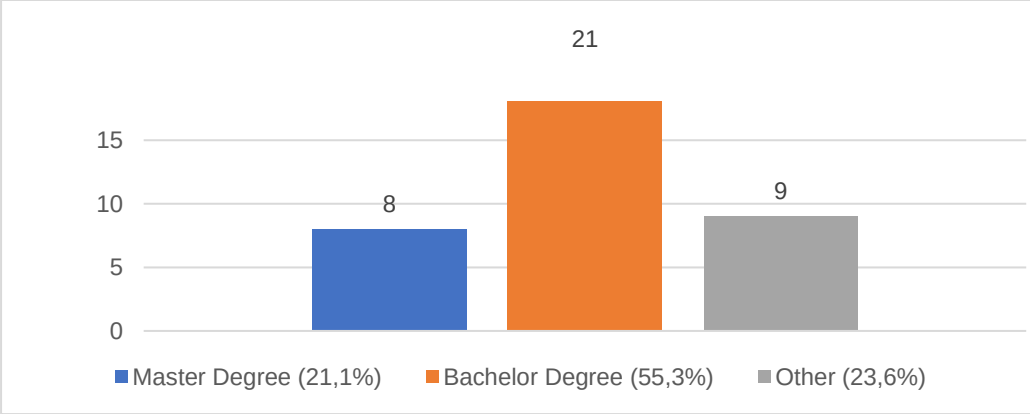
Figure 7. Gender distribution



Source: Author's elaboration

The academic habilitations where mostly bachelor's degree, 21 (55, 3%), 8 master's degrees (21, 1%), 9 other (23, 6%) such as professional courses or compulsory education.

Figure 8. Academic habilitations distribution



Source: Author's elaboration

5.3. Categorization and coding of the corpus of the interviews

In order to get the expected conclusions for the purpose, I defined four generic categories that I wanted to explore in order to answer all my research questions (Table 4). The generic categories are equal in both interviews, for nutritionists (Figure 9) and for general public (Figure 10), and what changes is the type of questions, for the first sample (Figure 9) the questions are more specific and tailor-made for professionals. In the second sample (Figure 10) are more generic and specific for the general society no matter the education degree or occupation. Yet, such as the generic categories, the subcategories behind the questions are the same.

Before the interview started there was a part related with *Sociodemographic Issues* in order to understand the background of the person I was interviewing. This was important in the first sample to make sure that all interviewed people have at least a bachelor's degree in Nutrition Sciences; and for the second sample to understand if the background (education degree, occupation, gender, among others) could or not influence this topic.

After knowing a little better the interviewee, the first category that I named *Diets with name* arose, which is linked with the Objective 1. Understand the concept of "healthy diet" (Table 4). This category was developed in order to conclude if the interviewees were aware of what is an healthy diet, whether they realized what are the most actual food tendencies, whether in the case of sample one it is healthy or not, and in sample two whether people were aware of them

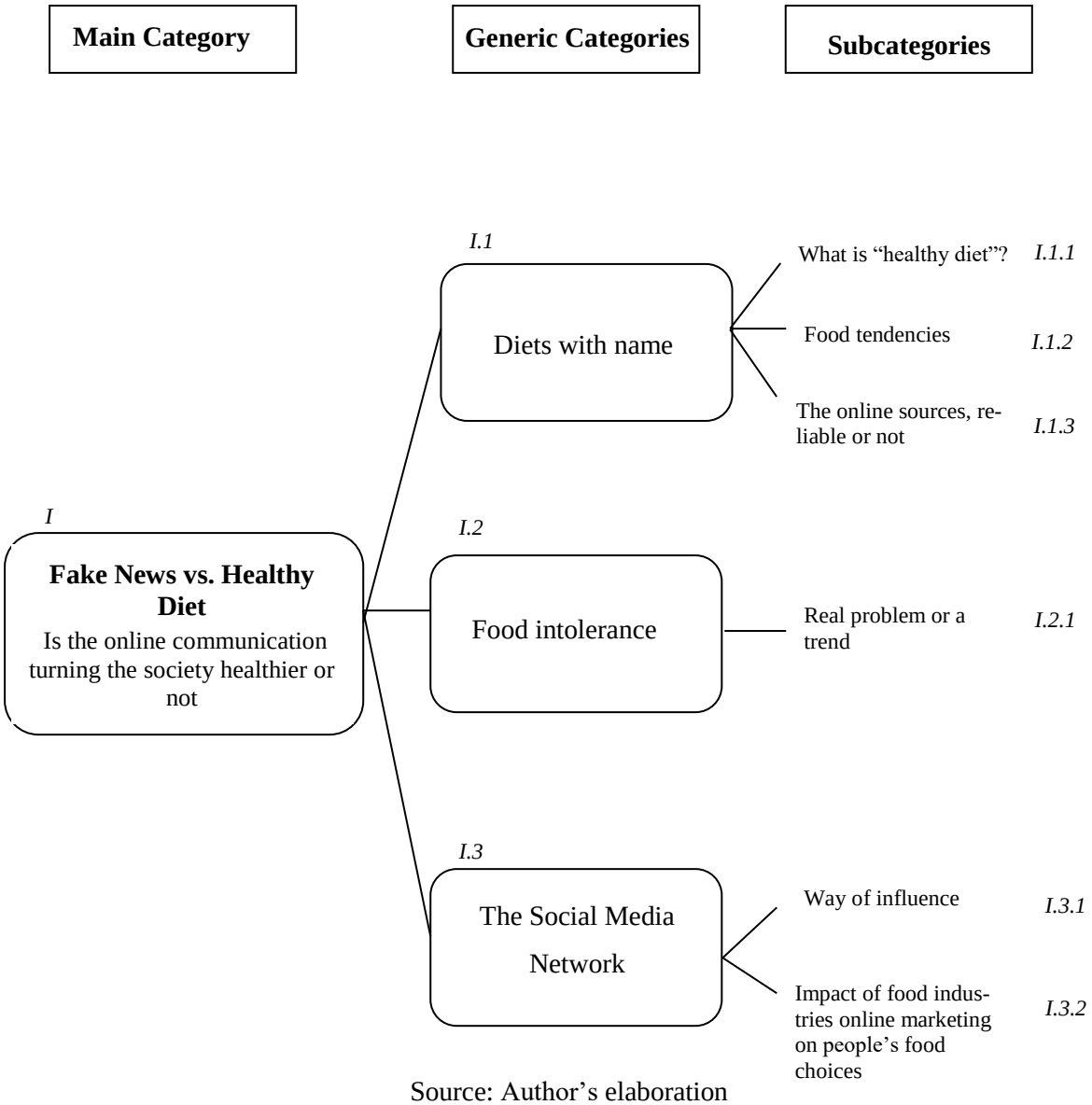
or not. And, for the first sample, if the food industry communication is effective to the point that people are believing in it without feeling the need to consult a nutritionist.

Still in this first generic category, I was aligned with Objective 4. I analyzed the concept of fake news (Table 4) in order to understand if sample 1 agreed with search for information on social media and similar sources, and from where sample 2 looked for such information.

Then follows the *Food intolerance* category, directly linked with the Objective 2. I analyzed the industry's influence in what we consider healthy diet (Table 4). In this one I want to understand whether the food industry has a real influence or not. I chose the food intolerances topic because it is a heatedly discussed one and a great example to understand this kind of influence. For the first sample I wanted to realize whether patients are doing exams to know their intolerances or not, and to understand if for a non-intolerant it is healthy to eat food without gluten or lactose. Then, for the second sample, the goal was to understand how many people consider themselves intolerant without the proper exams and if they consider healthier to eat food without lactose or gluten.

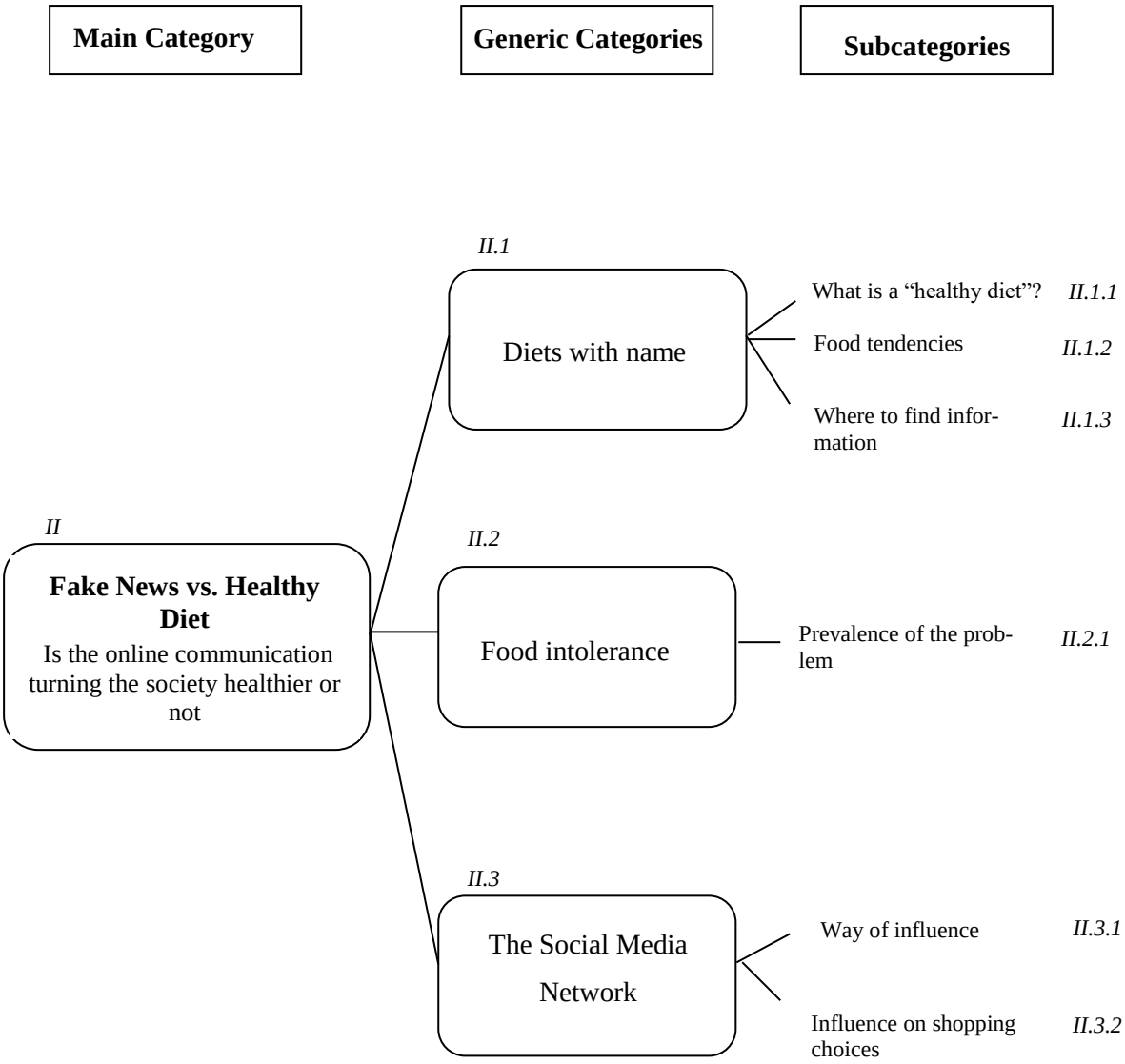
To finish, the last category was *The Social Media Network*, and this one is aligned with the Objective 3. To understand the influence process (Table 4). This category is developed to understand the real impact of online communication. In the first sample the goal is to realize whether this communication is fake news or not, and in the second to understand how fast this spreads and in which forms people find it.

Figure 9. Corpus of the first sample interview for qualitative analysis



Source: Author's elaboration

Figure 10. Corpus of the second sample interview for qualitative analysis



Source: Author's elaboration

Chapter VI – Results presentation and discussion

As previously discussed, there are a great amount of facts among the scientific theoretical research that I intended to confirm the veracity with nutrition professionals and the general public. For the purpose, I developed two different interview types for two different samples, with the same generic categories and in both having in mind the research questions. There was a need for two different interviews because the goal was not only to compare the previously information with professionals, but also confirm the impact on the society.

Therefore, for the first sample, nutrition specialists, I projected to determine whether the specific nutritional information obtained from the literature review was true or not, and which aspects are more relevant. With the second sample, general public, I wanted to realize whether it is true or not that the society is being influenced by this new form of communication from food industries, and whether people are aware of the reliability of the information.

With the purpose of doing a proper discussion of the results, it is necessary to take into account the previous research questions and the authors that answered it. In the general context both authors and interviewed persons have similar conclusions. Of course there are some different opinions in what concerns some specific topics, but the general idea among authors and the sample 1 is the same, and sample 2 turns out to prove it.

On Table 5 follows a summary of the conclusion taken from the interviews with sample 1. Briefly, 88.9% of the sample agrees that these new diets are not healthy mostly because of the nutrient restrictions, and the major problem as agreed by 94% of the sample is that people do not get proper information after trying it and the great amount of information they look for is on social media what is a big concern, which could bring undesired health problems. 100% consider this source of information not reliable. Yet, only 50% of the sample considers that people are being their own nutritionist.

In what concerns the second sample, in short and as expected, all the sample already has heard about one or more of these diets and 100% heard about it on social media. However, only 39.5% of the sample already tried one of these diets. Yet, almost half of this 39.5% tried it to lose weight and not for health reasons (Table 6).

Below follows a more exhaustive analysis of the results and consequent discussion considering its connection with the six research questions previously defined. Those conclusions will be compared between samples and between interviewees and authors, in order to get a final and solid conclusion.

Table 5. Main answers for Sample 1

Answer	Number of times	Interviewees	Generic Category	Sub Category
It is not healthy to adopt diets with group restrictions	16	2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16 , 17 , 18	I.1	I.1.1
People do not get the proper information after applying a new diet	17	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16 , 17 , 18	I.1	I.1.2
The great majority of people get information about diets on social media	17	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 , 17 , 18	I.1	I.1.3
Online information is not reliable	18	All	I.1	I.1.3
People are being their own nutritionists	9	1, 4, 5, 11, 12, 14, 15, 16, 17	I.1	I.1.3
Food intolerances are becoming a trend	13	1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 14, 16, 17	I.2	I.2.1
In 10 people only 0-2 really do the intolerance exam	12	1, 2, 4, 5, 7, 9, 10, 11, 14, 15, 16, 17	I.2	I.2.2
For a non-intolerant is not healthy to remove gluten and lactose from the daily diet	12	2, 4, 5, 7, 8, 9, 13, 14, 15, 16, 17, 18	I.2	I.2.3
Online communication have a real impact on the final consumer	18	All	I.3	I.3.1
The impact on the final consumer of online communication is negative	16	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	I.3	I.3.2
People who promote food products online have a minimal knowledge about what they are talking about	14	1, 2, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 16, 18	I.3	I.3.3

Source: Author's elaboration

Table 6. Main answers for Sample 2

Answer	Number of times	Interviewees	Generic Category	Sub Category
I already heard about Diets with a name	38	All	II.1	II.1.1
I heard about it on Social Media	38	All	II.1	II.1.1
I apply it to my regular diet	15	3, 8, 11, 15, 16, 17, 20, 22, 23, 27, 28, 31	II.1	II.1.1
I have a food intolerance	13	1, 3, 8, 9, 11, 16, 19, 22, 24,	II.2	II.2.1
I did the exam to know my food intolerance	0	None	II.2	II.2.1
Normally I eat products gluten and lactose free	16	1, 3, 8, 9, 11, 15, 16, 19, 20, 22, 24, 27, 30,	II.2	II.2.1
I consider the products without gluten and lactose healthier	15	3, 4, 5, 8, 10, 11, 13, 16, 19, 22, 24, 27, 30,	II.2	II.2.2
I already bought a product because of the Social Media	11	2, 4, 10, 11, 20, 23, 27, 30, 32, 37	II.3	II.3.1
The product I bought because of the social media was of the brand *Prozis*	9	2, 4, 11, 20, 23, 27, 30, 32	II.3	II.3.1

Source: Author's elaboration

6.1 What is "healthy diet"?

Starting from the concept of "healthy diet" that Cannon (1992) describes as a diet to promote good health in a long term, and Gibbons (2013) defends that should be the most diversify possible. During the interviews I explored this topic with focus on the new diets such as gluten/lactose free diets, paleo diet, and vegetarian, among others. All of this new diets have a lot of food restrictions and the great majority were designed to lose weight, which are aspects that the authors avoid when they are referring to "healthy diets".

So, for the subcategory I.1.1, in what concerns the interviewed nutritionists (sample 1), they have the same judgement as the authors. In 88.9% of the sample's opinion, those diets with group restrictions are not healthy, especially when done without the proper guidance, since in the long term those restrictions can develop food intolerances and other more serious health issues. On Table 7 it is possible to check properly the sample 1 opinions about it.

For the same subcategory, sample 2 (general public) does not consider those diets unhealthy, on the other hand some of them had already tried them because they think is healthier or to lose weight (Table 8).

In conclusion, although for specialists such as sample 1 and the authors, a healthy diet should be balanced and designed in order to avoid health issues. So, a diet with group restriction for an individual without special needs is not the healthier choice. For the society, sample 2, diets with food restrictions are seen as healthy and the concept of "healthy diet" is commonly associate with losing weight instead of preventing diseases. While for specialists a healthy diet is something in the long run, for the society in general should be something more immediate.

Table 7. Sample 1 content analysis – Diets with group restrictions on daily basis

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
1	Can be beneficial, depended on the condition	I.1	I.1.1
2	Too restrictive for a balanced diet	I.1	I.1.1
3	It is not healthy to restrict something in our diet, but yes do the right choices according the individual needs	I.1	I.1.1
4	It can provoke food shortages	I.1	I.1.1
5	Does not have the macronutrients and micronutrients that we need on our daily diet	I.1	I.1.1
6	They are not healthy	I.1	I.1.1
7	In the short term can have beneficial effects	I.1	I.1.1
8	Our diet should be balanced and also diversified. The different food groups offer us different nutrients, all equal important for our health. By doing a restriction, we are contributing to a certain nutrient deficit	I.1	I.1.1
9	All food groups are equally important in our diet	I.1	I.1.1
10	All diets and restrictions should be individually adapted	I.1	I.1.1
11	The core of a good diet is the nutritional education in order to achieve a healthy lifestyle. By restricting food groups, we are taking off some macronutrients and micronutrients that are essential to not only a good physiological functioning, but also social functioning	I.1	I.1.1
12	They are very limitative nutritionally	I.1	I.1.1
13	Good if well guided by nutritionists	I.1	I.1.1
14	Depends on the individual	I.1	I.1.1
15	Most of the times we lost the nutritional diversity by restrict food groups, what provoke food shortages	I.1	I.1.1

16	It cannot fit the individual. The great majority is very restrictive and should be only used in very specific situations	I.1	I.1.1
17	All food groups are important, and we should not restrict it, unless if we have some real food intolerance	I.1	I.1.1
18	A healthy diet should be complete, diversified and balanced. In other words, we should eat a little bit of everything in the right proportion and with diversification. Only by doing this we can achieve all the necessary nutrients for a healthier life.	I.1	I.1.1

Source: Author's elaboration

Table 8. Sample 2 content analysis – Diets with group restrictions, the reason of trying

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
3	I try to be guided by a paleo base diet, preferring fresh products and choosing less for packaged products	II.1	II.1.1
8, 11 ,17, 23, 27, 35	I tried it in order to lose weight	II.1	II.1.1
15	I heard about the benefits of a paleo diet	II.1	II.1.1
16	To be healthier	II.1	II.1.1
20	I did some research and I think that is benefic in order to achieve my goals	II.1	II.1.1
22, 28	I am vegan because of the planet and the animals	II.1	II.1.1
31	I tried low carb and low fat at different times in my life to check if it worked out in terms of energy and fat burning by speeding up metabolism	II.1	II.1.1
32	I consider the paleo diet healthier	II.1	II.1.1
34	I adapted what I found most appropriate in order to have a healthy and balanced diet, in order to have a better quality of life and health	II.1	II.1.1

Source: Author's elaboration

6.2 Is the industry influence a current problem?

Regarding the subcategory I.2.1, in the nutritionists' (sample 1) opinion, this online communication developed by the industries has a true influence on the final consumer and is not positive, so it is a real current problem. The reason of it is because in their professional view people do not get the appropriate information about the diet before they try it, and this is the same thing that Wiss (2016) states, if we were talking about a medicine, people ask more about it to the specialists, regarding food people try it without second thoughts.

Also, some of the interviewed nutritionists (sample 1) consider that with all information available people are becoming their own nutritionists, and this is a negative thing. Although as Kearns (2016) clarifies that this food industry influence is not a current problem, the social media are increasing a lot the impact of it, now is very easy to spread those communications on social media and it appears very trustworthy (González-Vaqué, 2018). The problem is, as almost all the sample 1 agrees, the people with some online influence that promotes those diets on their social media know the minimum about what they are talking about, and this is a very dangerous thing, according the professionals interviewed (sample 1).

In fact great part of sample 1 (72%) agrees with the authors, that the news boom of people with food intolerances is a trend and not a real health problem (Table 9). According to them people nowadays do auto diagnostics instead of consulting a specialist. Therefore, people are cutting substances because of symptoms and not based on real diagnostics. The fact is that, as 66.7% of the sample reach agreement, only between 0-2 people did the medical exam to know their food intolerances. The same percentage declares that for a non-intolerant is not healthy to remove those substances from their diets, by removing it without the need, on the long term it can develop real health issues such as intolerances (Table 10).

The results from the interviews with sample 2 came to prove both sample 1 and authors perspectives. 100% of sample 2 declares to have food intolerances but did not do medical exam in other do get the diagnostic. All of them are buying products without gluten or lactose because of symptoms. A fewer percentage buy those products because consider it healthier, even without the intolerance (Table 11).

In conclusion, both authors and sample 1 agrees that the industry influence is a real problem and it is having a certain impact on the society. After doing the sample 2 interviews, I came to the conclusion that the society is being influenced by online news. A real example is the increasing number of products without gluten or lactose on the supermarket shelves versus the number of people that consider themselves intolerant without doing the proper exam.

Table 9. Sample 1 content analysis – Food intolerance, real problem or trend

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
1	It is a trend because even though they are not intolerant or allergic, they eventually stop eating these foods, sometimes opting to consume foods with low nutritional value (gluten-free products: such as gluten-free cookies with a high sugar / fat content, instead of consuming for example cookies such as "marinheiras")	I.2	I.2.1
2, 4, 6, 7, 9, 13	It is for sure a trend	I.2	I.2.1
3	It is increasingly a matter of marketing, which can lead people to join these products for lack of knowledge	I.2	I.2.1
5	It is undoubtedly a trend, as there are few cases of intolerant people and even fewer cases of allergic people	I.2	I.2.1
8	Nowadays with so much publicity and full supermarket shelves people are eventually influenced by trends	I.2	I.2.1
10	I do not consider it a trend	I.2	I.2.1
11	Food intolerances are in no way a trend. However, looking for “different” foods such as gluten-free can be considered trend.	I.2	I.2.1
12	It has awakened people to their symptomatology which is sometimes not directly related but helps to	I.2	I.2.1

	overcome some of the problems they feel. I don't consider it a trend.		
14	It may indeed be a trend due to the disclosure of bad information. The harmful effect is a reality	I.2	I.2.1
15	In fact there are people with food intolerances who should consume these products. Another fact is that there are a lot of people who consume these products without having food intolerances but by trend	I.2	I.2.1
16	It can be considered a trend since a large part of the population has chosen to eliminate the consumption of products that contain these components in their composition, most often without having a medical reason	I.2	I.2.1
17	More than trend, lobbying.	I.2	I.2.1
18	Nutritional development has also allowed a nutritional variety, especially for those with restrictions, as mentioned above. The problem was that the transmitted message is that everyone have some intolerance, And yes, it turns out to be a trend.	I.2	I.2.1

Source: Author's elaboration

Table 10. Sample 1 content analysis – Food intolerances, the consumption without the problem

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
1	If you are followed by a nutritionist, we respect your dietary choices, so we guide you to a healthy choice, indicating products that are nutritionally similar. If unfollowed, it may have consequences	I.2	I.2.3
2	Unnecessary nutritionally restriction	I.2	I.2.3
3	If by choice, need to follow a good food plan	I.2	I.2.3
4	Over time if you want to reverse the situation and consume these products again, your body will reject	I.2	I.2.3

5	If not followed by a professional, you may ingest products that replace these nutrients with others, such as simple sugars and saturated fats, which are directly linked to the onset of cardiovascular disease and weight gain among other complications.	I.2	I.2.3
6	Does not make sense	I.2	I.2.3
7	Puts the body into bankruptcy. They will be deprived of vitamins and minerals important to metabolism	I.2	I.2.3
8	The body gets used to not having to digest those nutrients. When ingested again, understands them as aggressors	I.2	I.2.3
9	It can improve food intolerances	I.2	I.2.3
10	Gluten or lactose free diets in individuals without any problem with these nutrients can mean very significant dietary restrictions which in turn can lead to other health issues	I.2	I.2.3
11	By making a diet essentially gluten and / or lactose free, the ability to digest these components is lost, which is not necessarily a serious consequence, but has a significant impact	I.2	I.2.3
12	Not a problem if you are properly educated for substitutes	I.2	I.2.3
13	Not knowing how to properly choose food products and eating a restrictive diet that can lead to nutritional deficiencies	I.2	I.2.3
14	Why exclude products that can be healthy and nutritious	I.2	I.2.3
15	You may develop nutritional deficits if you make severe dietary restrictions. By eliminating lactose from your diet once and for all you can lose the lactase enzyme because it is not stimulated. And so it truly becomes lactose intolerant	I.2	I.2.3

16	If people have a balanced and varied diet the consequences in principle will not be serious. However, dairy products are an excellent source of protein and calcium and if you do not eat other foods rich in these components you may have a deficiency. On the other hand, gluten free foods usually contain a higher fat and sugar content and most consumers are unaware of this information.	I.2	I.2.3
17	Then you may have some difficulty tolerating food with these elements. Apart from that you are depriving yourself of important foods for a balanced diet for no good reason.	I.2	I.2.3
18	Can lead to diabetes type 2, cardiovascular problems, osteoporosis and osteopenia	I.2	I.2.3

Source: Author's elaboration

Table 11. Sample 2 content analysis – Food intolerance, shopping choices

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
6, 7, 12, 14, 15, 17, 18, 20, 21, 23, 25, 26, 27, 32, 34, 35, 36	I do not consume because I am not intolerant	II.2	II.2.2
1, 3, 8, 9, 11, 16, 19, 22, 24, 27, 30, 33, 38	I consume because I am intolerant	II.2	II.2.2
37	I opt for fresh and "basic" products, I do not usually consume gluten-free products, however without extremism and without resorting to specifically "gluten-free" products.	II.2	II.2.2
4, 5, 10, 13, 31	I am not intolerant, but I think those products healthier	II.2	II.2.2
2, 29	I do not consume lactose because of the animals	II.2	II.2.2

Source: Author's elaboration

6.3 Which are the most actual food tendencies?

As previously mentioned, the latest food tendencies involve group restrictions, and an example of it is the increasing avoidance of gluten and lactose. Other example is the new diets that all involve to cut one or more groups. So, regarding the subcategory I.1.2, the goal was to realize which are those food tendencies and if people are trying it with or without proper guidance.

In what concerns the sample 1, more than half of the nutritionists interviewed declare that only between 0 to 2 people do the proper exam to know their food intolerance, however the fact is that of all people of the sample 2 who declare to have an intolerance, none have done the medical exam. And this is a reality previously present by Ander and Kunn (2017) and Yantcheva et al. (2015) , that in the specific case of lactose people cut off lactose because they have symptoms, but they do not know in reality whether it is an intolerance or not. The same thing happens with gluten (Gaesser et al., 2012).

To confirm it, from the sample 2 interviewed, 34% for the sample claims to have a food intolerance but no one really did the medical exam, almost all claim it because of symptoms and start cutting gluten and/or lactose without the medical exam. Still in this category, 39.5% consider the products without gluten or lactose healthier than the others, 67% of this 39.5% consider it because they consider themselves intolerants, and the other 33% is not intolerant but consider it healthier.

As a conclusion, most actual food tendencies involve cutting a certain group of nutrients, the most popular are the gluten free and lactose free products, because people read about the topic and with one or two symptoms do the auto diagnostic and start cutting it. But all the other diets previously explained involve some food restrictions too, even if it is not the goal, what Gibbons (2013) explains giving the example of the Paleo Diet, or Dixon (2005) with the example of the Detox Diets. In both cases, both authors and nutritionists agree that by adopting a diet with food restrictions without the proper guidance, on a long term could bring health issues (Table 12). As predicted sample 2 came to prove that people are trying those food restrictions without the proper guidance.

Table 12. Content Analysis – Diets with a name, opinion of health professionals

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
1	It can have advantages and disadvantages depending on how people implement it	I.1	I.1.4
2	There are very few literacy and tests to know whether these diets are healthier or not and how to implement it	I.1	I.1.4
3	It can be a good choice depending on the goal and with the right guidance	I.1	I.1.4
4	I consider it a growing misinformation that needs to be stopped in some way, this not only denigrate the profession, but it eventually brings health problems to those who rely on unscientific sources and adopt a diet without a professional opinion	I.1	I.1.4
5	There should be a greater awareness among the media and food businesses about these issues	I.1	I.1.4
6	These diets are not reliable	I.1	I.1.4
7	The information available is very dangerous and not reliable	I.1	I.1.4
8, 9, 10, 12, 13, 14, 17	Very dangerous with serious impact for the health	I.1	I.1.4
11	The ease access to information is positive, but searching in the wrong places (such as blogs of influencers that have nothing to do with nutrition) generates a lot of misinformation	I.1	I.1.4
15	Today there are a lot of food "trends" that are created without any evidence and people are joining it. It is necessary to have attention and consult a health professional to avoid health risks	I.1	I.1.4
16	In my opinion the information provided should have some kind of control. It often leads individuals to	I.1	I.1.4

	make choices that are not appropriate or suited to their case		
18	People are becoming more aware and open to positive change. At the same time, it brought a lot of misinformation, and false information	I.1	I.1.4

Source: Author's elaboration

6.4 Which are the methods used to influence?

Previously, in order to influence people to follow a certain diet or to eat a certain product, food companies need to develop a lot of studies with the purpose of prove the reliability of their products (Nestle, 2003).Now, with the development of technology and the increasing boom of social media, companies just need to pay to the certain people to promote their products (Nestle, 2018). A proof that this kind of promotion is working is the fact that the entire sample 2 had already read about this new diets on social media.

So, regarding the subcategory I.3.1, in what respect the interviews with the general public (sample 2), less than half of the sample had already tried one of these new diets. However, great part tried it in order to lose weight and not to become healthier as main concern. In the other hand, all of them already heard about, at least, one of these diets, and the same amount heard about it on social media. So, besides what were formerly discussed, the percentage of people trying it is not so high, however people with all ages and backgrounds already know about it and the main source is the social media.

6.5 What is a fake news, how to identify it, and how it spreads?

Knowing that a false news is a fabricated news, and as Tutan & Solomon (2013) elucidate, through social media is very easy and cheap for companies to manipulate information in order to sell their products or services more and it can be applied to all areas and contexts (Lazer et al., 2018). The major concern is that fake news look very reliable, such as Silverman and Singer-Vine (2016) concluded after their research for Buzz Feed News, "75% of American adults who were familiar with a fake news headline viewed the story as accurate".

Therefore, although people consider this online information reliable, such as the author Gonzalez Vaqué (2018), the entire sample 1 agreed that online sources are not. In general they explained that it is not reliable and has a negative impact since the one who spread the news does not have a nutrition background, the diets have a lot of restrictions that can cause health issues on the long term, and sometimes people will buy products that are expensive and do not carry any advantage for their health.

For the generic category I.1.3, 100% of the sample agrees that online communication has a true impact on people food choices and 88.9% considers this impact negative because is business motivated and is promoting diets and products that could be not proper for everyone (Table 13). Plus the fact that this promotion is presented mostly by people with no background in nutrition or health (Table 13), so 77.8% agrees that the people who did those online promotions have a minimum knowledge about what they are talking about.

Table 13. Content Analysis – The Social Media Network, professional's opinion

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
1	Often the food products are not the most appropriate. And I do not agree with the promotion on social media.	I.3	I.3.2
2	Business motivation may not be based on scientific evidence, do not agree with this promotion	I.3	I.3.2
3	It can be negative because people are different, although it is a good marketing strategy	I.3	I.3.2
4	They are not health professionals and are advising on health, it should have more control and regulation from the competent entities	I.3	I.3.2
5	Influencers have not the slightest background in the area, you can recommend products that are not best suited to the viewing audience. This is very profitable for businesses but inexpensive for nutritional	I.3	I.3.2

	professionals who are trying to promote a truly balanced diet		
6	Because sometimes influence and the choice is not healthy, although this promotion could be advantageous	I.3	I.3.2
7	Because not all products are tailored to all people. There are no eating plans for life. An eating plan must be individualized, rigorous and tailored to the person. I consider this promotion pure marketing	I.3	I.3.2
8	Negative because they are leading people to make food restrictions without having to, it is as excessive promotion	I.3	I.3.2
9	Each person is a case, so there is no generalized disease, the diet need to be tailor-made, it is ridiculous the kind of promotion	I.3	I.3.2
10	Many influencers have no training in nutrition science or dietetics, and sometimes recommend products or "food tips" in the wrong way. Yet, this promotion could be well developed if the brands bet on influencers with nutrition background, if not it is a mistake.	I.3	I.3.2
11	Most of the time it is advertising without any scientific basis that proves what the product claims to do. This could be a good campaign if well developed	I.3	I.3.2
12	Creates a false sense of security and limited product information, what is dangerous and limitative	I.3	I.3.2
13	Most influencers do not promote nutrition properly, so I do not agree with this kind of marketing	I.3	I.3.2
14	They often encourage the consumption of products or the adoption of habits that are not the most appropriate and can have negative consequences. There must be a lot of care in this area	I.3	I.3.2

15	Many times people end up buying certain products they don't need. These campaigns have a great impact on the society what can be prejudicial to the health	I.3	I.3.2
16	The consumer ends up making a choice based on what the influencer is sharing without being critical. If these campaigns were not paid in any way it could be a different and reliable story	I.3	I.3.2
17	I would say it can go both ways. It depends on who influences and with what knowledge it does. But if I had to choose between the two, I would say the impact is more negative than positive. But I also believe that this trend can be reversed. These campaigns need more legislation and control	I.3	I.3.2
18	Positive if it is someone with knowledge (health professional) and also by promoting healthy eating. But in the other hand it can have negative consequences when people assume they can eat the same products. These campaigns are a way of reaching a large number of people, can have negative consequences because it is not individualized. And many people do not know what is and is not right for them and their goals.	I.3	I.3.2

Source: Author’s elaboration

6.6 Do they have real impact?

This false news about food and diets are having a real impact, the key cause of it, such Kelly (2015) and Liu & Lopez (2014) supports, is the social media. As previously mentioned, both samples refer to social media as the primary source of information relative to this topic. Reau (2013) concluded during his research, 46% of people check food news and new trend diets only online and more than 30% claims that check both online and offline.

Yet, all sample 1 do not consider this source a reliable one, since it is spread by people with no background in nutrition or health, and these people are promoting trends that are not healthy. An example is the food intolerances, nowadays everyone has a food intolerance, and, as previously explained, no one of the sample 2 has done the medical exam. So nutritionists (sample 1) consider it as a trend, people are being manipulated in order to think that gluten or lactose is bad for health, is unnecessary and to cut it if they have symptoms, but by doing it they are treating the symptom and not the cause, what could bring bad consequences.

The generic category I.3.2 has the most unexpected results, where only 28.9% of the sample claims that already had bought something because of the social media, although something new appeared that was that almost all declared that the food product bought is from the brand *Prozis*[6]. This specific brand is one of the most popular ones on social media, almost all online influencers, including football clubs social media accounts, have some kind of reference to this brand.

To conclude 61% of the sample 1 does not consider all of this online movement to promote new healthy diets and products a way to turn the society healthier (Table 14). Because, even though they are doing a promotion for a healthier life, the information given is mostly wrong and misinformed, the monitoring process is low or none, and the recommendations are made, mostly, by people with no nutrition background.

[6] Prozis is a Portuguese online company in the field of sports supplementation. One of the largest sports nutrition stores in Europe.

Table 14. Content Analysis – Impact on the society

Content Analysis - Interviews			
Interviewees	**Answer**	**Generic Category**	**Sub Category**
1	This is not turning the society healthier because they do not understand what a healthy diet is	I.3	I.3.3
2	I have doubt if this is turning the society healthier	I.3	I.3.3
3	It can promote another way of see the diet	I.3	I.3.3
4	It can have a positive effect, yet with all misinformation people believe in what is wrong and right	I.3	I.3.3
5	In my way of view this increase the consciousness of people about healthy diet	I.3	I.3.3
6	Sometime not	I.3	I.3.3
7	Does not have a positive effect, has a negative	I.3	I.3.3
8	Make people more aware and concerned, but not healthier	I.3	I.3.3
9	Does not have impact	I.3	I.3.3
10	I think it has contributed to raising society's awareness of the need to adopt healthier lifestyle habits. I don't think it necessarily contributed to a healthier society. Because the population often adopts wrong behavior due to information shared on social networks	I.3	I.3.3
11	Whether society is in fact healthier or not only long-term studies can prove it. However, it is already possible to notice a greater concern with food	I.3	I.3.3
12	It has increased the attention of the population to the importance of food. But from here there ~~are~~ is good information but mostly bad information	I.3	I.3.3
13	Perhaps because it encourages the preparation of meals and colored dishes with fruit, vegetables, seeds and nuts	I.3	I.3.3

14	There is more awareness of healthy eating, but there is also a growing prevalence of poor food relations and eating disorders	I.3	I.3.3
15	This is not turning the society healthier	I.3	I.3.3
16	Most of times has the opposite effect	I.3	I.3.3
17	Perhaps it has made society healthier in the sense that there is awareness and change in behavior. But I do not know if the awareness means a change in the way of life	I.3	I.3.3
18	It contributes for an increase sensibility and motivation	I.3	I.3.3

Source: Author's elaboration

Chapter VII – Conclusion

7.1 Final considerations

Given what is described throughout this thesis it is clear that the food promotion made by people with influence on social media can be described as fake news. As Lazer *et al.* (2018) described among their studies, a fake news is a news that can mislead readers which main motivation generate a specific result, in this case revenue. Having the author's ideas in mind and given the fact that the great majority of sample 1 agreed that almost anyone who advertises these new diets and products does not know the minimum about the topic. The society are being influenced by the brand and not by the "online influencers".

Even though the society is being influenced by the brands, this increasing awareness for a "healthy diet" could be something positive for the society, however the conclusions are that it is not. All of the new diets currently promoted have the particularity to include several restrictions, and not only authors such as Yantcheva *et al*. (2015) or Gaesser *et al*. (2012), but also the interviewed nutritionists (sample 1) defended that to apply restrictions without a real food intolerance could bring health issues in the long term.

One of the trendiest diets is the one without gluten or lactose, and the fact is that if we look around there are a significant number of people who claim being intolerant to one of these things. During my research with the general public (sample 2) I could conclude what some authors claim too, that almost no one do the proper medical exam in order to know whether it is in fact intolerant. What people are doing is an auto diagnose based on symptoms, and as any other food restriction, it could bring health issues.

Another important consideration is the fact that the concept of "healthy diet" is being passed as something to lose weight and not to avoid health issues. And this is not a positive consequence for the society in the long term. There are a few people that tried one of these new diets in order to be truly healthy, yet the great majority tried it in order to lose weight.

In conclusion, given the fact that the number of people promoting diets and food online is increasing, and the impact of it on society is negative and will bring health issues in the long term. It is agreed that there should be some kind of regulation to this type of promotion. People who

do not have a background on nutrition should not be able to promote diets or food products, because they cannot answer questions properly or explain the consequences of it. Plus, the fact that a diet is something very personal, so no one can promote a specific diet as the right one to everyone.

7.2 Contributions for the state of the art

Given the lack of studies done in this field, this dissertation is a great contribution for the state of the art. Until now, only one author had already developed some work about it, the author is Marion Nestle, who wrote several books talking about the connection between the food industry, what the society are eating and how the society are being influenced.

Besides Marion Nestle, all the other authors referred throughout this thesis only developed studies about single topics and not about the entire scenario. Therefore, this dissertation is a good contribution for the state of the art because it connects two very important and current topics, the fake news with the healthy diets.

Accordingly, this is a significant contribution given the fact that people are aware of the existence of fake news but are not aware of how it can influence their lives. So, it is important to have some research that shows how fake news fabricated by the industries can, in the long term, have impact in the society lives, in this specific case, in the general health.

7.3 Contributions for business management

In what concerns the business management, there are two contributions that this dissertation could have. One is for the food industries that could allocate their money on online influencers with a real background in nutrition instead of on anyone who has followers. By doing this, their promotions become much more reliable and the people who promote it can effectively answer to people’s doubts.

The other contribution is related with regulation, now on social medias such as Instagram, there are already a warning indicates if some publication is paid advertising or not. Yet, not anyone who do these advertisements use it. There are several videos or photos on social media of online influencers talking about how good a certain product or diet is, and do not refer whether it is

paid advertisement or not. This because most of the times the brand instead of paying for the advertisement, offers products and so it is not “paid advertisement”. In this way, there should be developed some kind of regulation to avoid that people who do not know about nutrition or health promote products and diets that can have an impact on someone’s health.

7.4 Suggestions for further investigations

Although there is a great awareness for the impact of social media on the behavior and after the 2016 US elections, there are more concerns with fake news, however the existing research material makes no direct connections between fake news and its serious impact on what the society eats. Having this in mind and knowing now the impact that false news about diets could have on the health, it is necessary to develop more studies about this pertinent subject.

The research conducted during this thesis dissertation was made in a short scale, yet it is plausible to understand the problem and how it affects society. If in Portugal it has this impact, it is important to develop the same research in a bigger scale and in countries with a wider influence of the “online”, for example the United States of America or China.

For further investigations it is not only important to develop it in a bigger scale, but with more factors too. In a deeper research the investigators should have in consideration not only the general public and the specialists in nutrition, but the digital marketers too. The specialist in this new field called digital marketing is the one responsible for this false news, and because of it, it is important to understand how they do it and what they really know about it. Could be interesting to develop some interviews with online influencers in order to realize the same thing, what they know about the subject and how they answer to potential questions from the followers. For both interviews is important to also understand if they know the impact of these promotions on the general health.

A more comprehensive investigation developed in a bigger scale should be not only done but published. Because, as I mentioned, there is little information about the topic and the society is not aware in the long term of the impact of trying new diets without consulting the nutritionist. Should be published too in order to make some noise about it so as to develop some regulation for these online promotions, mainly in subjects that can affect health. Promotion or content in

social media should be restricted to people with qualified and professional background on the subject.

7.5 Academic experience

During the research process for this thesis dissertation, there were several things that I learnt, which are important not only for this research but also for the future. The most crucial one was related to sponsors. Before this research exercise I never considered who sponsored or funded a specific scientific research, because I trusted the data and results, I was getting or coming across believing that they were reliable. Yet, now I understood that the results can be seen from a different perspective when we take the sponsorship on board. For example, if *Nestlé* sponsor a specific scientific research, one should expect that the published findings will never be "sugar causes health issues". And this approach is applicable in any field, not only in the food industry.

A very alarming factor that I took from this research was the power of social media. Social media has such an impact in our everyday choices that I had no idea prior to this thesis dissertation. While on television companies needed to spend a lot of money on a commercial ad and pay much more to broadcast it during premium time, with social media companies only need to pay some online influencers to show and talk several times a day/week/month about their products and the commercial impact is bigger. In this fashion we do not realize that we are being softly influenced to try some sort of product without noticing the indirect promotional aspect, while with commercials we realize it right away, because it is direct promotion, and most of the time we opt to change the channel.

7.6 Limitations

For the purpose of this thesis dissertation and during the research developed, I faced some limitations. I ask you to bear in mind that the findings presented in this thesis are the result of a specific small sample size survey (respondents) and the fact that they reproduce results from a given context and country (Portugal). Yet the outcomes were acceptable and the conclusions were expected after the literature research. Both respondent groups and authors support the fact that we are being negatively influenced by false news about diet patterns.

As this study has reinforced some of the existing theories, in terms of external validity there is the possibility to generalize the results obtained to other contexts or samples. Once more let me remind that this was just an exploratory study, which results cannot be generalized per se to or representative of a global audience. On the other hand, although secondary sources have been used and other analyzes have been elaborated to complete the results, this factor cannot justify that the results presented here can be seen as necessarily generalizable in terms of impact of false news on society. In order to be generalized it must have bigger samples, with diversified contexts and countries.

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Appendix 1.

1. Nutritionists Interview

I. Sociodemographic Issues

1. Name
2. Age
3. Gender
4. Academic Qualifications
    4.1 What is your field of studies?
5. Do you work in your field of studies?
    5.1. If so, for how long?
    5.2. If not, in what area do you work?

II. Diets with name

Contextualization: Over the last few years, and with the increasing adherence to social networks that has been verified. It has been increasingly the access to "information" and feedback regarding news diets. Some of these examples are the Ketogenic diet, Paleo and Atkins which, in addition to cosmetic benefits, also claim to have health advantages.

1. Do you consider that is healthy to adopt these diets with food group restrictions on a daily basis?
    1.1. Why?
2. According to your professional experience, do you consider that people are properly informed before adopting any of these diets?
    2.1 Where do you think people look for the information?
        2.1.1 Do you consider most of these sources reliable?
3. Do you think that with the amount of information available, people could consider themselves as their "own nutritionists"?
4. As health professional, what is your opinion about this online movement?

III. Food Intolerance

Contextualization: In order to meet an exponential demand by the population, we daily witness the launch of numerous food products in order to satisfying certain needs related to food intolerances, such as lactose-free and gluten-free products.

1. From your experience and knowledge, can this be considered a trend?
2. Are there exams that determine if you are in fact intolerant of these constituents? If so, which ones?
3. In your professional experience, in every 10 people who claim to be gluten intolerant and / or lactose how many did they take the test?
4. To a person without any intolerance, is it healthy to follow a gluten and / or lactose-free diet? Why?

IV. The Social Networks

Contextualization: With the increasing popularity of social networks, more and more brands are making use of them to promote their products. In addition to their own social pages, one of the most commonly used communication and / or promotional strategy is to pay celebrities, influencers and / or digital influencers to make publications and talk about the benefits of the product in their social pages.

1. Do you think this marketing strategy has a real impact on the final consumer's eating habits?
    1.1. If so, do you think this impact is positive or negative?
        1.1.1. Why?
2. What is your opinion on this type of food promotion?
    2.1. Do you consider that these people that promote food products through their social networks know what they are promoting?
3. In general, do you consider that all this ease of access to information and its sharing actually made the society healthier?

Appendix 2.

2. General Interview

I. Sociodemographic Issues

1. Name
2. Age
3. Gender
4. Academic Qualifications
    4.1 What is your field of studies?

II. Diets with name

Contextualization: Over the last few years, and with the increasing adherence to social networks that has been verified. It has been increasingly the access to "information" and feedback regarding new diets. Some of these examples are the Ketogenic diet, Paleo and Atkins which, in addition to cosmetic benefits, also claim to have health advantages.

1. Have you ever heard about these diets?
    1.1. If yes, which ones?
    1.2. Where have you heard about?
    1.3. Have you tried any of it?
        1.3.1. Why?

III. Food Intolerance

Contextualization: In order to meet an exponential demand by the population, we daily witness the launch of numerous new food products in order to satisfy certain needs related to food intolerances, such as lactose-free and gluten-free products.

1. Do you have any food intolerance?
    1.1. If yes, which one?
    1.2. How have you discovered it?
2. Normally do you buy gluten free and lactose free products?
    2.1. Why?

3. In case of no intolerance, do you consider it healthy to eat lactose free and gluten free products?

3.1. Why?

IV. The Social Networks

Contextualization: With the increasing popularity of social networks, more and more brands are making use of them to promote their products. In addition to their own social pages, one of the most commonly used communication and / or promotional. Strategy is to pay celebrities, influencers and / or digital influencers to make publications and talk about the benefits of the product in their social pages.

1. Have you ever bought any food product that you saw being promoted on social media?

1.1. If yes, which product?